

பாடத்திட்ட அமைப்பு
ஸ்ரீ ஜி.வி.ஜி. விசாலாட்சி மகளிர் கல்லூரி (தன்னாட்சி)
பாரதியார் பல்கலைக் கழகத்திற்கு உட்பட்டது
தமிழ்த்துறை (சுயநிதிப்பிரிவு)
இளங்கலை தமிழ் இலக்கியம்
பருவமுறைத் தேர்வும் மதிப்பெண் பகிர்வும்
2017-2018-ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது

பாடக் குறியீட்டு எண்	பாடத் தலைப்புகள்	கற்பிக்கும் காலம் ஒரு வாரத்திற்கு	தேர்வு				தரப் புள்ளிகள்
			காலம்	அகமதிப்பீட்டுத் தேர்வு	புற மதிப்பீட்டு தேர்வு	மொத்த மதிப்பெண்	
	பருவம் - I						
117TA1	பகுதி I – தமிழ்த்தாள் - I	6	3	25	75	100	4
117EN1	பகுதி II – ஆங்கிலம் – I	6	3	25	75	100	4
117Q01	பகுதி III – முதன்மைப்பாடம் – I கவிதை இலக்கியம்	5	3	25	50	75	3
117Q02	முதன்மைப்பாடம்-II நாட்டுப்புறவியல்	5	3	25	50	75	3
117AQ1	துணைப்பாடம் I – தமிழக வரலாறும் பண்பாடும் - I	6	3	25	75	100	4
117EVS	பகுதி IV – Environmental Studies	2	2	50	--	50	2
	பருவம் - II						
217TA2	பகுதி I – தமிழ்த்தாள் – II	6	3	25	75	100	4
217EN2	பகுதி II – ஆங்கிலம் – II	6	3	25	75	100	4
217Q03	பகுதி III – முதன்மைப்பாடம் – III உரைநடை இலக்கியம்	5	3	25	75	100	4
217Q04	முதன்மைப்பாடம் IV இலக்கணம் I நன்னூல் - எழுத்து	5	3	25	75	100	4
217AQ2	துணைப்பாடம் II – தமிழக வரலாறும் பண்பாடும் - II	6	3	25	75	100	4
217VEC	பகுதி IV – Value Education	2	2	50	--	50	2
	பருவம் - III						
317TA3	பகுதி I – தமிழ்த்தாள் – III	6	3	25	75	100	4
317EN3	பகுதி II – ஆங்கிலம் – III	6	3	25	75	100	4
317Q05	பகுதி III – முதன்மைப்பாடம் – V பக்தி இலக்கியமும், சிற்றிலக்கியமும்	3	3	25	75	100	4
317Q06	முதன்மைப்பாடம் VI இலக்கணம் II நன்னூல் -சொல்	4	3	25	75	100	4
317AQ3	துணைப்பாடம் III – தமிழ் இலக்கிய வரலாறு – I	6	3	25	75	100	4
317NUM	துறைசாரா சிறப்பு இலக்கியம் – I உணவே மருந்து	3	3	75	--	75	3
317NUM	பகுதி IV-Skill Enhancement course I-திரைத்தமிழ்	2	2	50	--	50	2
	பருவம் -IV						
417TA4	பகுதி I – தமிழ்த்தாள் – IV	6	3	25	75	100	4
417EN4	பகுதி II – ஆங்கிலம் – IV	6	3	25	75	100	4
417Q07	பகுதி III – முதன்மைப்பாடம் – VII காப்பியங்கள்	3	3	25	75	100	4
417Q08	முதன்மைப்பாடம் – VIII – இலக்கணம் III யாப்பருங்கலக்காரிகை(ஒழிபியல் நீங்கலாக)தண்டியலங்காரம்	4	3	25	75	100	4
417AQ4	துணைப்பாடம் IV – தமிழ் இலக்கிய வரலாறு – II	6	3	25	75	100	4

பாடக் குறியீட்டு எண்	பாடத் தலைப்புகள்	கற்பிக்கும் காலம் ஒரு வாரத்திற்கு	தேர்வு				தரப் புள்ளிகள்
			காலம்	அகமதிப்பீட்டுத் தேர்வு	புற மதிப்பீட்டு தேர்வு	மொத்த மதிப்பெண்	
417NGA	General Awareness	-	1	50	--	50	2
417QS2	பகுதி IV-Skill Enhancement Course II-ஆட்சித்தமிழ் பகுதிGGGGGJJjmm	3	3	75	--	75	3
417GIS	Information Security	2	2	50	--	Grade	Grade
417ALQ	Advanced Learners Course I வாய்மொழித் தேர்வு	--	--	--	100	100	4*
	பருவம் - V						
517Q09	பகுதி III – முதன்மைப்பாடம் – IX அற இலக்கியம்	5	3	25	75	100	4
517Q10	முதன்மைப்பாடம் – X சங்க இலக்கியம் - அகம்	6	3	25	75	100	4
517Q11	முதன்மைப்பாடம் – XI இலக்கணம் -IV- நம்பியகப்பொருள் புறப்பொருள் வெண்பாமாலை	5	3	25	75	100	4
517Q12	முதன்மைப்பாடம் – XII படைப்புக்கலை	5	3	25	75	100	4
517QE1 517QE2	சிறப்புப்பாடம் I- இதழியல்/ கோயிற்கலைகள்	6	3	25	75	100	4
517QS3	பகுதி IV – Skill Enhancement Course – III - இயற்கை மருத்துவம்	3	3	75	--	75	3
	பருவம் - VI						
617Q13	பகுதி III – முதன்மைப்பாடம் – XIII சங்க இலக்கியம் - புறம்	5	3	25	75	100	4
617Q14	முதன்மைப்பாடம் – XIV தமிழ்மொழி வரலாறு	5	3	25	75	100	4
617Q15	முதன்மைப்பாடம் – XV தமிழின் செம்மொழிப் பண்புகள்	5	3	25	75	100	4
617QE3/ 617QE4	சிறப்புப்பாடம் – II –திறனாய்வு இலக்கியம்/கால்டுவெல் ஒப்பிலக்கண	6	3	25	75	100	4
617QE5 617QE6	சிறப்புப்பாடம் – III – சுற்றுலாவியல்/ மொழிபெயர்ப்பியல்	6	3	25	75	100	4
617QS4	பகுதி IV – Skill Enhansment Course IV அரசுத்தேர்வில் தமிழ்	3	3	75	--	75	3
617EX1/ 617EX2/ 617EX3/ 617EX4/ 617EX5	பகுதி – V Extension Activity	--	--	50	--	50	2
617ALQ	Advanced Learners Course - II வாய்மொழித் தேர்வு	--	--	--	100	100	4*
	Total Credits						140

இளங்கலை தமிழ் இலக்கியம்

முதலாண்டு – முதல் பருவம்

பகுதி - III துணைப்பாடம் -I தமிழக வரலாறும் பண்பாடும் -I 117AQ1
(2017-2018ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

- நோக்கம் :
- ❖ தமிழிலக்கியம் பயிலும் மாணவியருக்குத் தமிழகவரலாறு பற்றி அறிவுறுத்தல்
 - ❖ தமிழக மக்களும், அவர்தம் பண்பாடும் பற்றிய அறிவூட்டுதல்
 - ❖ தமிழ் இலக்கியங்கள் தோன்றியமைக்கான சமுதாயப் பின்னணிகளைக் கற்பித்தல்.
 - ❖ தமிழக வரலாற்றின்வழி இலக்கியம் பயிலும் மாணவியரின் தமிழறிவை வளப்படுத்துதல்

அலகு 1 :

(15 மணி)

தமிழக வரலாற்றுக்கான அடிப்படை ஆதாரங்கள் – வரலாற்றுக்கு முற்பட்ட காலம் – சங்க காலம் – பல்லவர் காலம் – தமிழகத்துக் கல்வெட்டுகளும்செப்பேடுகளும் – பாண்டிய சோழப் பேரரசுக் காலம் – மத்திய காலம் – பிற்காலம் – தமிழகத்தின் இயற்கை அமைப்புகள் – வரலாற்றுக் காலத்துக்கு முந்திய தமிழகம் – சிந்துவெளி அகழ்வாராய்ச்சி.

அலகு 2 :

(15 மணி)

பண்டைத்தமிழரின் அயல்நாட்டுத் தொடர்புகள் – தமிழ் வளர்த்த சங்கம்

அலகு 3 :

சங்க இலக்கியம் – முழுவதும்

(15 மணி)

அலகு 4 :

(15 மணி)

பண்டைத் தமிழரின் வாழ்க்கை – உணவு – அணிகலன்கள் – உறையுள் – வாணிகம் – விளையாட்டுகள் – கலைகள் – கல்கி – குலங்கள் – மொழி – அரசியல் – சங்க கால ஆட்சிமுறை – அரசு பரம்பரை – குறநில மன்னர்கள் – களப்பிரர்கள்

அலகு 5 :

(15 மணி)

பல்லவர்கள் – முதலாம் நரசிம்மவர்மன் – மலை வண்ண ஓவியம் – சோழர்கள் – ரேனாண்டுச் சோழர்கள் – கொங்கு நாடும் சேரநாடும் – குறுநில மன்னர்கள் – முத்தரையர்கள் – இருக்குவேளிர் – அதிகமான்கள் – சிற்றரசர்கள் – தமிழகத்தில் நான்காம் நூற்றாண்டு முதல் ஒன்பதாம் நூற்றாண்டு வரையில் சமுகநிலை – ஆழ்வார்கள் – மாணிக்கவாசகர் – சிற்பம் – அரசியல் – தானமுறைகள் – ஊராட்சி முறைகள் – கோயில்கள்.

பாடநூல் : கே.கே.பிள்ளை, தமிழகவரலாறு மக்களும்பண்பாடும், உலகத் தமிழாராய்ச்சி நிறுவனம், 2008.

பார்வை நூல்கள்

1. அ.மு. பரமசிவானந்தம், சமுதாயமும் பண்பாடும்.
2. மா. இராசமாணிக்கம், பல்லவர் வரலாறு, கழக வெளியீடு
3. மயிலை சீனி. வேங்கடசாமி, களப்பிரர் ஆட்சியில் தமிழகம், மக்கள் வெளியீடு, சென்னை, 1976.
4. ந.சி. கந்தையா, தமிழகம், கழக வெளியீடு.

தயாரிப்பு : முனைவர் சு. சசிகலா

சரிபார்ப்பு : முனைவர் ப. தமிழ்ப்பாவை

மேற்பார்வை : சு.பிருந்தா

இளங்கலை தமிழ் இலக்கியம்
முதலாண்டு முதல் பருவம்
பகுதி -III முதன்மைப்பாடம் -II இலக்கணம் -I
நன்னூல் -எழுத்து **115Q02**
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(65 மணி)

நோக்கம் : ❖ எழுத்திலக்கணம் வழி மொழித்திறனை வளர்த்தல்
❖ தமிழ்மொழியின் இலக்கணச் செழுமையை அறியச் செய்தல்

அலகு 1 :	பொதுப்பாயிரம்	(9 மணி)
அலகு 2 :	எழுத்தியல்	(13 மணி)
அலகு 3 :	பதவியல்	(13 மணி)
அலகு 4 :	உயிரீற்றுப்புணரியல்	(15 மணி)
அலகு 5 :	மெய்யீற்றுப்புணரியல், உருபுபுணரியல்	(15 மணி)

பாடநூல் : ஆறுமுக நாவலர் (காண்டிகையுரை), நன்னூல் - எழுத்து, கழக வெளியீடு, சென்னை.

பார்வை நூல்கள்

- முனைவர் ப. வேல்முருகன், எழுத்திலக்கண மாற்றம், தி. பார்க்கர், மார்ச் 2006.
- டாக்டர். கு. இன்னாசி, எழுத்தியல், அபிராமி பப்ளிகேஷன்ஸ், சென்னை, 1983.
தயாரிப்பு : ந. சாரதாமணி
சரிபார்ப்பு : சு. பிருந்தா
மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்
முதலாண்டு - இரண்டாம் பருவம்
பகுதி - III துணைப்பாடம் -II -தமிழக வரலாறும் பண்பாடும் - II 217AQ2
(2017-2018ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)
(75 மணி)

நோக்கம் : ❖ மூவேந்தர் ஆட்சிச் சிறப்பு, சமுதாயப் பின்புலம், தமிழக நிலை பற்றி அறிவுறுத்தல்
❖ ஐரோப்பியர் வரவினால் தமிழக வரலாற்றில் ஏற்பட்ட மாற்றங்கள், பண்பாட்டு பதிவுகளைக் கற்பித்தல்
❖ இருபதாம் நூற்றாண்டு வரையிலான தமிழக வரலாறும் பண்பாடும் பற்றிக் கற்பித்தலின் வழி சமூக, பண்பாட்டு அறிவினைப் பெறச் செய்தல்

அலகு 1 : (15 மணி)

சோழப்பேரரசின் தோற்றம் – பராந்தகன் – மாமன்னன் முதலாம் இராசராசன் – முதலாம் இராசேந்திரன் – முதலாம் இராசாதிராசன் – முதலாம் குலோத்துங்கன் எ விக்किரம சோழன் – இரண்டாம் குலோத்துங்கன் – இரண்டாம் இராசராசன் – இரண்டாம் இராசாதிராசன் – மூன்றாம்

குலோத்துங்கன் - மூன்றாம் இராசராசன் - மூன்றாம் இராசேந்திரன் -
கோப்பெருஞ்சிங்கன் - பாண்டியர்கள்.

அலகு 2 :

(15 மணி)

சோழர்காலப் படைகள் - வலங்கைக் இடங்கைக் குலங்கள் - பெண்கள் -
தேவரடியார் - அடிமைத்தொழில் - கட்டடங்களும் சிற்பங்களும் -
ஓவியக்கலை - மன்னர்களின் அரண்மனைகள் - அணிகலன்கள் - உணவு
வகைகள் - ஒப்பனைக் கலை - இசைக்கலை - மற்ற கலைகள் -
திருமணம் - நம்பிக்கைகள் - பழக்கவழக்கம் - பொழுதுபோக்கு -
மருத்துவம் - மடங்கள் - சமயம் - கடவுள்கள் - சைவத்திருமுறைகள் எ
இலக்கியம் - புகழேந்தி - சமணகாவியங்கள் - பெரியபுராணம் -
மெய்கண்டார் - வைணவ இலக்கியம் - உரையாசிரியர்கள்.

அலகு 3 :

(15 மணி)

மாறவர்மன் சுந்தரபாண்டியன் - சடையவர்மன் சுந்தரபாண்டியன் - மாறவர்மன்
குலசேகரபாண்டியன் - பாண்டிய உள்நாட்டுப் போர் - மதுரையில் சுல்தான்
ஆட்சி - விசய நகர ஆட்சி - கிருஷ்ண தேவராயன் - செஞ்சி நாயக்கர்கள்
- தஞ்சை நாயக்கர்கள் - மதுரை நாயக்கர்கள் - பிற்காலத்துப்
பாண்டியர்கள் - பிரெஞ்சு ஆங்கிலேயர் புகுதல் - மதுரை திருமலைநாயக்கன்
- செஞ்சி - தஞ்சாவூர் நாயக்கர்கள் - மராட்டியர்கள் - மதுரை நாயக்கர்கள்:
சொக்கநாதன் - பிற்கால மதுரை நாயக்கர்கள் - மீனாட்சி.

அலகு 4 :

(15 மணி)

பிராமணர்கள் - முஸ்லீம்கள் - வலங்கை - இடங்கைப் பூசல்கள் -
பறையர்கள் - தேவரடியார்கள் - சில பழக்கவழக்கங்கள் - இலக்கியம் -
சித்தர் பாடல்கள் - சமயம் - ஐரோப்பியரின் வரவு - போர்ச்சுகீசியர் -
டச்சுக்காரர்கள் - டேனியரும் பிரெஞ்சுக்காரரும் - கிழக்கிந்தியக் கம்பெனி

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- முதல் கருநாடகப் போர் - இரண்டாம் கருநாடகப் போர் - மைசூர்ப்
போர்கள் - பாளையக்காரரின் கிளர்ச்சிகள் வீரபாண்டிய கட்டபொம்மன் -
மருதுபாண்டியர் - தீர்த்தகிரி.

அலகு 5 :

(15 மணி)

அரசியல் - வேலூர்க் கலகம் - நாணயங்கள் - சில தீய பழக்க
வழக்கங்கள் - குலப்பூசல்கள் - வலங்கை - இடங்கைப் பூசல்கள் - கல்வி
- தமிழ் இலக்கியம் - மொழி ஆராய்ச்சி - திவ்விய ஞான சபை - பஞ்சம்
- சித்திரவதை - அயல்நாடு சென்ற இந்தியர்கள் - இந்திய தேசியக்
காங்கிரஸ் - இருபதாம் நூற்றாண்டில் தமிழகம் - வளம் காணும் தமிழகம் -
பொருளாதார வளர்ச்சி - உழவுத் தொழில் - சுதந்திரத்துக்குப் பின் -
இருபதாம் நூற்றாண்டில் தமிழின் நிலை - நாவல்கள் - நாடகம் - நாட்டியம்
- தமிழ் எழுத்துக்கள் - அயல்நாடுகளில் தமிழ் வளர்ச்சி.

பாடநூல் : கே.கே.பிள்ளை, தமிழக வரலாறு மக்களும் பண்பாடும், உலகத் தமிழாராய்ச்சி
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2. ஐ. சண்முகநாதன், 20-ம் நூற்றாண்டு வரலாறு, பூம்புகார் பதிப்பகம், 2008.

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**இளங்கலை தமிழ் இலக்கியம்
முதலாண்டு - இரண்டாம் பருவம்**

**பகுதி – III முதன்மைப்பாடம் -IV - இலக்கணம் -II : நன்னூல் -சொல் 215Q04
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)**

(65 மணி)

- நோக்கம் : ❖ நன்னூல் - சொல் இலக்கணம் வழி சொற்களைப் பற்றிய இலக்கண அறிவு பெறச்செய்தல்.
❖ இலக்கியச் சான்றுகள் வழி சொல் வளம் பெறச் செய்தல்.

அலகு 1 : பெயரியல் (11 மணி)

அலகு 2 : பெயரியல் (11 மணி)

அலகு 3 : வினையியல் (15 மணி)

அலகு 4 : பொதுவியல் (15 மணி)

அலகு 5 : இடையியல், உரியியல் (13 மணி)

பாடநூல் : ச. ஈஸ்வரன், நன்னூல் - சொல்லதிகாரம் காண்டிகை உரை, பாவை பப்ளிகேஷன்ஸ் வெளியீடு, முதற்பதிப்பு 2014.

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3. (பதி.ஆ.) ச. அகத்தியலிங்கம் & க. பாலசுப்பிரமணியன், இலக்கண ஆய்வுக் கட்டுரைகள் - 1, அண்ணாமலைப் பல்கலைக்கழகம், 1974.
4. ஞா. தேவநேயன், சொல்லாராய்ச்சிக் கட்டுரைகள், சைவ சித்தாந்த நூற்பதிப்புக்கழகம், 1949.

தயாரிப்பு : ல. ராஜேஸ்வரி

சரிபார்ப்பு : சு. பிருந்தா

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

இரண்டாமாண்டு -மூன்றாம் பருவம்

**பகுதி-III முதன்மைப்பாடம் -V பக்தி இலக்கியமும் சிற்றிலக்கியமும்
(2017-2018 கல்வியாண்டில் முதல் பயிலும் மாணவியருக்குரியது)**

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நோக்கம்:

பக்தி இலக்கியங்கள் வழி ஆன்மீக உணர்வுட்டல்

நாயன்மார்கள் ஆழ்வார்கள் பக்ததையையும், இறைவனின் அற்புதச் செயல்களையும் அறியச்செய்தல்

அலகு 1:சைவம்

- 1.திருஞானசம்பந்தர்-திருவண்ணாமலை பதிகம் -உண்ணாமுலை யுமையாளோடு எனத் தொடங்கும் 11 பாடல்கள், திருப்பிரமபுரம் பதிகம்-தோடுடைய செவியன் எனத் தொடங்கும் 11 பாடல்கள்
- 2.திருநாவுக்கரசர்-நமச்சிவாயப் பதிகம் -எல்லாம் சிவனென் எனத் தொடங்கும் 10 பாடல்கள் திருவாரூர் பதிகம் - தில்லைவாழ் எனத் தொடங்கும் 11 பாடல்கள்
- 3.சுந்தரர்-திருவெண்ணெய் நல்லூர் பதிகம் -பித்தா பிறைசூடி எனத் தொடங்கும் 10 பாடல்கள்
- 4.மாணிக்கவாசகர் -சிவபுராணம் முழுமையும்

அலகு 2: வைணவம்

- 1.பொய்கையாழ்வார் -வையம் தகழியா எனத் தொடங்கும் 10பாடல்கள்
- 2.நம்மாழ்வார் -பெரியதிருவந்தாதி-முயற்று சுமந்தெழுந்து எனத் தொடங்கும் 10பாடல்கள்
- 3.பெரியாழ்வார் -திருமொழி -திருப்பல்லாண்டு -12 பாடல்கள்
திருமழிசையாழ்வார் -திருச்சந்த விருத்தம் -12 பாடல்கள்
4. நாச்சியார் திருமொழி -தாமுகக்கும் தம்கையில் -10பாடல்கள்
- 5..குலசேகர ஆழ்வார்-பெருமாள் திருமொழி -11பாடல்கள்.

அலகு 3:கிறித்துவமும் இஸ்லாமும்

- 1.வீரமாமுனிவர் -தேம்பாவணி-மகிழ்வினை படலம்-திருமகன் உயர்வு கருதிய
சூசையின் உருகம் -12பாடல்கள்,
சூசையின்நன்றிக் கனிவு -13பாடல்கள்,
- 2.குணங்குடி மஸ்தானசாகிப -இஸ்லாம் பராபரக்கண்ணி-அண்ட புவனமென்றும் எனத் தொடங்கும் 20 பாடல்கள்.

அலகு 4: சிற்றிலக்கியம்

- 1.முத்துகுமரசாமி பிள்ளைத் தமிழ்-செங்கீரைப் பருவம்,தாலப் பருவம்,முத்தப் பருவம், வருகைப் பருவம் 5 பருவங்களிலும் முதல் -2 பாடல்கள்.
- 2.சரசுவதி அந்தாதி- 30 பாடல்கள்

- 3.முக்கூடற்பள்ளு -மழைக்குறி - (34-49) 15 பாடல்கள்..

அலகு 5: சிற்றிலக்கியம்

- 1.திருவரங்க கலம்பகம் - முதல் 10பாடல்கள்.
- 2.கலிங்கத்துப்பரணி - தேவியைப் பாடியது- (82-85) 4 பாடல்கள்.
போர்ப் பாடியது (145- 163) 19 பாடல்கள்.
களம் பாடியது 7பாடல்கள்.
- 3.தமிழ்விடுதாது - 30 கண்ணிகள் தேர்ந்தெடுக்கப்பட்டவை.

பார்வை நூல்கள்

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இளங்கலை தமிழ் இலக்கியம்

இரண்டாமாண்டு - மூன்றாம் பருவம்

பகுதி-III துணைப்பாடம் - III -தமிழ் இலக்கிய வரலாறு -I 317AQ3

(2017 -2018 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

- நோக்கம் :
- ❖ செவ்வியல் தகுதி பெற்ற தமிழிலக்கியங்களை சங்ககாலம் முதல் இக்காலம் வரை வரலாற்று நோக்கில் கற்பித்தல்
 - ❖ வரலாற்றுப் பின்னணியில் இலக்கியம் வளர்ந்த செழுமையை அறிவுறுத்தல்

❖ மாணவிகளுக்கு தமிழ் இலக்கியத்தின் மீது ஆர்வத்தைத் தூண்டுதல்

❖ போட்டித் தேர்வுகளுக்குத் தயார்ப்படுத்துதல்

அலகு 1 : தமிழின் தொன்மை – சங்க காலம் - தொல்காப்பியம் (15 மணி)

அலகு 2 : எட்டுத்தொகை – பத்துப்பாட்டு – சங்ககாலம் பொற்காலம் - (15 மணி)
சங்க இலக்கியச் சிறப்பியல்புகள் - ஒரு கூற்று நாடகம்

அலகு 3 : சங்கம் மருவிய காலம் - பதினெண்கீழ்க்கணக்கு நூல்கள் - (15 மணி)

சிலப்பதிகாரம் - மணிமேகலை – முத்தொள்ளாயிரம் -
தகடூர் யாத்திரை

அலகு 4 : பக்தி இலக்கியம் - சைவம் - வைணவம் (15 மணி)

அலகு 5 : (15 மணி)

காப்பியங்கள் - ஐம்பெரும்காப்பியங்கள் - ஐஞ்சிறுகாப்பியங்கள் -
கம்பராமாயணம் - பெரியபுராணம் - கந்தபுராணம் - பாரத நூல்கள் -
வில்லிபாரதம் - நளவேண்பா - நைடதம் - கல்லாடம் -
திருவிளையாடற்புராணம் - பிற புராணங்கள், தலபுராணங்கள்

பாடநூல் :

1. தமிழ்இலக்கியவரலாறு, முனைவர் ஹரி. விஜயலட்சுமி, என்னெஸ் பப்ளிகேஷன்ஸ், உடுமலை, முதற்பதிப்பு 2003.

பார்வை நூல்கள்:

1. முனைவர் சி. சேதுராமன், தமிழ் இலக்கிய வரலாறு, 2012
2. தமிழ் இலக்கிய வரலாறு, சாகித்திய அகாதெமி வெளியீடு, முதற்பதிப்பு 2013.

இளங்கலை தமிழ் இலக்கியம்
இரண்டாமாண்டு-நான்காம்பருவம்
பகுதி-III-துணைப்பாடம்-IV
தமிழ் இலக்கிய வரலாறு – II

417AQ4

(2017-2018ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

நோக்கம் : ❖ தமிழ் இலக்கியத்தின் பிற்கால வளர்ச்சி நிலைகளைத் தெளிவித்தல்

❖ சமயங்களின் வளர்ச்சி இலக்கியத்தில் ஏற்படுத்திய தாக்கம் பற்றி அறிவுறுத்தல்

❖ தற்கால இலக்கியங்களின் போக்கு பற்றிய அறிவினைப் பெறச் செய்தல்

அலகு 1 : (15 மணி)

பிற்காலத்தில் காப்பியங்கள் – சிற்றிலக்கியங்கள் – இலக்கண வரலாறு –
இலக்கண நூல்கள்.

அலகு 2 : (15 மணி)

நிகண்டுகள் – உரையாசிரியர்கள் – பிற புலவர்கள் – புறத்திரட்டு –
பௌத்தமும், சமணமும் தமிழ் வளர்ச்சி

அலகு 3 : (15 மணி)

வைணவமும், சைவமும் தமிழ் வளர்ச்சி – சைவ சித்தாந்த நூல் – சைவ
மடங்களின் தமிழ்ப்பணி – சித்தர் இலக்கியம்

அலகு 4 : (15 மணி)

இசுலாமும் தமிழும் – கிறித்துவமும் தமிழும் – தமிழ் உரைநடை வளர்ச்சி –
அயல்நாட்டு தமிழ் இலக்கியங்கள் – இசைத்தமிழ் வரலாறு – தமிழில்
நாடகங்கள் – சிறுகதைகள்

அலகு 5 :

(15 மணி)

புதினங்கள் – வரலாறும் வளர்ச்சியும் – பாரதி பரம்பரை – புதுக்கவிதை –
ஹைகூக் கவிதைகள் – தலித் இலக்கியங்கள் – இதழியல் – மொழியியல் –
திறனாய்வும் ஒப்பியலும் – மொழிபெயர்ப்பு – அறிவியல் – கணினி

பாடநூல் : முனைவர் ஹரி. விஜயலட்சுமி, தமிழ் இலக்கிய வரலாறு, என்னைஸ்
பப்ளிகேஷன்ஸ், உடுமலைப்பேட்டை, 2002.

பார்வை நூல்கள்

1. முனைவர் சி. சேதுராமன், தமிழ் இலக்கிய வரலாறு, அகாதெமி வெளியீடு,
முதற்பதிப்பு 2012.
2. முனைவர் தி. பாக்யமேரி, வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, நியூ
செஞ்சுரி புக் ஹவுஸ், முதற்பதிப்பு 2010.

**இளங்கலை தமிழ் இலக்கியம்
இரண்டாமாண்டு-நான்காம்பருவம்**

பகுதி-III-முதன்மைப்பாடம்-VII-காப்பியங்கள்

417Q07

(2017-2018ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது) (38 மணி)

நோக்கம்:

காப்பியங்களின் வழி நான்கு வகை உறுதிப்பொருள்களின் தன்மையை உணரக்
செய்தல்.

தனிமனிதனுடைய வீரம், அறப்பண்புகள் பற்றி தெளிவுறுத்தல்.

அலகு 1: சிலப்பதிகாரம்

புறஞ்சேரியிறுத்த காதை ,வழக்குரைத்த காதை

அலகு 2: மணிமேகலை

மணிமேகலா தெய்வம் வந்து தோன்றிய காதை ,பளிக்கறை புக்க காதை

அலகு 3: சீவக சிந்தாமணி

சுரமஞ்சரியார் இலம்பகம் -30 பாடல்கள் (தேர்ந்தெடுக்கப்பட்டவை)

பெருங்கதை

மகத காண்டம் -யாழ் நலந் தெரிந்தது

அலகு 4: கம்பராமாயணம்

பால காண்டம் -கடிமணப்படலம் -30பாடல்கள்

வில்லிபாரதம் -சூது போர்ச் சருக்கம்

தருமனைச் சூதாட அழைத்தல் 10 பாடல்கள்

தருமன் தோற்றல் - 6 பாடல்கள்

திரௌபதியின் முறையீடு - 2 பாடல்கள்

திரௌபதி நியாயம் வேண்டல் - 2 பாடல்கள்

கண்ணன் அருள்புரிதல் -4 பாடல்கள்

வீமன் சினம் - 4பாடல்கள்

திரௌபதியும் தம்பியும் சபதம் ஏற்றல் - 5 பாடல்கள்

அலகு 5: கவிமணி –மருமக்கள் வழி மான்மியம் (முழுவதும்)

முடியரசன் -பூங்கொடி –முதல் 5 காதைகள்

பார்வை நூல்கள்

1.சோம இளவரசு –காப்பியத்திறன் -குமரன் பதிப்பகம் ,சிதம்பரம் 1973.

2.காசிராசன்,இரா.காப்பியத்தமிழ், அருள்நாதர் பதிப்பகம்,மதுரை.

இளங்கலை தமிழ் இலக்கியம்
இரண்டாமாண்டு-நான்காம்பருவம்
பகுதி-III-Skill Enhancement Course VII-ஆட்சித்தமிழ்

417QS2

(2017-2018ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது) (38 மணி)

நோக்கம்:

தமிழ் ஆட்சிமொழியாவதன் இன்றியமையாமையும் பயனும் குறித்து விளக்குதல்.

அலகு 1:

ஆட்சி மொழித்திட்டம்- தமிழ் ஆட்சி மொழி விழிப்புணர்வு- பயன்படுத்தியுள்ள சொற்கள் கழகங்களும் தொண்டும் -ஆங்கில ஆதிக்கம் - ஆட்சிமொழித் தோற்றமும் வளர்ச்சியும் - தாய்மொழி உரிமை -தமிழ் ஆட்சி மொழி

அலகு 2:

சட்டங்கள்-ஆணையர்கள் -ஆட்சி மொழித்திட்டச் செயல்பாடு-ஆட்சிமொழிக் குழுவின் பணிகள் -மொழிப்பெயர்ப்புப்பான பணிகள் -தமிழ் திட்ட தொடர்பான பயிற்சி வகுப்புகள் -ஆய்வு பணிகள்-தமிழ் வளர்ச்சி துறையும் துணைநூல்கள் தயாரிப்பு பணியும்.

அலகு: 3

திட்ட செயலாக்க நிலை -மொழிபெயர்ப்பு -அகராதிகள்- பயிற்சி-தட்டச்சு மாற்றம் -ஆய்வு ஊர் மற்றும் தெருபெயரமைப்பு

அலகு: 4

கலைசொற்கள் மொழிபெயர்ப்பும் சொல்லாக்கமும் சொல்லாக்கநிலையில் காரணப்பெயர்கள் நிறுவனங்களின் பங்கு-இதழ்களின் பங்கு -புதுச்சொல்லாக்கம் காலத்திற்கு ஏற்ற சொல்வடிவம்

அலகு 5

மொழியாக்கம் -மொழியாக்கத்தின் இன்றியமையாமை-வழங்கும் சொற்கள் - தமிழ் இலக்கணமரபு -அரசு பணியில் மொழிபெயர்ப்பு துறை - சட்டமன்றமும் சட்ட மொழி ஆணையத்தின் மொழிபெயர்ப்பு பணிகள் - சிக்கல்களும் தீர்வுகளும்- நீதி மன்றத்தில் தமிழ் பாடநூல்

1.டாக்டர் த.பெரியாண்டவன் ஆட்சித் தமிழ் . வளர் தமிழ் பதிப்பகம் மறுபதிப்பு 2013

புர்வை நூல்

1.டாக்டர்.மலையமான் தமிழ் ஆட்சி மொழி சிக்கல்களும் தீர்வுகளும் அன்பு பதிப்பகம். சென்னை

2.இரா. பெ. கண்ணகி தமிழ் மொழி ஆட்சி மொழி கல்வி மொழி நியுசெஞ்சரி புக்ஹவுஸ் சென்னை

ஸ்ரீ ஜி.வி.ஜி. விசாலாட்சி மகளிர் கல்லூரி (தன்னாட்சி)
பாரதியார் பல்கலைக் கழகத்திற்கு உட்பட்டது
தமிழ்த்துறை
இளங்கலை தமிழ் இலக்கியம்
பருவமுறைத் தேர்வும் மதிப்பெண் பகிர்வும்
2015-2016-ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது

பாடக் குறியீட்டு எண்	பாடத் தலைப்புகள்	கற்பிக்கும் காலம் ஒரு வாரத்திற்கு	தேர்வு				தரப் புள்ளிகள்
			காலம்	அகமதிப்பீட்டுத் தேர்வு	புற மதிப்பீட்டு தேர்வு	மொத்த மதிப்பெண்	
	பருவம் - I						
115TA1	பகுதி I – தமிழ்த்தாள் - I	6	3	25	75	100	4
115EN1	பகுதி II – ஆங்கிலம் – I	6	3	25	75	100	4
115Q01	பகுதி III – முதன்மைப்பாடம் – I இக்கால இலக்கியம்	5	3	25	50	75	3
115Q02	முதன்மைப்பாடம் – II இலக்கணம் I: நன்னூல் - எழுத்து	5	3	25	50	75	3
115AQ1	துணைப்பாடம் I – தமிழக வரலாறும் பண்பாடும் - I	6	3	25	75	100	4
115EVS	பகுதி IV – Environmental Studies	2	2	50	--	50	2
	பருவம் - II						
215TA2	பகுதி II – தமிழ்த்தாள் – II	6	3	25	75	100	4
215EN2	பகுதி II – ஆங்கிலம் – II	6	3	25	75	100	4
215Q03	பகுதி III – முதன்மைப்பாடம் – III நாட்டுப்புறவியல்	5	3	25	75	100	4
215Q04	முதன்மைப்பாடம் IV இலக்கணம் II நன்னூல் - சொல்	5	3	25	75	100	4
215AQ2	துணைப்பாடம் II – தமிழக வரலாறும் பண்பாடும் - II	6	3	25	75	100	4
215VEC	பகுதி IV – Value Education	2	2	50	--	50	2
	பருவம் - III						
315TA3	பகுதி I – தமிழ்த்தாள் – III	6	3	25	75	100	4
315EN3	பகுதி II – ஆங்கிலம் – III	6	3	25	75	100	4
315Q05	பகுதி III – முதன்மைப்பாடம் – V பக்தி இலக்கியமும் சிற்றிலக்கியமும்	3	3	25	75	100	4
315Q06	முதன்மைப்பாடம் VI இலக்கணம் III யாப்பருங்கலக்காரிகையும் (ஒழிபியல் நீங்கலாக) தண்டியலங்காரமும்	4	3	25	75	100	4
315AQ3	துணைப்பாடம் III – தமிழ் இலக்கிய வரலாறு – I	6	3	25	75	100	4
315QS1	பகுதி IV – Skill Based Course I – மொழியியல்	3	3	75	--	75	3
315NUM	துறைசாரா சிறப்பு இலக்கியம் – I உணவே மருந்து	2	2	50	--	50	2
	பருவம் -IV						
415TA4	பகுதி I – தமிழ்த்தாள் – IV	6	3	25	75	100	4

பாடக் குறியீட்டு எண்	பாடத் தலைப்புகள்	கற்பிக்கும் காலம் ஒரு வாரத்திற்கு	தேர்வு				தரப் புள்ளிகள்
			காலம்	அகமதிப்பீட்டுத் தேர்வு	புற மதிப்பீட்டு தேர்வு	மொத்த மதிப்பெண்	
415EN4	பகுதி II – ஆங்கிலம் – IV	6	3	25	75	100	4
415Q07	பகுதி III – முதன்மைப்பாடம் – VII காப்பியங்கள்	4	3	25	75	100	4
415Q08	முதன்மைப்பாடம் – VIII – இலக்கணம் IV: நம்பியகப்பொருளும், புறப்பொருள் வெண்பாமாலையும்	4	3	25	75	100	4
415AQ4	துணைப்பாடம் IV – தமிழ் இலக்கிய வரலாறு – II	6	3	25	75	100	4
415QS2	பகுதி IV – Skill Based Course II – மொழிபெயர்ப்பியல்	3	3	75	--	75	3
415NGA	திறைசாரா சிறப்பு இலக்கியம் II General Awareness (Online)	--	1	50	--	50	2
415GIS	Information Security	2	2	--	50	50	Grade
415EX1/ 415EX2/ 415EX4/ 415EX5	பகுதி – V Extension	--	--	50	--	50	2
415ALQ	Advanced Learners Course I வாய்மொழித் தேர்வு	--	--	--	100	100	3*
பருவம் - V							
515Q09	பகுதி III – முதன்மைப்பாடம் – IX அற இலக்கியம்	5	3	25	75	100	4
515Q10	முதன்மைப்பாடம் – X சங்க இலக்கியம் - அகம்	5	3	25	75	100	4
515Q11	முதன்மைப்பாடம் – XI தமிழ்மொழி வரலாறு	6	3	25	75	100	4
515Q12	முதன்மைப்பாடம் – XII இலக்கியத் திறனாய்வியல்	5	3	25	75	100	4
515QE1	சிறப்புப்பாடம் – I – இதழியல்	6	3	25	75	100	4
515QS3	பகுதி IV – Skill Based Course – III - இயற்கை மருத்துவம்	3	3	75	--	75	3
பருவம் - VI							
615Q13	பகுதி III – முதன்மைப்பாடம் – XIII சங்க இலக்கியம் - புறம்	5	3	25	75	100	4
615Q14	முதன்மைப்பாடம் – XIV கால்டுவெல் ஒப்பிலக்கணம்	5	3	25	75	100	4
615Q15	முதன்மைப்பாடம் – XV தமிழின் செம்மொழிப் பண்புகள்	5	3	25	75	100	4
615QE2	சிறப்புப்பாடம் – II – சுற்றுலாவியல்	6	3	25	75	100	4
615QE3	சிறப்புப்பாடம் – III – கவின்கலைகள்	6	3	25	75	100	4
615QS4	பகுதி IV – Skill Based Course IV கல்வெட்டியல்	3	3	75	--	75	3
415EX3/	பகுதி – V Extension	--	--	50	--	50	2
615ALQ	Advanced Learners Course - II வாய்மொழித் தேர்வு	--	--	--	100	100	3*
Total Credits							140

இளங்கலை தமிழ் இலக்கியம்

முதலாண்டு – முதல் பருவம்

பகுதி - III துணைப்பாடம் -I தமிழக வரலாறும் பண்பாடும் -I 115AQ1
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

- நோக்கம் : ❖ தமிழிலக்கியம் பயிலும் மாணவியருக்குத் தமிழகவரலாறு பற்றி அறிவுறுத்தல்
- ❖ தமிழக மக்களும், அவர்தம் பண்பாடும் பற்றிய அறிவூட்டுதல்
- ❖ தமிழ் இலக்கியங்கள் தோன்றியமைக்கான சமுதாயப் பின்னணிகளைக் கற்பித்தல்.
- ❖ தமிழக வரலாற்றின்வழி இலக்கியம் பயிலும் மாணவியரின் தமிழறிவை வளப்படுத்துதல்

அலகு 1 :

(15 மணி)

தமிழக வரலாற்றுக்கான அடிப்படை ஆதாரங்கள் – வரலாற்றுக்கு முற்பட்ட காலம் – சங்க காலம் – பல்லவர் காலம் – தமிழகத்துக் கல்வெட்டுகளும்செப்பேடுகளும் – பாண்டிய சோழப் பேரரசுக் காலம் – மத்திய காலம் – பிற்காலம் – தமிழகத்தின் இயற்கை அமைப்புகள் – வரலாற்றுக் காலத்துக்கு முந்திய தமிழகம் – சிந்துவெளி அகழ்வாராய்ச்சி.

அலகு 2 :

(15 மணி)

பண்டைத்தமிழரின் அயல்நாட்டுத் தொடர்புகள் – தமிழ் வளர்த்த சங்கம்

அலகு 3 :

சங்க இலக்கியம் – முழுவதும்

(15 மணி)

அலகு 4 :

(15 மணி)

பண்டைத் தமிழரின் வாழ்க்கை – உணவு – அணிகலன்கள் – உறையுள் – வாணிகம் – விளையாட்டுகள் – கலைகள் – கல்கி – குலங்கள் – மொழி – அரசியல் – சங்க கால ஆட்சிமுறை – அரசு பரம்பரை – குறநில மன்னர்கள் – களப்பிரர்கள்

அலகு 5 :

(15 மணி)

பல்லவர்கள் – முதலாம் நரசிம்மவர்மன் – மலை வண்ண ஓவியம் – சோழர்கள் – ரேனாண்டுச் சோழர்கள் – கொங்கு நாடும் சேரநாடும் – குறுநில மன்னர்கள் – முத்தரையர்கள் – இருக்குவேளிர் – அதிகமான்கள் – சிற்றரசர்கள் – தமிழகத்தில் நான்காம் நூற்றாண்டு முதல் ஒன்பதாம் நூற்றாண்டு வரையில் சமூகநிலை – ஆழ்வார்கள் – மாணிக்கவாசகர் – சிற்பம் – அரசியல் – தானமுறைகள் – ஊராட்சி முறைகள் – கோயில்கள்.

பாடநூல் : கே.கே.பிள்ளை, தமிழகவரலாறு மக்களும்பண்பாடும், உலகத் தமிழாராய்ச்சி நிறுவனம், 2008.

பார்வை நூல்கள்

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3. மயிலை சீனி. வேங்கடசாமி, களப்பிரர் ஆட்சியில் தமிழகம், மக்கள் வெளியீடு, சென்னை, 1976.
4. ந.சி. கந்தையா, தமிழகம், கழக வெளியீடு.

தயாரிப்பு : முனைவர் சு. சசிகலா

சரிபார்ப்பு : முனைவர் ப. தமிழ்ப்பாவை

மேற்பார்வை : சு.பிருந்தா

இளங்கலை தமிழ் இலக்கியம்
முதலாண்டு முதல் பருவம்
பகுதி -III முதன்மைப்பாடம் -II இலக்கணம் -I
நன்னூல் -எழுத்து **115Q02**
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(65 மணி)

நோக்கம் : ❖ எழுத்திலக்கணம் வழி மொழித்திறனை வளர்த்தல்
❖ தமிழ்மொழியின் இலக்கணச் செழுமையை அறியச் செய்தல்

அலகு 1 :	பொதுப்பாயிரம்	(9 மணி)
அலகு 2 :	எழுத்தியல்	(13 மணி)
அலகு 3 :	பதவியல்	(13 மணி)
அலகு 4 :	உயிரீற்றுப்புணரியல்	(15 மணி)
அலகு 5 :	மெய்யீற்றுப்புணரியல், உருபுபுணரியல்	(15 மணி)

பாடநூல் : ஆறுமுக நாவலர் (காண்டிகையுரை), நன்னூல் - எழுத்து, கழக வெளியீடு, சென்னை.

பார்வை நூல்கள்

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2. டாக்டர். சூ. இன்னாசி, எழுத்தியல், அபிராமி பப்ளிகேஷன்ஸ், சென்னை, 1983.

இளங்கலை தமிழ் இலக்கியம்
முதலாண்டு - இரண்டாம் பருவம்
பகுதி - III துணைப்பாடம் -II -தமிழக வரலாறும் பண்பாடும் - II **215AQ2**
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

நோக்கம் : ❖ முவேந்தர் ஆட்சிச் சிறப்பு, சமுதாயப் பின்புலம், தமிழக நிலை பற்றி அறிவுறுத்தல்
❖ ஐரோப்பியர் வரவினால் தமிழக வரலாற்றில் ஏற்பட்ட மாற்றங்கள், பண்பாட்டு பதிவுகளைக் கற்பித்தல்
❖ இருபதாம் நூற்றாண்டு வரையிலான தமிழக வரலாறும் பண்பாடும் பற்றிக் கற்பித்தலின் வழி சமூக, பண்பாட்டு அறிவினைப் பெறச் செய்தல்

அலகு 1 : (15 மணி)

சோழப்பேரரசின் தோற்றம் – பராந்தகன் – மாமன்னன் முதலாம் இராசராசன் – முதலாம் இராசேந்திரன் – முதலாம் இராசாதிராசன் – முதலாம் குலோத்துங்கன் எ விக்किரம சோழன் – இரண்டாம் குலோத்துங்கன் – இரண்டாம் இராசராசன் – இரண்டாம் இராசாதிராசன் – மூன்றாம் குலோத்துங்கன் – மூன்றாம் இராசராசன் – மூன்றாம் இராசேந்திரன் – கோப்பெருஞ்சிங்கன் – பாண்டியர்கள்.

அலகு 2 : (15 மணி)

சோழர்காலப் படைகள் – வலங்கைக் இடங்கைக் குலங்கள் – பெண்கள் – தேவரடியார் – அடிமைத்தொழில் – கட்டடங்களும் சிற்பங்களும் –

ஓவியக்கலை - மன்னர்களின் அரண்மனைகள் - அணிகலன்கள் - உணவு வகைகள் - ஒப்பனைக் கலை - இசைக்கலை - மற்ற கலைகள் - திருமணம் - நம்பிக்கைகள் - பழக்கவழக்கம் - பொழுதுபோக்கு - மருத்துவம் - மடங்கள் - சமயம் - கடவுள்கள் - சைவத்திருமுறைகள் எ இலக்கியம் - புகழேந்தி - சமணகாவியங்கள் - பெரியபுராணம் - மெய்கண்டார் - வைணவ இலக்கியம் - உரையாசிரியர்கள்.

அலகு 3 :

(15 மணி)

மாறவர்மன் சுந்தரபாண்டியன் - சடையவர்மன் சுந்தரபாண்டியன் - மாறவர்மன் குலசேகரபாண்டியன் - பாண்டிய உள்நாட்டுப் போர் - மதுரையில் சுல்தான் ஆட்சி - விசய நகர ஆட்சி - கிருஷ்ண தேவராயன் - செஞ்சி நாயக்கர்கள் - தஞ்சை நாயக்கர்கள் - மதுரை நாயக்கர்கள் - பிற்காலத்துப் பாண்டியர்கள் - பிரெஞ்சு ஆங்கிலேயர் புகுதல் - மதுரை திருமலைநாயக்கன் - செஞ்சி - தஞ்சாவூர் நாயக்கர்கள் - மராட்டியர்கள் - மதுரை நாயக்கர்கள்: சொக்கநாதன் - பிற்கால மதுரை நாயக்கர்கள் - மீனாட்சி.

அலகு 4 :

(15 மணி)

பிராமணர்கள் - முஸ்லீம்கள் - வலங்கை - இடங்கைப் பூசல்கள் - பறையர்கள் - தேவரடியார்கள் - சில பழக்கவழக்கங்கள் - இலக்கியம் - சித்தர் பாடல்கள் - சமயம் - ஐரோப்பியரின் வரவு - போர்ச்சுகீசியர் - டச்சுக்காரர்கள் - டேனியரும் பிரெஞ்சுக்காரரும் - கிழக்கிந்தியக் கம்பெனி

- முதல் கருநாடகப் போர் - இரண்டாம் கருநாடகப் போர் - மைசூர்ப் போர்கள் - பாளையக்காரரின் கிளர்ச்சிகள் வீரபாண்டிய கட்டபொம்மன் - மருதுபாண்டியர் - தீர்த்தகிரி.

அலகு 5 :

(15 மணி)

அரசியல் - வேலூர்க் கலகம் - நாணயங்கள் - சில தீய பழக்க வழக்கங்கள் - குலப்பூசல்கள் - வலங்கை - இடங்கைப் பூசல்கள் - கல்வி - தமிழ் இலக்கியம் - மொழி ஆராய்ச்சி - திவ்விய ஞான சபை - பஞ்சம் - சித்திரவதை - அயல்நாடு சென்ற இந்தியர்கள் - இந்திய தேசியக் காங்கிரஸ் - இருபதாம் நூற்றாண்டில் தமிழகம் - வளம் காணும் தமிழகம் - பொருளாதார வளர்ச்சி - உழவுத் தொழில் - சுதந்திரத்துக்குப் பின் - இருபதாம் நூற்றாண்டில் தமிழின் நிலை - நாவல்கள் - நாடகம் - நாட்டியம் - தமிழ் எழுத்துக்கள் - அயல்நாடுகளில் தமிழ் வளர்ச்சி.

பாடநூல் : கே.கே.பிள்ளை, தமிழக வரலாறு மக்களும் பண்பாடும், உலகத் தமிழாராய்ச்சி நிறுவனம், 2008.

பார்வை நூல்கள் :

1. தி.வை. சதாசிவ பண்டாரத்தார் & இராமசாமி, பிற்காலச் சோழர் வரலாறு, சங்கப் பலகை வெளியீடு, சேலம் - 2008.
2. ஐ. சண்முகநாதன், 20-ம் நூற்றாண்டு வரலாறு, பூம்புகார் பதிப்பகம், 2008.
3. பரந்தாமனார், மதுரை நாயக்கர் வரலாறு, பாரி நிலையம், சென்னை, முதற்பதிப்பு - 2004.

தயாரிப்பு : ந.சாரதாமணி

சரிபார்ப்பு : சு.பிருந்தா

மேற்பார்வை : முனைவர். ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

முதலாண்டு - இரண்டாம் பருவம்

பகுதி – III முதன்மைப்பாடம் -IV - இலக்கணம் -II : நன்னூல் -சொல் 215Q04

(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(65 மணி)

நோக்கம் : ❖ நன்னூல் - சொல் இலக்கணம் வழி சொற்களைப் பற்றிய இலக்கண அறிவு பெறச்செய்தல்.

❖ இலக்கியச் சான்றுகள் வழி சொல் வளம் பெறச் செய்தல்.

அலகு 1 : பெயரியல் (11 மணி)

அலகு 2 : பெயரியல் (11 மணி)

அலகு 3 : வினையியல் (15 மணி)

அலகு 4 : பொதுவியல் (15 மணி)

அலகு 5 : இடையியல், உரியியல் (13 மணி)

பாடநூல் : ச. ஈஸ்வரன், நன்னூல் - சொல்லதிகாரம் காண்டிகை உரை, பாவை பப்ளிகேஷன்ஸ் வெளியீடு, முதற்பதிப்பு 2014.

பார்வை நூல்கள்

1. மு. வரதராசன், சொல்லின் கதை, பாரி நிலையம், 1963.
2. வேர்ச்சொற் கட்டுரைகள் (முதல் & இரண்டாம் பாகம்), கீழைப்பூல ஆய்வு நிறுவனக் கல்வி அறக்கட்டளை – 2000.
3. (பதி.ஆ.) ச. அகத்தியலிங்கம் & க. பாலசுப்பிரமணியன், இலக்கண ஆய்வுக் கட்டுரைகள் - 1, அண்ணாமலைப் பல்கலைக்கழகம், 1974.
4. ஞா. தேவநேயன், சொல்லாராய்ச்சிக் கட்டுரைகள், சைவ சித்தாந்த நூற்பதிப்புக்கழகம், 1949.

தயாரிப்பு : ல. ராஜேஸ்வரி

சரிபார்ப்பு : சு. பிருந்தா

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

இரண்டாமாண்டு - மூன்றாம் பருவம்

பகுதி –III முதன்மைப்பாடம் :V-பக்தி இலக்கியமும் சிற்றிலக்கியமும் 314Q05/315Q05

(2014 -2015 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(38 மணி)

நோக்கம் : ❖ பக்தி இலக்கியங்கள் வழி ஆன்மீக உணர்வூட்டல்

❖ நாயன்மார்கள், ஆழ்வார்களின் பக்தியையும், இறைவனின் அற்புதச் செயலையும் அறியச் செய்தல்

❖ சிற்றிலக்கியங்கள் வழி இடைக்காலத்திலும், பிற்காலத்திலும் நடந்த அரிய பல வரலாற்று நிகழ்வுகளை கற்பித்தல்

❖ பிள்ளைத்தமிழ், தூது, குறவஞ்சி, பள்ளு முதலிய சிற்றிலக்கியங்களின் இலக்கிய நயத்தை மாணவர்களுக்கு அறிவுறுத்தல்

அலகு 1 : சைவம் (8 மணி)

1. திருஞான சம்பந்தர் – பொது

“வேயுறு தோளி பங்கன்” என்று தொடங்கும் 11 பாடல்கள்

C12

2. திருநாவுக்கரசர் – திருவதிகை வீரட்டானத்துப் பதிகம்
“கூற்றாயின் வாறு விலக்கலீர்” எனத் தொடங்கும் 10 பாடல்கள்
3. சுந்தரர் – அவிநாசி பதிகம் – “எற்றான் மறக்கோன்” எனத் தொடங்கும் 10 பாடல்கள்
4. மாணிக்கவாசகர் – திருஅம்மானைப் பதிகம் – “செங்கண் நெடுமாலும்” எனத் தொடங்கும் முதல் 10 பாடல்கள்

பார்வை நூல்கள்

1. அவ்வை சு. துரைசாமிப்பிள்ளை, **சைவமுரசு**, சைவ சித்தாந்த நூல் பதிப்புக் கழகம், 2003.
1. பானுமதி ரமேஷ், **சைவம் வளர்த்த தமிழ்**, நியூ செஞ்சுரி புக் ஹவுஸ், முதற்பதிப்பு 2011.

அலகு 2: **வைணவம்**

(8 மணி)

1. பெரியாழ்வார் – “ஆனிரை மேய்க்க நீ போதி” எனத் தொடங்கும் 10 பாடல்கள்
2. ஆண்டாள் – நாச்சியார் திருமொழி – சிற்றில் சிதையேல் நாமமாயிரம் “நாமமாயிர மேத்த நின்ற” எனத் தொடங்கும் 10 பாடல்கள்
3. குலசேகராழ்வார் – பெருமாள் திருமொழி – “ஆலை நீள் கரும்பு” எனத் தொடங்கும் பதிகம் 11 பாடல்கள்
4. நம்மாழ்வார் – திருவாய்மொழி – “வைகுந்தா! மணிவண்ணனே” எனத் தொடங்கும் 11 பாடல்கள்

பார்வை நூல்கள்

1. பேராசிரியர் ந. சுப்பு ரெட்டியார் - வைணவ உரைவளம், பாரி நிலையம், 1985.
2. பேராசிரியர் ந. சுப்பு ரெட்டியார் - ஆழ்வார்களின் ஆரா அமுது, ஐந்திணைப் பதிப்பகம், 1987.

அலகு 3: **கிறிஸ்தவமும் இஸ்லாமும்**

(7 மணி)

1. கண்ணதாசன் - இயேசு காவியம் - மகிமை (ஐந்தாம் பாகம்) (142-149) 8 தலைப்புகள்
2. உமறுப்புலவர் - சீறாப்புராணம் - தசைக் கட்டியைப் பெண்ணுரு அமைத்த படலம் 35 பாடல்கள்

பார்வை நூல்கள்

1. டேவிட் வில்சன், இயேசு காவியம் காப்பியப் பார்வை, 2008.
2. மயிலை சீனி. வேங்கடசாமி, கிறிஸ்தவமும் தமிழும், கழக வெளியீடு, 1936.
3. டாக்டர் முகமது உவைஸ், இஸ்லாமும் இன்பத்தமிழும், யுனிவர்ஸல் பப்ளிஷர்ஸ் வெளியீடு, 2008.

அலகு 4: **சிற்றிலக்கியம்**

(7 மணி)

1. குமரகுருபரர் - மீனாட்சியம்மை பிள்ளைத் தமிழ் (தாலப் பருவம், சப்பாணிப் பருவம், முத்தப் பருவம், வருகைப் பருவம், அம்புலிப் பருவம்) – (5 பருவங்களிலும் முதல் 2 பாடல்கள்) 10 பாடல்கள்
2. பலபட்டடைச் சொக்கநாதப் புலவர் – அழகர் கிள்ளைவிடு தூது – (முழுவதும்)

அலகு 5 : **சிற்றிலக்கியம்**

(8 மணி)

1. “திரிகூடராசப்பக கவிராயர் – திருக்குற்றாலக் குறவஞ்சி – இறைவனின் திருவுலா 18 பாடல்கள்
2. முக்கூடற்பள்ளு – ஏசல் நாட்டுவளம் 15 பாடல்கள்

பாடநூல் : பாடங்கள் தொகுக்கப் பெற்று துறை வெளியீடு.

பார்வை நூல்கள்

1. டாக்டர் இரா. கண்ணன், சிற்றிலக்கிய ஆராய்ச்சி, 2002.
2. அருணாசலம். மு., பிரபந்த மரபியல், முதற்பதிப்பு 1976.
3. நா.வீ. ஜெயராமன், சிற்றிலக்கியச் செல்வங்கள், மணிவாசகர் நூலகம், சிதம்பரம், முதற்பதிப்பு 1967.
4. மு. சண்முகம்பிள்ளை, சிற்றிலக்கிய வளர்ச்சி, மணிவாசகர் நூலகம், சிதம்பரம், 1981.
5. நா.வீ. ஜெயராமன், சிற்றிலக்கிய திறனாய்வு, இலக்கியப் பதிப்பகம், சென்னை 1980.

தயாரிப்பு : சு. பிருந்தா

சரிபார்ப்பு : முனைவர் மு. ருக்மணி

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

இரண்டாமாண்டு - மூன்றாம் பருவம்

பகுதி-III துணைப்பாடம் -III -தமிழ் இலக்கிய வரலாறு -I 314AQ3/315AQ3

(2014 -2015 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

நோக்கம் : ❖ செவ்வியல் தகுதி பெற்ற தமிழிலக்கியங்களை சங்ககாலம் முதல் இக்காலம் வரை வரலாற்று நோக்கில் கற்பித்தல்

❖ வரலாற்றுப் பின்னணியில் இலக்கியம் வளர்ந்த செழுமையை அறிவுறுத்தல்

❖ மாணவிகளுக்கு தமிழ் இலக்கியத்தின் மீது ஆர்வத்தைத் தூண்டுதல்

❖ போட்டித் தேர்வுகளுக்குத் தயார்ப்படுத்துதல்

அலகு 1 : தமிழின் தொன்மை – சங்க காலம் - தொல்காப்பியம் (15 மணி)

அலகு 2 : எட்டுத்தொகை – பத்துப்பாட்டு – சங்ககாலம் பொற்காலம் - (15 மணி)
சங்க இலக்கியச் சிறப்பியல்புகள் - ஒரு கூற்று நாடகம்

அலகு 3 : சங்கம் மருவிய காலம் - பதினெண்கீழ்க்கணக்கு நூல்கள் - (15 மணி)

சிலப்பதிகாரம் - மணிமேகலை – முத்தொள்ளாயிரம் -
தகடூர் யாத்திரை

அலகு 4 : பக்தி இலக்கியம் - சைவம் - வைணவம் (15 மணி)

அலகு 5 : (15 மணி)

காப்பியங்கள் - ஐம்பெரும்காப்பியங்கள் - ஐஞ்சிறுகாப்பியங்கள் -
கம்பராமாயணம் - பெரியபுராணம் - கந்தபுராணம் - பாரத நூல்கள் -
வில்லிபாரதம் - நளவேண்பா - நைடதம் - கல்லாடம் -
திருவிளையாடற்புராணம் - பிற புராணங்கள், தலபுராணங்கள்

பாடநூல் :

2. தமிழ்இலக்கியவரலாறு, முனைவர் ஹரி. விஜயலட்சுமி, என்னெஸ் பப்ளிகேஷன்ஸ், உடுமலை, முதற்பதிப்பு 2003.

பார்வை நூல்கள்:

3. முனைவர் சி. சேதுராமன், தமிழ் இலக்கிய வரலாறு, 2012

4. தமிழ் இலக்கிய வரலாறு, சாகித்திய அகாதெமி வெளியீடு, முதற்பதிப்பு 2013.

தயாரிப்பு : ல. ராஜேஸ்வரி
சரிபார்ப்பு : சு. பிருந்தா
மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்
இரண்டாமாண்டு-நான்காம்பருவம்
பகுதி-III-துணைப்பாடம்-IV
தமிழ் இலக்கிய வரலாறு – II

414AQ4/415AQ4

(2014-2015ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

- நோக்கம் : ❖ தமிழ் இலக்கியத்தின் பிற்கால வளர்ச்சி நிலைகளைத் தெளிவித்தல்
❖ சமயங்களின் வளர்ச்சி இலக்கியத்தில் ஏற்படுத்திய தாக்கம் பற்றி அறிவுறுத்தல்
❖ தற்கால இலக்கியங்களின் போக்கு பற்றிய அறிவினைப் பெறச் செய்தல்

- அலகு 1 : (15 மணி)
பிற்காலத்தில் காப்பியங்கள் – சிற்றிலக்கியங்கள் – இலக்கண வரலாறு – இலக்கண நூல்கள்.
- அலகு 2 : (15 மணி)
நிகண்டுகள் – உரையாசிரியர்கள் – பிற புலவர்கள் – புறத்திரட்டு – பெளத்தமும், சமணமும் தமிழ் வளர்ச்சி
- அலகு 3 : (15 மணி)
வைணவமும், சைவமும் தமிழ் வளர்ச்சி – சைவ சித்தாந்த நூல் – சைவ மடங்களின் தமிழ்ப்பணி – சித்தர் இலக்கியம்
- அலகு 4 : (15 மணி)
இசுலாமும் தமிழும் – கிறித்துவமும் தமிழும் – தமிழ் உரைநடை வளர்ச்சி – அயல்நாட்டு தமிழ் இலக்கியங்கள் – இசைத்தமிழ் வரலாறு – தமிழில் நாடகங்கள் – சிறுகதைகள்
- அலகு 5 : (15 மணி)
புதினங்கள் – வரலாறும் வளர்ச்சியும் – பாரதி பரம்பரை – புதுக்கவிதை – ஹைகூக் கவிதைகள் – தலித் இலக்கியங்கள் – இதழியல் – மொழியியல் – திறனாய்வும் ஒப்பியலும் – மொழிபெயர்ப்பு – அறிவியல் – கணினி

பாடநூல் :

முனைவர் ஹரி. விஜயலட்சுமி, தமிழ் இலக்கிய வரலாறு, என்னெஸ் பப்ளிகேஷன்ஸ், உடுமலைப்பேட்டை, 2002.

பார்வை நூல்கள்

1. முனைவர் சி. சேதுராமன், தமிழ் இலக்கிய வரலாறு, அகாதெமி வெளியீடு, முதற்பதிப்பு 2012.
2. முனைவர் தி. பாக்யமேரி, வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, நியூ செஞ்சுரி புக் ஹவுஸ், முதற்பதிப்பு 2010.

தயாரிப்பு : ல. ராஜேஸ்வரி

சரிபார்ப்பு : முனைவர் வே. செடிப்பவன்

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

மூன்றாமாண்டு – ஐந்தாம் பருவம்

பகுதி – III முதன்மைப்பாடம் – IX : அற இலக்கியம் 514Q09/515Q09
(2014-2015ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)
(65 மணி)

- நோக்கம் : ❖ வாழ்வியல் மதிப்பீடுகளை மாணவியர் உணரச்செய்தல்
❖ அறச்சிந்தனைகளை மாணவியரிடையே விதைத்தல்
❖ அறத்தின்வழிப்பட்ட வாழ்வினை வாழ அறிவுறுத்தல்

அலகு 1 : திருக்குறள் – அறத்துப்பால் முதல் 10 அதிகாரம் (13 மணி)

அலகு 2 : ஆசார்க்கோவை முதல் 20 பாடல்கள் (1-20) (13 மணி)

அலகு 3 : இனியவை நாற்பது முதல் 20 பாடல்கள் (1-20) (13 மணி)

அலகு 4 : நாலடியார் – பொருட்பால் 5 அதிகாரங்கள் (13 மணி)
(கல்வி, குடிப்பிறப்பு மேன்மக்கள், நல்லினம் சேர்தல், தாளாண்மை)

அலகு 5 : உலகநீதி முழுமையும் (13 பாடல்கள்) (13 மணி)

பாடநூல் :

1. பாடங்கள் தொகுக்கப்பெற்று தமிழ்த்துறை வெளியீடு.

பார்வை நூல்கள்

1. ந. சுப்ரமண்யன், திருக்குறட்கட்டுரைகள், என்னெஸ் பப்ளிகேஷன்ஸ், உடுமலை, முதற்பதிப்பு 2004.
2. மு. மரியதெரசா, திருக்குறள் சிறுகதைகள், விஜயா பதிப்பகம், முதற்பதிப்பு 2010.
3. மு. சற்குணவதி, அறவியல் சிந்தனைகளும் வாழ்வியல் சிந்தனைகளும், 2008.
தயாரிப்பு : முனைவர் ப.தமிழ்ப்பாவை

சரிபார்ப்பு: முனைவர் சு.சசிகலா

மேற்பார்வை: சு. பிருந்தா

இளங்கலை தமிழ் இலக்கியம்

மூன்றாமாண்டு – ஐந்தாம் பருவம்

பகுதி – III முதன்மைப்பாடம் – XI : தமிழ் மொழி வரலாறு 514Q11/515Q11
(2014-2015ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)
(75 மணி)

- நோக்கம் : ❖ மொழியின் அமைப்பை வரலாற்றுடன் அறிவுறுத்தல்
❖ காலந்தோறும் மொழிகளில் ஏற்படும் மாற்றங்கள் குறித்து விளக்குதல்

அலகு 1 : (15 மணி)

தோற்றுவாய் – மொழி அமைப்பும் வரலாறும் – மொழி வரலாற்றுச் சான்றுகள்
– இலக்கியங்கள் – இலக்கணங்கள் – உரையாசிரியர்கள் – வெளிநாட்டார்
எழுதிய இலக்கணங்கள் – அகராதிகள் – கல்வெட்டுக்கள் – பிறமொழிக்

கல்வெட்டுக்கள் - அயல்நாட்டார் குறிப்புகள் - கிளைமொழிகள் - தொல்திராவிட மொழியும் தமிழும் - தொடரும் தமிழும் - தமிழும் தோடா, தோத்தா மொழிகளும் - தென்திராவிட மொழிகளின் சிறப்பியல்புகள் - தமிழ்ப் பிராமிக் கல்வெட்டுக்களின் மொழி - அரிட்டாபட்டி கல்வெட்டு - மருகாந்தலைக் கல்வெட்டு - அரிக்கமேடு பிராமி எழுத்து - திருப்பரங்குன்றக் கல்வெட்டு - கமுகுமலைக் கல்வெட்டு - புகழூர்க் கல்வெட்டு - சித்தன்னவாசல் கல்வெட்டு - ஆண்டிப்பட்டி பிராமி எழுத்து - அதியமான் கல்வெட்டு - திருவாதவூர் - விக் கிரமங்கலம் - அழகர்மலை - ஆணைமலை.

அலகு 2 :

(15 மணி)

தொல்காப்பியத் தமிழ் - மெய்யொலிகளின் பிறப்பு - சார்பு எழுத்துக்கள் - மொழி இறுதியாதல் - மெய்ம் மயக்கங்கள் - மூவிடப்பெயர் - எண்ணுப் பெயர்கள் - வேற்றுமை - தொழிற்பெயர் - பெயர்ப் பதிலி விசுவதிகள் - சங்ககாலத் தமிழ் - எகரம் அகரமாதல் - தன்மை பன்மை - ஊகாரம் ஆகாரமாதல் - மூக்கொலி மறைவு - யகர ஒலி மறைதல் - உறழ்ச்சி - இறந்தகாலம் - இறப்பல்லாக் காலம் - தன்மை ஒருமை - தன்மைப் பன்மை - முன்னிலை ஒருமை - முன்னிலைப் பன்மை - படர்க்கை - ஆண்பால் - பெண்பால் - ஒன்றன்பால் - பலர்பால் - பலவிற்பால் - எழுவாய் பயனிலை இயைபு - செய்தி வாக்கியங்கள் - வினா வாக்கியங்கள் - வியங்கோள் வாக்கியங்கள் - உணர்வு வாக்கியங்கள் - ஏவல் வாக்கியங்கள் - செய்வினை வாக்கியம் - தனிநிலை, கலப்பு, கூட்டு வாக்கியங்கள் - சங்க மருவிய காலத்தமிழ் - யகர மெய் கெடல் -

நகர மெய் கெடல் - குறில் நெடிலாதல் - சகர முதன் மொழிச் சொற்கள் - ஏகரத்தின் முன் இகரம் வரல் - பால்விசுவதி - கள் பன்மை விசுவதி - பெயர்ப்பதிலி - சுட்டுப் பெயரடைகள் - வேற்றுமை - எண்ணுப்பெயர்கள் - வினையெச்சம் - பெயரெச்சம் - வினையாலணையும் பெயர் - தொழிற்பெயர் - துணைவினை - விசுவதிகள்.

அலகு 3 :

(15 மணி)

பல்லவர்காலத் தமிழ் - மெய்யொலிகள் - ஒருங்கிணைவு - நகர நகர மயக்கம் - அனுமதி வினை - சோழர்காலத் தமிழ் - மொழிமுதல் எழுத்துக்கள் - மொழி இறுதி எழுத்துக்கள் - மெய்யொலி இடையண்ணமாதல் - தடையொலிகளின் ஒலிப்புடைமை - பால் காட்டும் விசுவதி - வேற்றுமை - நாயக்கர் காலத்தமிழ் - மெய்யொலிகள் - ஒலிப்புடைய, ஒலிப்பிலாத் தடையொலிகள் - மெய்த்தடையொலிகள் - மூக்கொலிகள் - எகர ஒகர எழுத்துக்களின் வரிவடிவம் - பெயர்ப்பதிலிகள் - எண்ணுப்பெயர்கள் - திசைகாட்டும் சொற்கள் - வியங்கோள் - எச்சங்கள் - புதிய விசுவதிகள் - மராட்டியர் காலத்தமிழ் - இலக்கியங்கள் - கல்வெட்டுக்கள் - குறியீடுகள் - செப்பேடுகள் - சுருக்க எழுத்துக்கள் - உருபனியல் - கால இடைநிலைகள் - பெயரெச்சங்கள் - முன்னிலை ஒருமை - தமிழில் மராட்டி சொற்கள்.

அலகு 4 :

(15 மணி)

பத்தொன்பது, இருபதாம் நூற்றாண்டுத் தமிழ் – மூக்கின் உயிர்கள் – பேச்சுத் தமிழில் ஒலி மாற்றங்கள் – சந்தி – பருப்பொருட் பெயரும் நுண்பொருட் பெயரும் – ஆக்கப் பெயர்கள் – பதிலிடு பெயர்கள் – எண்ணடை – துணைவினை, ஒட்டுக்கள் – அறிவியல் தமிழ் – வானொலித் தமிழ் – பத்திரிகைத் தமிழ் – கல்வெட்டுத் தமிழ் – வரிவடிவம் – உயிரொலி மாற்றங்கள் – மெய்யொலி மாற்றங்கள் – சாசனத்தமிழ் – தமிழில் பிறமொழிக் கலப்பு வரலாறு – வடமொழி – முண்டாமொழி – மராத்தி – கன்னடம் – தெலுங்கு – மலையாளம் – பிறமொழிகளில் தமிழ்.

அலகு 5 :

(15 மணி)

தமிழின் கிளைமொழிகளும் வரலாறும் – கிளைமொழிகள் – ஒலியன்கள் – இலக்கணக் கூறுகள் – மத்தியக் கிளைமொழி – மேற்குக் கிளைமொழி – சமூகக் கிளைமொழிகள் – பேச்சுமொழி – தொழில் பேச்சு வழக்கு – தமிழ்ச் சொற்பொருள் மாற்றம் – சொற்பொருள் மாற்றம் – தமிழ்ச்சொற்றொடர் அமைப்பு வரலாறு – அண்மை உறுப்புப் பிரிப்பு முறை – சொற்றொடர் – மாற்றிலக்கணம் – தொடரமைப்புப் பகுதி – உருயொலியனில் பகுதி – தமிழ் வரிவடிவ வரலாறு – உருவெழுத்து – பிராமி எழுத்து – கிரந்த எழுத்து – தமிழ் எழுத்து – நாகரி எழுத்து – எழுத்துச் சீர்திருத்தம்

பாடநூல் : டாக்டர் சு. சக்திவேல், தமிழ்மொழி வரலாறு, மணிவாசகர் பதிப்பகம், சென்னை, முதற்பதிப்பு 1984.

பார்வை நூல்கள்

1. முனைவர் ச.வே. சுப்பிரமணியன், தொல்காப்பியம், 2006, (கையடக்கப் பதிப்பு), தமிழ் இலக்கிய வரலாறு, மணிவாசகர் பதிப்பகம்.
2. வே.தி. செல்லம், தமிழக வரலாறும் பண்பாடும், தமிழக வரலாறு – புதிய பார்வை, மணிவாசகர் பதிப்பகம், 2010.
3. பேராசிரியர் சோம. இளவரசு, தமிழ் இலக்கிய வரலாறு, மணிவாசகர் பதிப்பகம்.

தயாரிப்பு : ந. சாரதாமணி

சரிபார்ப்பு : ல. ராஜேஸ்வரி

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

மூன்றாமாண்டு – ஐந்தாம் பருவம்

பகுதி – III சிறப்புப்பாடம் – I – இதழியல்

514QE1/515QE1

(2014-2015ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

- நோக்கம் :**
- ❖ வளர்ந்து வரும் துறைகளுள் இன்றியமையாதது இதழியல் என்பதை உணர்த்துதல்
 - ❖ இதழ் உருவாக்கம் குறித்து அறிவுறுத்தல்
 - ❖ இலக்கியம் கற்போரைப் பிற்காலத்தில் இதழியலாளராக தூண்டுதல்

அலகு 1 :

(15 மணி)

இதழியல் விளக்கம் - மக்கள் தொடர்புச் சாதனங்கள் - மக்கள் தொடர்புக் கருவிகளில் பத்திரிக்கைகள் - பத்திரிக்கைகளின் பணிகள் - இதழியல் விதிகள் - பத்திரிக்கைகளின் பொறுப்புகளும் கடமைகளும் - மக்கள் ஆட்சியில் பத்திரிக்கைகளின் பண்பு

அலகு 2 :

(15 மணி)

செய்தித்தாளின் தோற்றம் - இந்திய இதழியல் - இந்திய விடுதலைப் போராட்டத்தில் இதழ்களின் பண்பு - தமிழ் இதழ்கள்.

அலகு 3 :

(15 மணி)

செய்தி வகைகள் - களங்கள் - செய்தியாளர்கள் - செய்திச் சேகரிப்பு எழுதும் முறை - பேட்டி - தலைப்பு - தலையங்கம் - பக்கமைப்பு - செய்தி நிறுவனங்கள்

அலகு 4 :

(15 மணி)

இதழியல் சட்டங்கள் - பத்திரிக்கை கவுன்சில் - இதழ்களின் சுதந்திரம் - இதழ்களின் நடத்தைகளும் - இன்றைய இதழியல் - நிர்வாக அமைப்பு

அலகு 5 :

(15 மணி)

இதழ்களின் பகுப்பும் அமைப்பும் - இதழ்களில் இடம்பெறுவன - விளம்பரங்கள் - புலனாய்வு இதழ்கள் - நச்சு இதழ்கள்

பாடநூல் :

1. முனைவர் ச. ஈஸ்வரன் & முனைவர் இரா. சபாபதி, “இதழியல்” - பாவை பப்ளிகேஷன்ஸ், சென்னை , முதற்பதிப்பு 2009.

பார்வை நூல்கள்

1. மா.பா. குருசாமி - “இதழியல் கலை”, திருச்சந்தூர், முதற்பதிப்பு 1988.
2. டாக்டர் வெ.கிருட்டிணசாமி, “தகவல் தொடர்பியல்”, மணிவாசகர் பதிப்பகம், சென்னை
3. கி.இராசா - இதழியல், தாமரை பப்ளிகேஷன்ஸ், முதற்பதிப்பு 2005

தயாரிப்பு : ந. சாரதாமணி

சரிபார்ப்பு : சு. பிருந்தா

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

மூன்றாமாண்டு ஆறாம் பருவம்

பகுதி - III சிறப்புப்பாடம் - III - சுற்றுலாவியல்

614QE2/615QE2

(2014-2015ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

நோக்கம்: மனிதனின் மன இறுக்கம், மன அலைச்சல், மனசோர்வு ஆகியவற்றைப் போக்குவதற்காகவும், புத்துணர்வு பெற நம் நாட்டிலும் உலக அளவிலும் சுற்றுலா வளர்ச்சி அடைந்துள்ள நிலையைப் பற்றியும் மாணவர்கள் அறிந்து கொள்ளச் செய்தல்.

அலகு 1 :

(15 மணி)

சுற்றுலா - ஒரு விளக்கம், உலக நாடுகளில் சுற்றுலா வளர்ச்சி, பாரதத்தில் சுற்றுலா வளர்ச்சி.

அலகு 2 :

(15 மணி)

தமிழ்நாட்டில் சுற்றுலா வளர்ச்சி, பன்னாட்டுப் பலவகைப் பயணிகள், சுற்றுலாவின் சமூக பொருளாதார விளைவுகள்

அலகு 3 :

(15 மணி)

சுற்றுலாப் பயணிகள் பற்றிய புள்ளி விவரங்கள், சுற்றுலாவைத் திட்டமிடுதலும் மேம்படுத்தலும், சுற்றுலா விடுதிகள்

அலகு 4 :

(15 மணி)

சுற்றுலாப் பயணிகளின் பல்வேறு போக்குவரத்துகள், சுற்றுலா கழகங்கள், சுற்றுலா பயண முகவர்கள்

அலகு 5 :

(15 மணி)

சுற்றுலாவின் வணிகச் சந்தைகள், சுற்றுலாவின் வழிகாட்டிகள், தமிழ் இலக்கியத்தில் பயண நூல்கள்

பாடநூல் : வெ. கிருட்டிணசாமி, சுற்றுலா வளர்ச்சி, மணிவாசகர் பதிப்பகம், முதல் பதிப்பு : டிசம்பர் 1986.

பார்வை நூல்கள்

1. முனைவர் ச.ஈஸ்வரன், சுற்றுலாவியல், பார்வை பப்ளிகேஷன்ஸ், சென்னை.
2. டாக்டர் ஏ. சுவாமிநாதன், சுற்றுலா, தீபா பதிப்பகம், சென்னை.
3. வே. திருநாவுக்கரசு, தமிழ்நாட்டில் சுற்றுலா, வசந்தா பிரசுரம், சென்னை.

தயாரிப்பு : முனைவர் மு. ருக்மணி

சரிபார்ப்பு : முனைவர் சு. சசிகலா

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

ஸ்ரீ ஜி.வி.ஜி. விசாலாட்சி மகளிர் கல்லூரி (தன்னாட்சி)
பாரதியார் பல்கலைக் கழகத்திற்கு உட்பட்டது
தமிழ்த்துறை
இளங்கலை தமிழ் இலக்கியம்
பருவமுறைத் தேர்வும் மதிப்பெண் பகிர்வும்
2014-2015-ஆம் கல்வியாண்டில் பயிலும் மாணவியருக்குரியது

பாடக் குறியீட்டு எண்	பாடத் தலைப்புகள்	கற்பிக்கும் காலம் ஒரு வாரத்திற்கு	தேர்வு				தரப் புள்ளிகள்
			காலம்	அகமதிப்பீட்டுத் தேர்வு	புற மதிப்பீட்டு தேர்வு	மொத்த மதிப்பெண்	
	பருவம் - I						
114TA1	பகுதி I – தமிழ்த்தாள் - I	6	3	25	75	100	3
114EN1	பகுதி II – ஆங்கிலம் – I	6	3	25	75	100	3
114Q01	பகுதி III – முதன்மைப்பாடம் – I இக்கால இலக்கியம் I	5	3	25	75	100	4
114Q02	முதன்மைப்பாடம் – II இலக்கணம் I: நன்னூல் - எழுத்து	5	3	25	75	100	4
114AQ1	துணைப்பாடம் I – தமிழக வரலாறும் பண்பாடும் - I	6	3	25	75	100	2
114EVS	பகுதி IV – Environmental Studies	2	2	50	--	50	2
	பருவம் - II						
214TA2	பகுதி I – தமிழ்த்தாள் – II	6	3	25	75	100	4
214EN2	பகுதி II – ஆங்கிலம் – II	6	3	25	75	100	4
214Q03	பகுதி III – முதன்மைப்பாடம் – III இக்கால இலக்கியம் II	5	3	25	75	100	4
214Q04	முதன்மைப்பாடம் IV இலக்கணம் II நன்னூல் - சொல்	5	3	25	75	100	4
214AQ2	துணைப்பாடம் II – தமிழக வரலாறும் பண்பாடும் - II	6	3	25	75	100	4
214VEC	பகுதி IV – Value Education	2	2	25	--	50	2
214ALQ	Advanced Learners Course –I பேச்சுக்கலை		3	-	100	100	3*
	பருவம் - III						
314TA3	பகுதி I – தமிழ்த்தாள் – III	6	3	25	75	100	4
314EN3	பகுதி II – ஆங்கிலம் – III	6	3	25	75	100	4
314Q05	பகுதி III – முதன்மைப்பாடம் – V பக்தி இலக்கியமும் சிற்றிலக்கியமும்	3	3	25	75	100	4
314Q06	முதன்மைப்பாடம் VI இலக்கணம் III யாப்பருங்கலக்காரிகையும் (ஒழியியல் நீங்கலாக) தண்டியலங்காரமும்	4	3	25	75	100	4
314AQ3	துணைப்பாடம் III – தமிழ் இலக்கிய வரலாறு – I	6	3	25	75	100	4
314QS1	பகுதி IV – Skill Based Course I – மொழியியல்	3	3	75	--	75	3

பாடக் குறியீட்டு எண்	பாடத் தலைப்புகள்	கற்பிக்கும் காலம் ஒரு வாரத்திற்கு	தேர்வு				தரப் புள்ளிகள்
			காலம்	அகமதிப்பீட்டுத் தேர்வு	புற மதிப்பீட்டு தேர்வு	மொத்த மதிப்பெண்	
314NNI	துறைசாரா சிறப்பு இலக்கியம் – I உடுமலை நாராயண கவி இலக்கியம்	2	2	75	--	75	2
பருவம் -IV							
414TA4	பகுதி I – தமிழ்த்தாள் – IV	6	3	25	75	100	4
414EN4	பகுதி II – ஆங்கிலம் – IV	6	3	25	75	100	4
414Q07	பகுதி III – முதன்மைப்பாடம் – VII காப்பியங்கள்	4	3	25	75	100	4
414Q08	முதன்மைப்பாடம் – VIII – இலக்கணம் IV: நம்பியகப்பொருளும், புறப்பொருள் வெண்பாமாலையும்	4	3	25	75	100	4
414AQ4	துணைப்பாடம் IV – தமிழ் இலக்கிய வரலாறு – II	6	3	25	75	100	4
414QS2	பகுதி IV – Skill Based Course II – மொழிபெயர்ப்பியல்	3	3	75	--	75	3
414NGA	துறைசாரா சிறப்பு இலக்கியம் II General Awareness (Online)	--	1	50	--	50	2
414ALQ	Advanced Learners Course II திரைத்தமிழ்	--	--	--	100	100	3*
பருவம் - V							
514Q09	பகுதி III – முதன்மைப்பாடம் – IX அற இலக்கியம்	5	3	25	75	100	4
514Q10	முதன்மைப்பாடம் – X சங்க இலக்கியம் - அகம்	5	3	25	75	100	4
514Q11	முதன்மைப்பாடம் – XI தமிழ்மொழி வரலாறு	6	3	25	75	100	4
514Q12	முதன்மைப்பாடம் – XII இலக்கியத் திறனாய்வியல்	5	3	25	75	100	4
514QE1	சிறப்புப்பாடம் – I – இதழியல்	6	3	25	75	100	4
514QS3	பகுதி IV – Skill Based Course – III - இயற்கை மருத்துவம்	3	3	75	--	75	3
பருவம் - VI							
614Q13	பகுதி III – முதன்மைப்பாடம் – XIII சங்க இலக்கியம் - புறம்	5	3	25	75	100	4
614Q14	முதன்மைப்பாடம் – XIV கால்டுவெல் ஒப்பிலக்கணம்	5	3	25	75	100	4
614Q15	முதன்மைப்பாடம் – XV தமிழின் செம்மொழிப் பண்புகள்	5	3	25	75	100	4
614QE2	சிறப்புப்பாடம் – II – சுற்றுலாவியல்	6	3	25	75	100	4
614QE3	சிறப்புப்பாடம் – III – கவின்கலைகள்	6	3	25	75	100	4
614QS4	பகுதி IV – Skill Based Course IV கல்வெட்டியல்	3	3	75	--	75	3
614EX1/ 614EX2/ 614EX3/ 614EX4/ 614EX5	பகுதி – V Extension	--	--	50	--	50	2

பாடக் குறியீட்டு எண்	பாடத் தலைப்புகள்	கற்பிக்கும் காலம் ஒரு வாரத்திற்கு	தேர்வு				தரப் புள்ளிகள்
			காலம்	அகமதிப்பீட்டுத் தேர்வு	புற மதிப்பீட்டு தேர்வு	மொத்த மதிப்பெண்	
614ALQ	Advanced Learners Course - III போட்டித் தேர்வில் தமிழ்	--	--	--	100	100	3*
	Total Credits						140

இளங்கலை தமிழ் இலக்கியம்
முதலாண்டு முதல் பருவம்
பகுதி -III முதன்மைப்பாடம் -II இலக்கணம் -I
நன்னூல் -எழுத்து 114Q02
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(65 மணி)

நோக்கம் : ❖ எழுத்திலக்கணம் வழி மொழித்திறனை வளர்த்தல்
❖ தமிழ்மொழியின் இலக்கணச் செழுமையை அறியச் செய்தல்

- அலகு 1 : பொதுப்பாயிரம் (9 மணி)
அலகு 2 : எழுத்தியல் (13 மணி)
அலகு 3 : பதவியல் (13 மணி)
அலகு 4 : உயிரீற்றுப்புணரியல் (15 மணி)
அலகு 5 : மெய்யீற்றுப்புணரியல், உருபுபுணரியல் (15 மணி)

பாடநூல் : ஆறுமுக நாவலர் (காண்டிகையுரை), நன்னூல் - எழுத்து, கழக வெளியீடு, சென்னை.

பார்வை நூல்கள்

- முனைவர் ப. வேல்முருகன், எழுத்திலக்கண மாற்றம், தி. பார்க்கர், மார்ச் 2006.
- டாக்டர். கு. இன்னாசி, எழுத்தியல், அபிராமி பப்ளிகேஷன்ஸ், சென்னை, 1983.

இளங்கலை தமிழ் இலக்கியம்
முதலாண்டு – முதல் பருவம்
பகுதி - III துணைப்பாடம் -I தமிழக வரலாறும் பண்பாடும் -I 114AQ1
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

நோக்கம் : ❖ தமிழிலக்கியம் பயிலும் மாணவியருக்குத் தமிழகவரலாறு பற்றி அறிவுறுத்தல்
❖ தமிழக மக்களும், அவர்தம் பண்பாடும் பற்றிய அறிவூட்டுதல்
❖ தமிழ் இலக்கியங்கள் தோன்றியமைக்கான சமுதாயப் பின்னணிகளைக் கற்பித்தல்.
❖ தமிழக வரலாற்றின்வழி இலக்கியம் பயிலும் மாணவியரின் தமிழறிவை வளப்படுத்துதல்

அலகு 1 : (15 மணி)

தமிழக வரலாற்றுக்கான அடிப்படை ஆதாரங்கள் – வரலாற்றுக்கு முற்பட்ட

காலம் – சங்க காலம் – பல்லவர் காலம் – தமிழகத்துக் கல்வெட்டுகளும்செப்பேடுகளும் – பாண்டிய சோழப் பேரரசுக் காலம் – மத்திய காலம் – பிற்காலம் – தமிழகத்தின் இயற்கை அமைப்புகள் – வரலாற்றுக் காலத்துக்கு முந்திய தமிழகம் – சிந்துவெளி அகழ்வாராய்ச்சி.

அலகு 2 : (15 மணி)

பண்டைத்தமிழரின் அயல்நாட்டுத் தொடர்புகள் – தமிழ் வளர்த்த சங்கம்

அலகு 3 : சங்க இலக்கியம் – முழுவதும் (15 மணி)

அலகு 4 : (15 மணி)

பண்டைத் தமிழரின் வாழ்க்கை – உணவு – அணிகலன்கள் – உறையுள் – வாணிகம் – விளையாட்டுகள் – கலைகள் – கல்கி – குலங்கள் – மொழி – அரசியல் – சங்க கால ஆட்சிமுறை – அரச பரம்பரை – குறநில மன்னர்கள் – களப்பிரர்கள்

அலகு 5 : (15 மணி)

பல்லவர்கள் – முதலாம் நரசிம்மவர்மன் – மலை வண்ண ஒவியம் – சோழர்கள் – ரேனாண்டுச் சோழர்கள் – கொங்கு நாடும் சேரநாடும் – குறுநில மன்னர்கள் – முத்தரையர்கள் – இருக்குவேளிர் – அதிகமான்கள் – சிற்றரசர்கள் – தமிழகத்தில் நான்காம் நூற்றாண்டு முதல் ஒன்பதாம் நூற்றாண்டு வரையில் சமூகநிலை – ஆழ்வார்கள் – மாணிக்கவாசகர் – சிற்பம் – அரசியல் – தானமுறைகள் – ஊராட்சி முறைகள் – கோயில்கள்.

பாடநூல் : கே.கே.பிள்ளை, தமிழகவரலாறு மக்களும்பண்பாடும், உலகத் தமிழாராய்ச்சி நிறுவனம், 2008.

பார்வை நூல்கள்

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2. மா. இராசமாணிக்கம், பல்லவர் வரலாறு, கழக வெளியீடு
3. மயிலை சீனி. வேங்கடசாமி, களப்பிரர் ஆட்சியில் தமிழகம், மக்கள் வெளியீடு, சென்னை, 1976.
4. ந.சி. கந்தையா, தமிழகம், கழக வெளியீடு.

தயாரிப்பு : முனைவர் சு. சசிகலா

சரிபார்ப்பு : முனைவர் ப. தமிழ்ப்பாவை

மேற்பார்வை : சு.பிருந்தா

இளங்கலை தமிழ் இலக்கியம்

முதலாண்டு - இரண்டாம் பருவம்

பகுதி – III முதன்மைப்பாடம் -IV - இலக்கணம் -II : நன்னூல் -சொல் 214Q04

(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(65 மணி)

நோக்கம் : ❖ நன்னூல் - சொல் இலக்கணம் வழி சொற்களைப் பற்றிய இலக்கண அறிவு பெறச்செய்தல்.

❖ இலக்கியச் சான்றுகள் வழி சொல் வளம் பெறச் செய்தல்.

அலகு 1 : பெயரியல் (11 மணி)

அலகு 2 : பெயரியல் (11 மணி)

அலகு 3 : வினையியல் (15 மணி)

அலகு 4 : பொதுவியல் (15 மணி)

அலகு 5 : இடையியல், உரியியல்

(13 மணி)

பாடநூல் : ச. ஈஸ்வரன், நன்னூல் - சொல்லதிகாரம் காண்டிகை உரை, பாவை
பப்ளிகேஷன்ஸ் வெளியீடு, முதற்பதிப்பு 2014.

பார்வை நூல்கள்

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3. (பதி.ஆ.) ச. அகத்தியலிங்கம் & க. பாலசுப்பிரமணியன், இலக்கண ஆய்வுக் கட்டுரைகள் - 1, அண்ணாமலைப் பல்கலைக்கழகம், 1974.
4. ஞா. தேவநேயன், சொல்லாராய்ச்சிக் கட்டுரைகள், சைவ சித்தாந்த நூற்பதிப்புக்கழகம், 1949.

தயாரிப்பு : ல. ராஜேஸ்வரி

சரிபார்ப்பு : சு. பிருந்தா

மேற்பார்வை : முனைவர் ப. தமிழ்ப்பாவை

இளங்கலை தமிழ் இலக்கியம்

இரண்டாமாண்டு - மூன்றாம் பருவம்

பகுதி -III முதன்மைப்பாடம் :V-பக்தி இலக்கியமும் சிற்றிலக்கியமும் 314Q05/315Q05
(2014 -2015 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(38 மணி)

நோக்கம் : ❖ பக்தி இலக்கியங்கள் வழி ஆன்மீக உணர்வூட்டல்

❖ நாயன்மார்கள், ஆழ்வார்களின் பக்தியையும், இறைவனின் அற்புதச் செயலையும் அறியச் செய்தல்

இளங்கலை தமிழ் இலக்கியம்

முதலாண்டு - இரண்டாம் பருவம்

பகுதி - III துணைப்பாடம் -II -தமிழக வரலாறும் பண்பாடும் - II 214AQ2
(2015-2016ஆம் கல்வியாண்டு முதல் பயிலும் மாணவியருக்குரியது)

(75 மணி)

நோக்கம் : ❖ மூவேந்தர் ஆட்சிச் சிறப்பு, சமுதாயப் பின்புலம், தமிழக நிலை பற்றி அறிவுறுத்தல்

❖ ஐரோப்பியர் வரவினால் தமிழக வரலாற்றில் ஏற்பட்ட மாற்றங்கள், பண்பாட்டு பதிவுகளைக் கற்பித்தல்

❖ இருபதாம் நூற்றாண்டு வரையிலான தமிழக வரலாறும் பண்பாடும் பற்றிக் கற்பித்தலின் வழி சமூக, பண்பாட்டு அறிவினைப் பெறச் செய்தல்

அலகு 1 :

(15 மணி)

சோழப்பேரரசின் தோற்றம் - பராந்தகன் - மாமன்னன் முதலாம் இராசராசன் - முதலாம் இராசேந்திரன் - முதலாம் இராசாதிராசன் - முதலாம் குலோத்துங்கன் எ விக்किரம சோழன் - இரண்டாம் குலோத்துங்கன் - இரண்டாம் இராசராசன் - இரண்டாம் இராசாதிராசன் - மூன்றாம் குலோத்துங்கன் - மூன்றாம் இராசராசன் - மூன்றாம் இராசேந்திரன் - கோப்பெருஞ்சிங்கன் - பாண்டியர்கள்.

அலகு 2 :

(15 மணி)

சோழர்காலப் படைகள் - வலங்கைக் இடங்கைக் குலங்கள் - பெண்கள் - தேவரடியார் - அடிமைத்தொழில் - கட்டடங்களும் சிற்பங்களும் - ஓவியக்கலை - மன்னர்களின் அரண்மனைகள் - அணிகலன்கள் - உணவு

வகைகள் - ஒப்பனைக் கலை - இசைக்கலை - மற்ற கலைகள் - திருமணம் - நம்பிக்கைகள் - பழக்கவழக்கம் - பொழுதுபோக்கு - மருத்துவம் - மடங்கள் - சமயம் - கடவுள்கள் - சைவத்திருமுறைகள் எ இலக்கியம் - புகழேந்தி - சமணகாவியங்கள் - பெரியபுராணம் - மெய்கண்டார் - வைணவ இலக்கியம் - உரையாசிரியர்கள்.

அலகு 3 :

(15 மணி)

மாறவர்மன் சுந்தரபாண்டியன் - சடையவர்மன் சுந்தரபாண்டியன் - மாறவர்மன் குலசேகரபாண்டியன் - பாண்டிய உள்நாட்டுப் போர் - மதுரையில் சுல்தான் ஆட்சி - விசய நகர ஆட்சி - கிருஷ்ண தேவராயன் - செஞ்சி நாயக்கர்கள் - தஞ்சை நாயக்கர்கள் - மதுரை நாயக்கர்கள் - பிற்காலத்துப் பாண்டியர்கள் - பிரெஞ்சு ஆங்கிலேயர் புகுதல் - மதுரை திருமலைநாயக்கன் - செஞ்சி - தஞ்சாவூர் நாயக்கர்கள் - மராட்டியர்கள் - மதுரை நாயக்கர்கள்: சொக்கநாதன் - பிற்கால மதுரை நாயக்கர்கள் - மீனாட்சி.

அலகு 4 :

(15 மணி)

பிராமணர்கள் - முஸ்லீம்கள் - வலங்கை - இடங்கைப் பூசல்கள் - பறையர்கள் - தேவரடியார்கள் - சில பழக்கவழக்கங்கள் - இலக்கியம் - சித்தர் பாடல்கள் - சமயம் - ஐரோப்பியரின் வரவு - போர்ச்சுகீசியர் - டச்சுக்காரர்கள் - டேனியரும் பிரெஞ்சுக்காரரும் - கிழக்கிந்தியக் கம்பெனி

C11

- முதல் கருநாடகப் போர் - இரண்டாம் கருநாடகப் போர் - மைசூர்ப் போர்கள் - பாளையக்காரரின் கிளர்ச்சிகள் வீரபாண்டிய கட்டபொம்மன் - மருதுபாண்டியர் - தீர்த்தகிரி.

அலகு 5 :

(15 மணி)

அரசியல் - வேலூர்க் கலகம் - நாணயங்கள் - சில தீய பழக்க வழக்கங்கள் - குலப்பூசல்கள் - வலங்கை - இடங்கைப் பூசல்கள் - கல்வி - தமிழ் இலக்கியம் - மொழி ஆராய்ச்சி - திவ்விய ஞான சபை - பஞ்சம் - சித்திரவதை - அயல்நாடு சென்ற இந்தியர்கள் - இந்திய தேசியக் காங்கிரஸ் - இருபதாம் நூற்றாண்டில் தமிழகம் - வளம் காணும் தமிழகம் - பொருளாதார வளர்ச்சி - உழவுத் தொழில் - சுதந்திரத்துக்குப் பின் - இருபதாம் நூற்றாண்டில் தமிழின் நிலை - நாவல்கள் - நாடகம் - நாட்டியம் - தமிழ் எழுத்துக்கள் - அயல்நாடுகளில் தமிழ் வளர்ச்சி.

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பார்வை நூல்கள் :

4. தி.வை. சதாசிவ பண்டாரத்தார் & இராமசாமி, பிற்காலச் சோழர் வரலாறு, சங்கப் பலகை வெளியீடு, சேலம் - 2008.
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தயாரிப்பு : ந.சாரதாமணி

சரிபார்ப்பு : சு.பிருந்தா

மேற்பார்வை : முனைவர். ப. தமிழ்ப்பாவை

Curriculum Design
Sri G.V.G. VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of English
Scheme of Examination – CBCS Pattern
Programme - B.A. English Literature
(For the Students admitted from the academic year 2017-2018 onwards)

Course Code	Course Title	Ins Hrs/Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
117 TA1/ 117 MY1 / 117 HD1/ 117 FR1/ 117 EN1 117 L01 117 L02 117 AL1 117EVS	Semester I						
	Part I - Language I	6	3	25	75	100	4
	Part II - English I	6	3	25	75	100	4
	Part III						
	Core I - Poetry I	5	3	25	75	100	4
	Core II - Prose	5	3	25	75	100	4
	Allied I - Literary Forms I	6	3	25	75	100	4
	Part IV - Environmental Studies	2	2	50	-	50	2
217 TA2/ 217 MY2/ 217 HD2/ 217 FR2/ 217 EN2	Semester II						
	Part I - Language II	6	3	25	75	100	4
	Part II - English II	6	3	25	75	100	4
	Part III						

217 L03	Core III - English for Employability	5	3	25	75	100	4
217 L04	Core IV - Fiction	5	3	25	75	100	4
217 AL2	Allied II - Literary Forms II	6	3	25	75	100	4
217VEC	Part IV - Value Education	2	2	50	-	50	2
Course Code	Course Title	Ins Hrs/Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester III							
317 TA3/ 317 MY3/ 317 HD3/ 317 FR3/ 317 EN3	Part I - Language III	6	3	25	75	100	4
317 EN3	Part II - English III	6	3	25	75	100	4
317 L05	Part III Core V - Women’s Writings	3	3	25	50	75	3
318 L06	Core VI - Drama	4	4	25	75	100	4
317 AL3	Allied III - Social History of England	6	3	25	75	100	4
317 LS1	Part IV Skill Enhancement Course I : English Language Teaching - I	3	3	75	-	75	3
317NEC	Non-Major Elective - English for Competitive Examinations	2	2	50	-	50	2
Semester IV							
417 TA4/ 417 MY4 / 417 HD4/ 417 FR4	Part I - Language IV	6	3	25	75	100	4

417 EN4	Part II - English IV	6	3	25	75	100	4
	Part III						
417 L07	Core VII - Poetry II	4	3	25	75	100	4
417 L08	Core VIII - English for Career Development	3	3	25	50	75	3
417 AL4	Allied IV - History of English Literature	6	3	25	75	100	4
	Part IV						
	Skill Enhancement Course						
417LS2	II : English Language Teaching -II	3	3	75	-	75	3
417NGA	General Awareness	-	1	50	-	50	2
417GIS	Information Security	2	2	50	-	Grade	Grade
417 ALL	Advanced Learners' Course I - Literature and Theatre Arts	-	3	-	100	100	4*
Course Code	Course Title	Ins Hrs/Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III						
517 L09	Core IX - Shakespeare	6	3	25	75	100	4
517 L10	Core X - American Literature	6	3	25	75	100	4
517 L11	Core XI - Indian Writing in English	5	3	25	75	100	4
517 L12	Core XII - English for Business Correspondence	5	3	25	75	100	4
517 LE 1/ 517 LE 2	Elective I- Principles of Literary Criticism/ Approaches to Literature	5	3	25	75	100	4
	Part IV						
517 LS3	Skill Enhancement Course						
	III : English Language Teaching-III	3	3	75	-	75	3

	Semester VI						
	Part III						
617 L13	Core XIII - Intensive Study of an Author (Tagore)	6	3	25	75	100	4
617 L14	Core XIV - New Literatures	6	3	25	75	100	4
617 L15	Core XV - Classics in World Literature	5	3	25	75	100	4
617 LE3/ 617 LE4	Elective II - Translation / Comparative Literature	5	3	25	75	100	4
617 LE5/ 617 LE 6	Elective III - Journalism / Mass Communication	5	3	25	75	100	4
	Part IV						
617 LS4	Skill Enhancement Course IV : English Language Teaching - IV (Project & Viva Voce)	3	3	75	-	75	3
	Part V						
617EX1/ 617EX2/ 617 EX3/ 617EX4/ 617EX5	Extension Activity			50		50	2
617ALL	Advanced Learners' Course II - Eminent Essayists	-	3	-	100	100	4*

*Starred Credits are treated as additional credits which are optional.

B.A. English Literature

Sri G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)							
Affiliated to Bharathiar University Department of English Scheme of Examination – CBCS Pattern Programme - B.A. English Literature (For the Students admitted from the academic year 2015-2016 onwards)							
Course Code	Course Title	Ins Hrs/Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
115 TA 1/ 115 MY1 / 115 HD 1/ 115 FR 1/ 115 EN1 115 L01 115 L02 115 AL1 115EVS	Semester I Part I - Language I	6	3	25	75	100	4
	Part II - English I	6	3	25	75	100	4
	Part III Core I - Poetry I	5	3	25	75	100	4
	Core II - Prose	5	3	25	75	100	4
	Allied I - Literary Forms I	6	3	25	75	100	4
	Part IV - Environmental Studies	2	2	50	-	50	2
	Semester II Part I - Language II	6	3	25	75	100	4
215 TA 2/ 215 MY2/ 215 HD 2/ 215 FR 2/ 215 EN 2	Part II - English II Part III	6	3	25	75	100	4

215 L03	Core III - English for Employability	5	3	25	75	100	4
215 L04	Core IV - Fiction	5	3	25	75	100	4
215 AL2	Allied II - Literary Forms II	6	3	25	75	100	4
215VEC	Part IV - Value Education	2	2	50	-	50	2
Course Code	Course Title	Ins Hrs/Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester III							
315 TA 3/ 315 MY3 / 315 HD 3/ 315 FR 3/ 315 EN 3	Part I - Language III	6	3	25	75	100	4
315 EN 3	Part II - English III	6	3	25	75	100	4
315 L05	Part III Core V - Women’s Writings	3	3	25	50	75	3
315 L06	Core VI - Drama	4	3	25	75	100	4
315 AL3	Allied III - Social History of England	6	3	25	75	100	4
315 LS1	Part IV Skill Based Course I: English Language Teaching – I	3	3	75	-	75	3
315NEC	Non-Major Elective Course I - English for Competitive Examinations	2	2	50	-	50	2
Semester IV							
415 TA 4/ 415 MY4 /	Part I - Language IV	6	3	25	75	100	4

415 HD 4/ 415 FR 4 415 EN 4	Part II - English IV Part III	6	3	25	75	100	4
415 L07	Core VII - Poetry II	4	3	25	75	100	4
415 L08	Core VIII - Career English	3	3	25	50	75	3
415 AL4	Allied IV - History of English Literature Part IV	6	3	25	75	100	4
415 LS2	Skill Based Course II: English Language Teaching – II	3	3	75	-	75	3
415NGA	Non - Major Elective Course II: General Awareness (online)	-	1	50	-	50	2
415GIS	Information Security	2	2	50	-	Grade	Grade
415 ALL	Advanced Learners Course I - Literature and Theatre Arts	-	-	-	100	100	4*
Course Code	Course Title	Ins Hrs/Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester V							
515 L09	Part III Core IX - Shakespeare	6	3	25	75	100	4
515 L10	Core X - American Literature	6	3	25	75	100	4
515 L11	Core XI - Intensive Study of an Author (Tagore)	5	3	25	75	100	4
515 L12	Core XII - Classics in World Literature	5	3	25	75	100	4
515 LE 1	Elective I - Principles of Literary Criticism Part IV	5	3	25	75	100	4
515 LS3	Skill Based Course III: English Language Teaching – III	3	3	75	-	75	3

	Semester VI						
	Part III						
615 L13	Core XIII - Indian writing in English	6	3	25	75	100	4
615 L14	Core XIV - New Literatures	6	3	25	75	100	4
615 L15	Core XV - English for Business Correspondence	5	3	25	75	100	4
615 LE2	Elective II - Translation	5	3	25	75	100	4
615 LE 3	Elective III - Journalism and Mass Communication	5	3	25	75	100	4
	Part IV						
615 LS4	Skill Based Course IV: English Language Teaching – IV (Project & Viva Voce)	3	-	-	-	75	3
	Part V						
615EX1/ 615EX2/ 615 EX3/ 615EX4/ 615EX5 615ALL	Extension Activities			50		50	2
	Advanced Learners Course II - Eminent Essayists	-	-	-	100	100	4*

*Starred Credits are treated as additional credits which are optional.

BA English Literature

Semester wise Distribution with Scheme of Examination

(For students admitted during the academic year 2012-2013&onwards)

Part	Course Code	Course Title	Ins.hrs/	Exam			Credit
				CIA	Uni.	Total	
		SEMESTER I					
I	112TA1	Language –I	5	25	75	100	3
II	112EN1	English Course–I	5	25	75	100	3
III	112L01	Core course I Poetry	6	25	75	100	5
III	112L02	Core course II Prose	5	25	75	100	4
III	112AL1	Allied paper I Literary forms I	5	25	75	100	4
IV	112EVS	Environmental studies (part IV)	2	-	50	50	2
		SEMESTER II					
I	112TA2	Language-II	6	25	75	100	3
II	211EN2	English Course II	6	25	75	100	3
III	212L03	Core course III-Fiction	6	25	75	100	5
III	212L04	Core course IV English for Employability	5	25	75	100	4
III	212AL2	Allied paper II Literary forms II	5	25	75	100	4
IV	212VE	Value Education – Human Rights 3 (Part IV)	2	-	50	50	2
III	212ALL	Advanced Learner’s Course-I - Novel	-	-		100	3

		SEMESTER III					
I	311TA3	Language III	5	25	75	100	3
II	311EN3	English III	5	25	75	100	3
III	312L05	Core course V Women's Writings	5	25	75	100	4
III	312L06	Core course VI Drama	5	25	75	100	4
III	1 2AL3	Allied paper III Social History of England	5	25	75	100	4
IV	312LS1	Skill based Course in ELT-Paper I Introduction to ELT	3	25	75	100	3
IV	312NEC	Non-Major Elective-I English for Competitive Examinations	2	25	75	100	2
		SEMESTER IV					
I	411TA4	Language – IV	5	25	75	100	3
II	411EN4	English – IV	5	25	75	100	3
III	412L07	Core course VII Poetry II	6	25	75	100	5
III	412L08	Core course VIII English for Employability II	4	25	75	100	4
III	412AL4	Allied paper IV History of English Literature	5	25	75	100	4
IV	412LS2	Skill based Course in ELT-Paper II-Methods and Approaches To Language Teaching	3	25	75	100	3
IV	412NME	Non-Major Elective- II General Awareness	2	25	75	100	2
III	412ALL	Advanced Learners Course II-Drama				100	3
		SEMESTER V					

II	512L09	Core course IX Shakespeare I	6	25	75	100	5
III	512L10	Core course X New Literature	5	25	75	100	4
III	512L11	Core course XI Intensive Study of an Author	5	25	75	100	4
III	512L12	Core course XII Indian Writing in English	5	25	75	100	4
III	512LE1	Elective course- I Principles of Literary Criticism	5	25	75	100	4
IV	512LS3	Skill based Course in ELT-Paper III-Literature and Language Teaching	3	25	75	100	3
		SEMESTER VI					
III	612L13	Core course XIII Shakespeare II	6	25	75	100	5
III	612L14	Core course XIV American Literature	6	25	75	100	5
III	612L15	Core course XV English for Employability III	5	25	75	100	4
III	612LE2	Elective course– II Translation	5	25	75	100	4
III	612LE3	Elective course – III English for Journalism	5	25	75	100	4
IV	612LS4	Skill Based Course Paper IV (Project)	3	25	75	100	3
III	612AL-L	Advanced Learner's Course III-Prose				100	3
V		Extension Activities	-		-	100	1
		Total				3600	140

Sub Code: 112 L01

B.A English Literature

Semester I

Part III Core Course I – Poetry I

(For students admitted from 2012– 2013 and onwards)

Objectives:

- To understand the matchless poetic art of Shakespeare, Wordsworth and a score of others.
- To help them learn the rhythm, Stress and intonation.
- To refine their aesthetic sense, individual taste and expression.

Credits: 5

Total No of Hours: 75

UNIT I:

- | | | |
|-----------------------------|----------------|----------|
| 1. Sonnet XVIII | Shakespeare | |
| 2. A Hymn to God the Father | John Donne | (15 hrs) |
| 3. Virtue | George Herbert | |

UNIT II:

- | | | |
|---|--------------------|---------|
| 4. Elegy written in a country churchyard | Thomas Gray | |
| 5. Songs of Innocence and Songs of Experience | William Blake | (15hrs) |
| 6. Tintern Abbey | William Wordsworth | |

UNIT III:

- | | | |
|-------------------------|--------------|---------|
| 7. Kubla Khan | Coleridge | |
| 8. Ode to a Skylark | P.B. Shelley | (15hrs) |
| 9. Ode on a Grecian Urn | Keats | |

UNIT IV:

10. My Last Duchess	Robert Browning	
11. Tithonus	Alfred Tennyson	(15hrs)
12. The Forsaken Merman	Mathew Arnold	

UNIT V:

13. God's Grandeur	Hopkins	
14. Prayer for my Daughter	W.B. Yeats	(15hrs)
15. Journey of the Magi	T.S. Eliot	

Book Prescribed:

The Winged Word, Ed. David Green, Macmillan, Chennai

Course Designed, Reviewed & Checked by

Mrs.T.Amuthavalli, Dr.D.Anusuya & Mrs.T.Amuthavalli

Sub Code: 112 L02

B.A English Literature

Semester-I

Part III Core Course II – Prose

(For students admitted from 2012– 2013 and onwards)

Objectives:

- To introduce the students to the essays written by English Writers.
- To introduce the students various periods of English Prose
- To expose them to a variety of themes and styles in prose

Credits: 4

Total No of Hours: 65

UNIT I:

- | | | |
|------------------------|------------------|---------|
| 1. Of the Club | Addison | |
| 2. Roger at the Church | Addison | (13hrs) |
| 3. The Man in Black | Oliver Goldsmith | |

UNIT II

- | | | |
|----------------------------------|-----------------|---------|
| 4. Dream children | Charles Lamb | |
| 5. Dissertation upon A Roast Pig | Charles Lamb | (13hrs) |
| 6. Fight | William Hazlitt | |

UNIT III:

- | | | |
|--|----------------|---------|
| 7. The Argument between the Bee and the Spider | Jonathan swift | |
| 8. The English Snobbery | Aldous Huxley | (13hrs) |
| 9. On Running after one's hat | G.K Chesterton | |

UNIT IV:

- | | | |
|----------------------|---------------|---------|
| 10. Fellow Traveller | A.G Gardiner | |
| 11. On Forgetting | Robert Lynd | (13hrs) |
| 12. Walking Tours | R.L.Stevenson | |

UNIT V:

- | | | |
|---------------------------------|-------------------------|---------|
| 13 Uncle Podger hangs a Picture | Jerome K Jerome | |
| 14 In Praise of Mistakes | Robert Lynd | (13hrs) |
| 15. The story of the sea | William and Stella Nida | |

Book Prescribed:

Galaxy of English Essayists. Macmillian, Ed by M.G.Nair.

Course: Designed, Reviewed & Checked by

Dr K.Maheswari, Mrs. G.RaginiDevi &Mrs. T.Amuthavalli

Sub Code: 112 A L 1

B.A.English Literature

Semester -I

Allied Course I – Literary Forms I

(For students admitted from 2012-2013 and onwards)

Objectives:

- To understand the forms of literature.
- To know the literary genres and movements.
- To help the students familiarize themselves with the principles of literature.

Credits: 4

Total No of Hours: 65

UNIT I:

Subjective and Objective poetry, the Lyric, the Ode, (13hrs)
the Sonnet, the Elegy, the Idyll, the Epic, the Ballad , the Satire.

UNIT II: Stanza Forms:

The Heroic Couplet, the Terza Rima, the Chaucerian Stanza (13hrs)
The Ottava Rima ,the Spenserian Stanza

UNIT III: Schools and Movements:

The Metaphysical school of poets The Classical movement (13hrs)
The Romantic Revival, Poets of the First World war, Poets of the
Second World war, Post -Modern poetry

UNIT IV: Dramatic Types :

Tragedy and Comedy, Tragic-comedy, Farce and Melodrama (13hrs)
the Masque the One Act play, the Dramatic Monologue

UNIT V: Glossary of Literary Terms

Allegory, Simile, Assonance, Blank Verse, Alliteration,
Imagery, Sprung Rhythm, Metaphor, Mock Epic, Symbol. (13hrs)

Book Prescribed: A Background to the study of English Literature, Birjadish Prasad, Macmillan .Select Literary Terms from Indigo Dictionary of Literary Terms, Cosmo Publications 2003

Course Designed, Reviewed, & Checked by

Dr.D.Anusuya, Mrs.D.Sujatha & Mrs.T.Amuthavalli.

Sub Code: 212 L03

BA English Literature

Semester II

Part III - Core Course III - Fiction I

(For students admitted from 2012 – 2013 and onwards)

Objectives:

- To understand the lives of the people in a particular period of history
- To understand the patterns of life,
- To learn to use the language in a variety of contexts, and to study novel as a literary genre.

Credits: 4

Total No of Hours: 65

UNIT I	: Great Expectations - Charles Dickens	(13hrs)
UNIT II	: Great Expectations - Charles Dickens	(13hrs)
UNIT III:	Wuthering Heights - Emily Bronte	(13hrs)
UNIT IV	: Mansfield Park-Jane Austen	(13hrs)
UNIT V	: Animal Farm – George Orwell	(13 hrs)

Course Designed, Reviewed & Checked by

Mrs. P.Renuga Dr.K.Maheswari & MrsT.Amuthavalli

B.A. English Literature

Semester II

PART III –Core Course IV -English for Employability - I

(For students admitted from 2012-2013 and onwards)

Objectives:

- To introduce the students to Linguistics and Phonetics.
- To familiarize with the vowels, consonant clusters and speech mechanism.
- To acquire skills in the correct usage of grammatical patterns and structures and develop communicative competency.

Credits: 5

Total No of Hours: 75

UNIT I

Air Stream Mechanism, The Organs of Speech, The Classification (15hrs)
and Description of Speech Sounds I – Consonants

UNIT II

The Classification and Description of Speech Sounds II (15hrs)
Vowels, Phonology, The Syllable

UNIT III

Parts of Speech : Page No (1 to 21)
Noun, Verb, Adjective, Adverb, Pronoun, (15hrs)
Article, Preposition, Conjunction, Interjection

UNIT IV

Forms of ‘be’
Subject and Predicate Agreement or Concord (15hrs)
The function of ‘be’

Other linking verbs

Negative sentences with other linking verbs

Yes or No Questions

Page No (22 to 40)

UNIT V

Information questions, Alternative questions, Tag questions, Complements, (15hrs)

Adjuncts, Punctuations, Paragraph Writing, some useful expressions.

Page No.(41 to 55)

Books Prescribed:

A Text Book of English Phonetics for Indian Students – T. Balasubramanian,

Macmillan 2000

Modern English Grammar – N. Krishnasamy Macmillan, Chennai 2002

Course Designed, Reviewed, & Checked by

Mrs.T.Amuthavalli, Mrs. D.Sujatha & Mrs.T.Amuthavalli

Sub Code : 212 AL 2

B.A. English Literature

Semester II

Allied course II – Literary Forms II

(For students admitted from 2012-2013 and onwards)

Objectives:

- To provide an objective base for knowledge and understand the forms of literature.
- To introduce various literary genres and movements
- To familiarize themselves with the principles of literature

Credits: 4

Total No of Hours : 65

UNIT I: Dramatic irony, Soliloquy and Aside,
Expectation and Surprise, Stage Directions

(13hrs)

UNIT II: Origin of English Drama and Theatre, Shakespearean Comedy

Tragedy, Romance, English Historical Plays, Roman Plays (13hrs)

UNIT III: The Essay and Novel (13hrs)

UNIT IV: The Short Story Biography and Autobiography, Criticism (13hrs)

UNIT V: Glossary of Literary Terms:

Post –Modernism, Catastrophe, Stream of consciousness, Blank Verse

Magic-Realism, Rhetoric, Chorus, Masque, Structuralism, Archetype (13hrs)

Book Prescribed:

A Background to the study of English Literature, Birjadish Prasad,
Macmillan 2000

A Glossary of Literary Terms

Course Designed, Reviewed & Checked by

Dr.D.Anusuya Mrs. D.Sujatha & Mrs. T. Amuthavalli

Sub Code : 211 ALL

B.A. English Literature

Semester II

Advanced Learner's Course I-Novel

(For students admitted from 2012-2013 and onwards)

Objectives:

- Study of a few representative novels will help to know more of the people and culture.
- To improve Vocabulary, Sentence structure, Idioms and Phrases.

Credit 3

Note: Since it is a self study, only two representative novels of

Two great popular novelists of English prescribed.

Tess of the D'Urbervilles

Thomas Hardy

Silas Marner

George Eliot

Sub Code: 310 L05

BA English Literature

Semester III

Part III Core Course V - Women's Writings

(For students admitted from 2012-2013 and onwards)

Objectives:

- To acquaint the students with the kaleidoscopic life as expressed by novelists.
- To understand the artistic and aesthetic approach of the women writers.

Credits:4

Total no of hours: 65

UNIT I : Poetry

The Gift of India	Sarojini Naidu	
Pretty	Stevie Smith	(13hrs)
Gift	Alice Walker	
Sita	Toru Dutt	

UNIT II : Prose

Men and Women	Virginia Wolf	
Women and Ecology	Carolyn Merchant	(13hrs)
The Sky is the Limit	Kalpna Chawla	

UNIT III: Novel

Ladies Coupe'	Anita Nair	
The Grass is singing	Doris Lessing	(13hrs)

UNIT IV: Drama

Mother of 1084	Maha sweta Devi	(13hrs)
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UNIT V: Biography

Kiran Bedi	Paramesh Dangwal	
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Marie Curie

Colin Swatridge

(13hrs)

Suggested Reading:

English Prose Collections- Dr.K Gunasekaran, New Century Book House, Chennai.

Panaroma Emerald Publishers, 2007

The English Tradition Prentice Hall, New Jersey 1991

Popular Plays Ed Biyot K Tirupathy OUP, 1992

English for Excellence, Short stories & Biographies, Lalitha Natarajan & Sasikal Natesan

Anuradha Publications, Chennai, 2006

Course Designed by Department of English

Sub Code: 312L06

BA English Literature

Semester III

Part III Core Course VI– Drama

(For students admitted from 2012-2013 and onwards)

Objectives:

- To initiate the students to study and know the various techniques in playwriting.
- To enrich the histrionic talents of the students.

Credits: 4

Total No of Hours: 65

UNIT I	: Dr .Faustus	-Christopher Marlowe	(13 hrs)
UNITII	: School for Scandal	-Sheridan	(13hrs)
UNIT III	: Importance of Being Earnest	- Oscar Wilde	(13hrs)
UNIT IV	: Pygmalion	- George Bernard Shaw	(13 hrs)
UNIT V:	Riders to the sea	- J.M Synge	(13hrs)

Suggested Reading:

Study of Drama H.Granville-Barker,London:Sidgwick & Jackson Ltd,1931.

An Essay on Comedy-G.Meredith Ithca. New York: Cornell University press,1956.

Course Designed,Reviewed & Checked by

Mrs.T.Amuthavalli., Mrs.D.Sujatha &Mrs.T.Amuthavalli

Sub Code: 31 AL 3

B.A. English Literature**Semester III - part III -Allied Course III****Social History of England**

(For students admitted from 2012-2013 and onwards)

Objectives:

- To enrich the knowledge of social and literary background.
- To get a comprehensive knowledge of various literary Movements.

Credits :4

Total No of.Hours:65

UNIT I:	Tudor England	(13 hrs)
UNIT II:	Stuart England	(13hrs)
UNIT III:	Hanoverian England	(13hrs)
UNIT IV:	Victorian England	(13hrs)
UNIT V:	Twentieth Century England	(13hrs)

Book Prescribed: Social History of England by Dr.P.Thailambal

Suggested Reading: Illustrated English Social History Volume 1,2,3,4

G.M.Travelyan. Penguin Books.

Course Designed,Reviewed, & Checked by

Mrs. K.Maheswari , Dr.(Mrs)D.Anusuya & Mrs.T.Amuthavalli

Sub Code :312LS 1

B.A. English literature

Semester III

Part IV- Skill Based Course in English Language Teaching

Paper I- Introduction to ELT

(For students admitted from 2012-2013 & onwards)

Objectives:

- To introduce the students to the different aspects of English Language Teaching.
- To provide a background to the teaching of English in India.

Credits: 3

Total No. of Hours: 38

UNIT I :	Introduction – Role of English – Objectives of Teaching English	(8hrs)
UNIT II:	English for the Living	(8hrs)
UNIT III:	English as an International, Colonial and National Language	(8hrs)
UNIT IV:	English in Post Independence India	(7hrs)
UNIT V:	Language Pedagogy and the Teaching of English	(7hrs)

Suggested Reading:

The English Teacher's Hand book - T.C.Baruah.Sterling Publisher's pvt. Ltd., 1991

Teaching English : Approaches,methods and Techniques N. Krishnaswamy &

Lalitha Krishnaswamy,Macmillan 2003

The English Language - C.L.Wrenn Vikas Publications 1977.

Course Designed,Reviewed, & Checked by

Mrs.G.Raginidevi, Mrs.P.Renuga & Mrs.T.Amuthavalli

Sub Code: 312 NEC

B.A. English literature

Semester III

Part III – Non – Major Elective Course I - English for Competitive Examinations

(For students admitted from 2012-2013 & onwards)

Objectives:

- To introduce the students to the basics of English.
- To acquire a high degree of proficiency in the use of English.

Credits: 2

Total No. of Hours:38

UNIT I:	Basics of English	(8hrs)
UNIT II:	Common Errors	(8hrs)
	Reconstructing passages	
UNIT III:	Phrasal Verbs & Cloze Test	(8hrs)
UNIT IV:	Précis writing for Publicity Literature	
	Reading Comprehension for Competitive Examinations	(7hrs)
UNIT V:	Idioms and Phrases	(7hrs)
	English Language for communication	

Book Prescribed: English for Competitive Examinations-R.P.Bhatnagar,Macmillan India Limited Delhi, 1994

Suggested Reading:

A Guide to Patterns and Usage in English-A.S. Hornby OUP, 1954

English idioms and How to use them-W.McMordic, OUP, 1975

Sub. Code: 412 L07

B.A. English Literature

Semester IV

Part III Core Course VII – Poetry II

(For Students admitted from 2012-2013 & onwards)

Objectives:

- To enliven the spirit of the students' poetic sense
- To appreciate the aesthetics of poetry.

Credits: 4

Total No of Hours: 65

UNIT I:	Lycidas	John Milton	(13hrs)
UNIT II:	Rime of the Ancient Marnier	S.T. Coleridge	(13hrs)
UNIT III:	Prelude Book I	William Wordsworth	(13hrs)
UNIT IV:	Rugby Chapel	Matthew Arnold	(13hrs)
	Lady of Shalott	Tennyson	
UNIT V:	Prayer before Birth	Louis Macneice	(13hrs)
	Windhover	Hopkins	

Suggested Reading:

Tennyson: The Critical Heritage Jump (John D)

Critics on Mathew Arnold Latham (Jacqueline EM)

Course Designed, Reviewed, & Checked by

Mrs.T.Amuthavalli, Mrs.K.Maheswari&Mrs.T.Amuthavalli

Sub Code : 412 L08

B.A. English Literature

Semester IV

Part III –Core Course VIII – English for Employability II

(For students admitted from 2012-2013 & onwards)

Objectives:

- To enable the students to master the skills in speaking and writing.
- To enrich expressions through composition and the art of effective writing.

Credits: 4

Total No of Hours: 65

UNIT I:	Communication through words, body language, and technology	(13hrs)
UNIT II:	Didactic Communication, Public Speaking & Oral Presentation	(13hrs)
UNIT III:	Active Listening, Meetings, Seminars & Conferences	(13hrs)
UNIT IV:	Group Discussion, Audio-visual aids, Reading Comprehension	(13hrs)

UNIT V: Precis writing, Business & Technical Reports (13hrs)

Books Prescribed: Developing Communication Skills, Krishna Mohan & Meera Banerji.

Course Designed, Reviewed, & Checked by

Dr.D.Anusuya , K.Maheswari , T.Amuthavalli

Sub Code: 412AL4

B.A. English Literature

Semester IV

Part III –Allied IV History of English Literature

(For students admitted from 2012-2013 & onwards)

Objectives:

- To enrich a sound knowledge of English social and literary background.
- To get a comprehensive knowledge of English literature and society in all their dimensions.

Credit :4

Total No of Hours:65

UNIT I English Literature Before Chaucer

The Age of Chaucer Verse, Drama, Prose (13hrs)

The Age of Shakespeare Verse Drama, Prose

The Age of Milton

UNIT II The Age of Dryden – Verse, Prose and the Drama (13hrs)

The Age of Pope – Verse, Prose and the Drama

The Age of Johnson – General Prose, the Novel (Page.No.94-161)

UNIT III The Age of Wordsworth –The younger poets, General Prose, The Novel (13hrs)

UNIT IV The Age of Hardy (13hrs)

The Age of Tennyson (Page.No.224-263)

UNIT V: The Present Age, The Age of Transition (13hrs)

Books Prescribed:

An Outline History of English Literature - Hudson

Suggested Reading:

R.C.Churchill-English Language Book Society& Cambridge University Press 1972.
History of English Literature –Crompton Rickett.

English Literature-An Introduction to Foreign Readers-R.J.Rees.-Macmillan.

Course Designed,Reviewed, & Checked by

Dr. K.Maheswari , Mrs.G.Ragini Devi & Mrs.T.Amuthavalli

Sub Code : 412LS2

B.A. English Literature**Semester IV****Part IV Skill Based Course in English Language Teaching****Paper II- Methods and Approaches to Language Teaching**

(For students admitted from 2012-13& onwards)

Objectives:

- To study the important methods and approaches in language teaching.
- To expose the students to the variety of teaching methods.

Credit : 3

Total No of Hours:38

UNIT I & UNIT II: The Direct Method, The Reading Method, The Army Method, The Oral approach & Situational Language Teaching, The Structural Approach, Total Physical Response, The Silent way, Community Language Teaching, Use of video in ELT (16hrs)

UNIT III: Language Teaching Methods and Approaches- A Critical Study (8hrs)

UNIT IV: Modern Applied Linguistics - Approaches to Language Teaching (7hrs)

– N.Krishnasamy, Verma & Nagarajan (Page.No.200-221)

UNIT V: Teaching English as a Second Language –Harold B.Allen. (Pages 1-8)

English as a Second Language and English as a Foreign Language (7hrs)

Books Prescribed:

English Language Teaching: A Critical Study of Methods and Approaches

Kripa k.Gautam, New Delhi: Harman publishing House ,1988.

Suggested Reading:

English Language Teaching: A Critical Study of Methods and Approaches

Kripa k.Gautam, Harman publishing House, New Delhi 1988.

Teaching English Approaches Methods & Techniques by

N.Krishnaswamy & Lalitha krishnaswamy Macmillan 2003

Teaching English as a Second Language –Harold B.Allen ,Bombay :Tata Mc Graw

Hill Publishing Company,1965

Course Designed, Reviewed, & Checked by

Mrs.P.Renuga Mrs.G.Ragini Devi & Mrs. T.Amuthavalli.

Sub Code:412ALL2

B.A. English Literature**Semester IV****Advanced Learner's Course II-Drama**

(For students admitted from 2012-2013 and onwards)

Objectives:

- To introduce the art of play-writing, its technique and philosophy.
- To inculcate value oriented learning

Credits: 3

Note: As this is a self study paper, only two plays are prescribed.

Shoe Maker's Holiday - Thomas Dekker, Macmillan, Chennai.

She Stoops to Conquer - Oliver Goldsmith, Macmillan, Chennai.

Course Designed by Department of English

Sub Code : 512L09

B.A. English Literature

Semester V

Part III Core Course IX –Shakespeare I

(For Students admitted from 2012-2013 & onwards)

Objectives:

- To expose the students to the universality of the art and Philosophy of the English bard, Shakespeare.
- To sharpen the aesthetic sense of the students.

Credits: 5

Total No of Hours: 75

UNIT I :	As you like it	(15 hrs)
UNIT II:	Merchant of Venice	(15 hrs)
UNIT III &IV	King Lear	(25 hrs)
UNIT V :	Othello	(20 hrs)

Suggested Reading:

Shakespeare, his Mind and Art – Edward Dowden

The Crown of Life – Wilson Knight

Shakespeare Tragedy – A.C. Bradley

Course Designed, Reviewed, & Checked by

Mrs.T.Amuthavalli, Mrs.K.Maheswari & Mrs.T.Amuthavalli

Sub Code : 512 L10

BA English Literature

Semester V

Part III Core Course X - New Literatures

(For students admitted from 2012 – 2013 & onwards)

Objectives:

- To understand and appreciate the 20th century post-colonial writings.
- To create an awareness of the diverse voices of post-colonial identity.
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Credits:4

Total No of Hours:65

UNIT I: Prose

Sadhana – Tagore (1,2,3)

- i) The relation of the individual to the Universe
- ii) Self consciousness
- iii) The problem of Evil (13hrs)

UNIT II : Poetry

Australia	A.D. Hope	
Telephonic Conversation	Wole Soyinka	
A Far cry from Africa	Derek Walcott	
Journey to the Interior	Margaret Atwood	
The Man with the Wooden Leg	Katherine Mansfield	(13hrs)

UNIT III: Drama

Silence, the Court is in Session	Vijay Tendulkar	(13hrs)
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UNIT IV: Fiction

Cry, the Beloved Country	Alan paton	(13hrs)
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UNIT V: Criticism:

Poetry in English	Louis Dudek	(13hrs)
Close of a Century	E.H.Mecoronick	

(Essays from Commonwealth Literature ed. By William Walsh)

Suggested Reading: Cambridge History of Australian Literature -ed. Peter Pierce

The Penguin book of Australian Verse - ed. Harry Hasel, Tine

Post colonial Literatures in English- ed. John Thiene

Anthology of commonwealth Literature by Narasimmaiah.

Course Designed, Reviewed & Checked by

Dr.D.Anusuya, Mrs.G.Ragini Devi &T. Amuthavalli

Sub Code: 512 L 11

B.A. English Literature

Semester – V

Part III Core Course XI – Intensive Study of an Author (Rabindranath Tagore)

(For students admitted from 2012-2013 & onwards)

Objectives:

- To introduce the students to an in depth study of a particular author.
- To facilitate research.

Credits:4

Total No of Hours: 65

UNIT I: Poetry

Gitanjali (13hrs)

UNIT II: Prose

Construction Vs Creation (13hrs)

What is Art?

Nationalism in India

UNIT III: Drama

Mukta - Dhara (13hrs)

UNIT IV: Fiction

The Home and the World (13hrs)

UNIT V: Short Stories

The Post Master (13hrs)

Raja and Rani

Glimpses of Bengal

Selections from the letters of Tagore

Suggested Reading:

The Story of Rabindranath Tagore - Marjorie Sykes,

Orient Longman, Bombay, 1959.

The Poetry of Tagore - S.B. Mukherji, New Delhi, 1977.

Rabindranath Tagore Builders of Modern India- Hiranmay Banerjee,

New Delhi, 1971.

Anjali, Tagore Lectures- Anniah Gowda HH,

The Literary Press, Mysore, 1976.

Course Designed, Reviewed & Checked by

Mrs. G. Raginidevi, Dr. D. Anusuya & Mrs. T. Amuthavalli

Sub Code : 512 L 12

B.A. English Literature

Semester – V

Core Course XII – Indian Writing in English

(For students admitted from 2012-2013 & onwards)

Objectives:

- To help the students gain better insight into the tradition and culture of India.
- To enable them to appreciate various genres.

Credits:4

Total No of Hours:65

UNIT I: Poetry

The Lotus	Toru Dutt	
Night of the Scorpion	Nissim Ezekiel	
A River	A.K. Ramanujam	(13hrs)
Indian Women	Shiv.K. Kumar	
Vase	Jayanta Mahapatra	

The Teacher	P.Seshadri
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UNIT II: Prose

The Secret of Work	Swami Vivekananda	
Home Rule	Bal Gangadhar Tilak	(13 hrs)
Vibhishana	V.S.Srinivasa Sastri	

UNIT III: Drama

The Final Solutions	Mahesh Dattathani	(13hrs)
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UNIT IV: Fiction The Guide	R.K.Narayan	(13hrs)
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UNIT V: Short Stories

The Nose jewel	C.Rajagopalachari	
The Interview	Kushwant Singh	
The Lost Child	Mulk Raj Anand	(13hrs)

Suggested Reading:

The above stories are from A choice of short stories.

Shakthi Batra and P.S.Sindhu,OUP1980.

Poems are from Indian Verse in English - Ed. C.N.Srinath, Macmillan 2003.

Contemporary Indian poetry in English - Ed. Peeradina, Macmillan.

Lessons from India Speaks - Ed. ParvathiVasudev, Macmillan,1984

Balarama Gupta- Ed. Leviks Indian Prose in English.

Course Designed,Reviewed & checked by

Dr.K.Maheswari, Dr.D.Anusuya & Mrs. T.Amuthavalli

B.A. English Literature

Semester V

Part III - Elective Course I -Principles of Literary Criticism

(For students admitted from 2012-2013 and onwards)

Objectives:

- To create a sense of aesthetic appreciation
- To expose the tradition and trends of criticism
- To develop the right kind of critical approach.

Credits :4

Total No of Hours:65

UNIT I: Introduction: The Art of Criticism (13hrs)

The Background of English Criticism (Aristotle , Longinus, Dante)

UNIT II: English Criticism(Ben Jonson, Dr.Johnson) (13hrs)

UNIT III: The Romantic Revolt (William Wordsworth, S.T.Coledridge) (13hrs)

UNIT IV: The Victorian (Mathew Arnold) (13hrs)

The Age of Interrogation (T.S.Eliot)

UNIT V: Application of De-Construction Theory to Poetry Derrida & Saussurie
(13hrs)

Books Prescribed:

An Introduction to English Literary Criticism, Birjadish Prasad, Macmillan.

Suggested Reading:

A Short History of English Literature London 1928

The First Half of the 17th Century Oxford, OUP. 1969

Course Designed,Reviewed, & Checked by

Mrs.D.Sujatha Dr. K.Maheswari & Mrs. T.Amuthavalli

Sub Code : 512 LS3

B.A. English Literature

Semester V

Part IV Skill Based Course in English Language Teaching

Paper III - Literature and Language Teaching

(For students admitted from 2012-2013 & onwards)

Objectives:

- To highlight the teaching of English language and literature in the second language context.
- To enhance the teaching ability of the students.

Credits: 3

Total No of Hours: 38

UNIT I:	The teaching of Prose and Poetry	(8hrs)
UNIT II:	Instructional Aids and Study Aids	(8hrs)
UNIT III:	Types of Test, Testing & Evaluation	(8hrs)
UNIT IV:	Planning & Lesson Planning	(7hrs)
UNIT V:	Activity based teaching	
	Activity based learning	(7hrs)

Suggested Reading:

Literature and language teaching – Brumfit & R.A.Carter Oxford: Oxford university press, 1986.

Teaching English as a second language-Harold B.AllenBombay:

Tata Mc Craw Hill Publishing. 1965

Studies in ELT, Linguistics and applied linguistics Ed.Mohit K.Ray, New Delhi:

Atlantic Publishers & Distributers, 2004

English Language Teaching Ed. R.K.Singh Jaipur: Book Enclave 2008.

Course Designed, Reviewed, & Checked by

Mrs.G.Ragini Devi ,Mrs.P.Renuga & Mrs.T.Amuthavalli

Sub.Code: 610 L13

B.A. English Literature

Semester VI

Part III Core Course XIII – Shakespeare II

(For students admitted from 2011-2012 & onwards)

Objectives:

- To strengthen the experience of learning Shakespeare.
- To appreciate the works of the bard.

Credits: 5

Total No of Hours: 75

UNIT I:	Winter's Tale	(15hrs)
UNIT II:	The Tempest	(15hrs)
UNIT III:	Henry IV – Part I	(15hrs)
UNIT IV:	Antony and Cleopatra	(15hrs)
UNIT V:	Antony and Cleopatra	(15hrs)

Suggested Reading:

Shakespeare's History Plays – E.M.W. Tillyard

Shakespeare Tragic Heroes – Campbell, Lilly.B

Shakespearean Comedy – Sen Gupta

Course Designed, Reviewed, & Checked by

Mrs.T.Amuthavalli, Mrs.P.Renuga & Mrs.T.Amuthavalli

Sub.Code: 612 L14

BA English Literature - Semester-VI

Part III Core Course - XIV American Literature

(For students admitted from 2012 – 2013 & onwards)

Objectives:

- To understand the culture and aspirations of American writers

- To expose them to various genres.

Credits:4

Total No of Hours:65

UNIT I: Poetry

Crossing the Brooklyn Ferry	Whitman	
I Felt a Funeral in my Brain	Emily Dickinson	
Because I could not stop for Death	Emily Dickinson	(13hrs)
Mending Wall	Robert Frost	
The Cambridge Ladies	e.e. Cummings	
Daddy	Sylvia Plath	
The Emperor of Ice – cream	Hart Crane	

UNIT II: Prose Self Reliance Emerson (13hrs)

UNIT III: Drama The Death of a Salesman Arthur Miller (13hrs)

UNIT IV: Fiction The Scarlet Letter Hawthorne (13hrs)

UNIT V: Criticis Variety of American Criticism R.K.Kohli (13hrs)

Suggested Reading

Social context and Literary theory in America -S.M.Pandeya

(Essays from Twentieth Century American Criticism ed. Ragunath)

American Anthology -1880-1965

Course: Designed ,Reviewed, & Checked by

Dr.D.Anusuya, Mrs.D.Sujatha &Mrs.T.Amuthavalli

B. A. English Literature

Semester VI

Sub Code : 612 L 15

Part III Core Course XV -English for Employability III

(For students admitted from 2012-2013 and onwards)

Objectives:

- To get knowledge explosion and scholarly discussion, social interaction.

- To equip the students with adequate communicative skills to face the challenges of the competitive world.

Credit :4	Total No of
Hours:65	
UNIT I: Style and Technical Proposals	(13hrs)
UNIT II: Business Correspondence Memorandum Writing	(13hrs)
UNIT III: Notice, Agenda, Minutes, The Handbook, Manuals, Research paper and articles	(13hrs)
UNIT IV: Advertising and Job description, Graphic Aids, Editing proofs, Reading , copy-editing, Punctuation, Capitalization.	(13hrs)
UNIT V: Telephone Skills, Receiving calls, Transferring calls to the boss, Politely avoiding unwanted calls or visitors, Fixing appointments, Employable skills, preparing curriculum Vitae, Interview etiquette.	(13hrs)

Books Prescribed :

Developing Communication Skills 2nd edition

Krishna Mohan & Meera Banerji. Macmillan 2010

Course Designed ,Reviewed, & Checked by

Dr.D.Anusuya, P.Renuga & T.Amuthavalli

Sub Code: 612 LE2

B.A. English Literature

Semester VI

Part III - Elective Course II Translation

(For students admitted from 2012-2013 and onwards)

Objectives

- To train the students in functional translation.
- To expose them to translation task and translation theories.

Credits: 4

Total No of Hours: 65

UNIT I	: Theories of Translation	(13 hrs)
UNIT II:	Horizon of Translation Studies	(13hrs)
UNIT III:	Lamps in the Whirlpool (Rajam Krishnan's translated work)	(13hrs)
UNIT IV:	Activities on Translation (Tamil to English)	(13hrs)
UNIT V	: Translation Tasks (Words, phrases, and sentences)	(13hrs)

Suggested Reading:

J.C.Catford -A Linguistic Theory of Translation London, OUP 1965

James Holmes- Ed. Nature of Translation:Essays on the Theory
and Practice of Literay Translation, The Hague Mouton, 1970

Course Designed, Reviewed, & Checked by

Mrs.D.Sujatha, Dr.D.Anusuya & T.Amuthavalli

SubCode: 612 LE3

B.A. English Literature

Semester – VI

Part III– Elective Course III- Journalism and Mass Communication

(For students admitted from 2012-2013 & onwards)

Objectives:

- To introduce the students to journalistic writings.
- To create an awareness of various Mass Media.

Credits: 4

Total No of Hours: 65

UNIT I:

What is News?

The Editor and His Men (13hrs)

The News Operation

UNIT II :

Depth Reporting (13hrs)
Crime Reporting
Headline Writing

UNIT III:

Creative Writing (13hrs)
Technical and Science Reporting
Newspaper, Radio and Television Writing

UNIT IV:

Writing For Magazines (13hrs)
Language and Style
Picture editing and Captions

UNIT V :

The Press Council (13hrs)
Press Laws and Press Freedom
The Laws and the Reporter

Suggested Reading:

Basic Journalism,- Rangaswami Parthasarathy;

Macmillan India Ltd, 2004.

The Journalist's Handbook: M.V. Kamath - Vikas Publishing House Pvt. Ltd,
Professional Journalism - M.V. Kamath; Vikas Publishing House Pvt. Ltd, 2009

Course Designed ,Reviewed & Checked by

Dr.D.Anusuya,G.Raginidevi,T.Amuthavalli

Sub Code: 612LS4

B.A. English Literature

Semester VI

Part IV Diploma Course in English Language Teaching

(For students admitted from 2012-2013 and onwards)

Credits: 3

Total No of Hours: 38

Project - Lesson Plan –Teaching Strategy – Material Production

Sub. Code: 612 ALL

B.A. English Literature

Semester VI

Advanced Learner's Course III-Prose

(For students admitted from 2012-2013 and onwards)

Objectives:

- To introduce the students to the variety of styles of writing in English by authors of eminence from the medieval to the modern period.

Credits: 3

Essays of Elia – Charles Lamb

Oxford in Vacation

South sea House

Old and New Schoolmasters

Chimney Sweepers

Poor Relations

Spectator Essays -Addison

Sir Roger at Theatre

Sir Roger's Disappointment in love

Sir Roger & the widow

Sir Roger's Ancestors

Sir Will Wimble

Course Designed by Department of English

DEPARTMENT OF ENGLISH (SF)

M.A. ENGLISH LITERATURE

Scheme of Examination- CBCS Pattern

[For students admitted from the academic year 2017– 2018 onwards]

Course Code	Course	Ins. Hrs/ Week	EXAMINATION				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester I							
17MV01	Core I - British Literature I	6	3	25	75	100	4
17MV02	Core II - Indian Literature in English	6	3	25	75	100	4
17MV03	Core III - Language and Linguistics	6	3	25	75	100	4
17MV04	Core IV - Soft Skills through Shakespeare	6	3	25	75	100	4
17MVE1/ 17MVE2	Elective I - Applied Grammar and Composition / Business English	6	3	25	75	100	4
Semester II							
17MV05	Core V - British Literature II	6	3	25	75	100	4
17MV06	Core VI - American Literature	5	3	25	75	100	4
17MV07	Core VII - Literary Criticism	4	3	25	75	100	4
17MV08	Core VIII - LSRW Skills	5	3	40	60	100	4
17MV09	Core IX - Rhetoric and Journalism	4	3	25	75	100	4
17MVE3/ 17MVE4	Elective II - Women in Development /Ecological Studies	4	3	25	75	100	4
17MVIS	Internship	-	-	50	-	50	2
17MGCS	Cyber Security	2	2	50	-	Grade	Grade
17MVA1	Advanced Learners' Course I – Subject Viva Voce	-	-	-	100	100	4*
Semester III							
17MV10	Core X - British Literature III	6	3	25	75	100	4
17MV11	Core XI - New Literatures in English	6	3	25	75	100	4
17MV12	Core XII - Translation Studies & Practices	5	3	25	75	100	4
17MV13	Core XIII - Feminist Literature	5	3	25	75	100	4
17MV14	Core XIV - Theatrical Arts	4	3	25	75	100	4
17MVE5/	Elective III – Research						

17MVE6	Methodology/ ELT and CALL	4	3	25	75	100	4
Semester IV							
17MV15	Core XV - British Literature IV	6	3	25	75	100	4
17MV16	Core XVI - Preparatory Course for NET	6	3	25	75	100	4
17MVE7/ 17MVE8	Elective IV - English for Competitive Examinations / Advertising for Media	6	3	25	75	100	4
17MVPV	Project - Yearlong	-	-	-	200	200	8
17MVA2	Advanced Learners' Course II - Literary Review	-	3	-	100	100	4*
	TOTAL					2250	90

**M.A. ENGLISH LITERATURE
SEMESTER I**

CORE I - BRITISH LITERATURE I

17MV01

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To introduce the students to the culture, philosophy, and attitude to life of the poets and playwrights who set a literary tradition
- Ø To familiarize the students with the depth and complexity of the literary forms of the age
- Ø To make the students understand and appreciate the style, rhetoric of the language of the day and profundity of thought of the age

Unit I	A Prologue to The Canterbury Tales Love Comforteth The Means to attain Happy Life Forget not yet, The Appeal	Geoffrey Chaucer Henry Howard, Earl of Surrey Sir Thomas Wyatt	20hrs.
Unit II	Prothalamian Sonnets from Amoretti 1,2 Fear No More the Heat O' the Sun Sonnet No.130	Edmund Spenser William Shakespeare	15 hrs.
Unit III	Bacon's Essays Of Truth, Of Love, Of Revenge, Of Friendship,	Francis Bacon	10 hrs.
Unit IV	Edward II	<u>Christopher</u> Marlowe	20 hrs.
Unit V	An Apology for Poetry	Sir Philip Sidney	10 hrs.

Books for Reference:

The Winged Word, David Green, Macmillan Publishers India Ltd., Mumbai, 2013
Whispering Reeds An Anthology of English Poetry, D.K.Barua, Oxford University Press, 2001 Peacock Volume I (P 232)

Course Designed by : Mrs. P.Rajeswari
Course Reviewed by : Mrs. A.Kavitha
Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE
SEMESTER I
CORE II – INDIAN LITERATURE IN ENGLISH 17MV02
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To familiarize the students with the different facets of Indian Writing in English.
- Ø To enable them grasp the variety of literary output of Indian poets, novelists and playwrights
- Ø To enhance the Indian English idiom and style

Unit I	Sita Play Things Rose of God The Old Woman Advice to a Painter My cousin sister on a swing Introduction Law of Rhythm	Toru Dutt Rabindranath Tagore Sri Aurobindo Sarojini Naidu Nissim Ezeikel A.K.Ramanujam Kamala Das Sri Ananda Acharya	20 hrs.
Unit II	The Power of Mind Students and their Duties My Mother Sale My Visions for India	Swami Vivekananda Gopala Krishna Gokhale Dom Moraes Anita Desai Dr.A.P.J Abdul Kalam	15 hrs.
Unit III	Hayavadana	Girish Karnard	15 hrs.
Unit IV	The Value of Classical Tradition Today, Moral Values in Literature, Freedom and Culture	K.R. Srinivasa Iyengar	15 hrs.
Unit V	Swami and Friends Train to Pakistan	R.K.Narayan Kushwant Singh	10 hrs.

Books for Reference

An Anthology of Indian English Poetry, Orient Longman.
Links, G.S.Balarama Gupta, Macmillan
Expressions: Anthology of English Prose, G.Radhakrishna Pillai, Emerald Publishers
Adventures of Criticism K.R.S.Iyengar Rupa and Co.

Course Designed by : Mrs. A.Kavitha

Course Reviewed by : Ms. A. Jyothi Cassandra devi
Course Checked by : Dr. K.Kamala Suganya Kumari

M.A.ENGLISH LITERATURE
SEMESTER I
CORE III – LANGUAGE AND LINGUISTICS **17MV03**
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To introduce the different theories regarding the origin of language in general and English in particular
- Ø To enable the students understand the grammatical, structural and functional aspects of English
- Ø To refine their modern linguistic perspectives and approaches to the study of language

Unit I	The Origin of English and The Descent of the English Language	15 hrs.
Unit II	The Old English Period and The Middle English Period	15 hrs.
Unit III	The Growth of Vocabulary, Change of Meaning and The Evolution of Standard English	15 hrs.
Unit IV	Socio-Linguistics and Language Variation Psycholinguistics and Language Acquisition	15 hrs.
Unit V	Linguistic Stylistics and Computational Linguistics Language as Discourse, Language and Literature	15 hrs.

Books for Reference:

An Outline History of Language F.T.Wood

An Introductory of Text Book of Linguistics and Phonetics - Radhey L. Varshney, Student Store, Bareilly.

Linguistics and Literary Style – S.Bhatnagar, N.K.Sharma, Alfa Publications, New Delhi.

Modern Linguistics N.Krishnaswamy et.al. Macmillan

Course Designed by : Dr.K.Kamala Suganya Kumari
Course Reviewed by: Mrs. P. Rajeswari
Course Checked by : Dr.K.Kamala Suganya Kumari

M.A.ENGLISH LITERATURE
SEMESTER I
CORE IV– SOFT SKILLS THROUGH SHAKESPEARE **17MV04**
[For students admitted from the academic year 2017– 2018 onwards]
Objectives: **Total Hours: 75**

- Ø To train the students in study of different characters and human behaviours
- Ø To use characters from classics/their behavior as parallels to reflect and introspect on their own behavior
- Ø To enable them in the use of right effects and develop skills in bringing personal emotions under the scanner of cognition

- Ø To train them in the use of characters/interactions from literature and other areas listed as case studies.

Unit I	Self Esteem	Coriolanus in Coriolanus	20hrs.
Unit II	Integrity	Enobarbus in Antony and Cleopatra	15 hrs.
Unit III	Managerial Ability	Portia in Merchant of Venice	15 hrs.
Unit IV	Sociability	Rosalind in As You Like It	15 hrs.
Unit V	Shakespearean Sonnets, Shakespearean Heroines, Supernatural Elements, Shakespearean Theatre		10 hrs.

Course Designed by : Mrs. P. Rajeswari
 Course Reviewed by : Mrs. S.Sathya Priya
 Course Checked by : Dr.K.Kamala Suganya Kumari

**M.A. ENGLISH LITERATURE
 SEMESTER I
 ELECTIVE I – APPLIED GRAMMAR AND COMPOSITION 17MVE1**

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To improve the grammar skills of the students
- Ø To train them understand the theories of grammar
- Ø To enable them understand the different styles of writing through the use of different aspects of grammar

Unit I	Word Class –Form Class and Function Class, Sentence Pattern / Structure, Clauses and Phrases (complete Components)	15 hrs.
Unit II	Kinds of Sentences, Reported Speech Transformation of Sentences: Simple compound and complex, Degrees Of Comparison, Voices, Question Tags.	20 hrs.
Unit III	Comprehension (Prose and Poetry Comprehension)	15 hrs.
Unit IV	Hints development, Proverb Expansion	15 hrs.
Unit V	Composition – Essay writing (500 words)	10 hrs.

Prescribed Book : Green, David. Contemporary English Grammar, Structure and Composition, Macmillan publications.

Book for Reference:

Shyamala Effective English Communication For You, Emerald Publications
 English for Competitive Examinations, R.P.Bhatnagar, Rajul Bhargava

Course Designed by : Ms. A. Jyothi Cassandra devi
 Course Reviewed by: Ms. A.Velumani
 Course Checked by : Dr.K.Kamala Suganya Kumari

**M.A. ENGLISH LITERATURE
SEMESTER I
ELECTIVE I – BUSINESS ENGLISH**

17MVE2

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To empower the students with communicative skills
- Ø To enable them function as effective Business Correspondents

Unit I	Communication through Works Process of Communication and Types of Communication Barriers to Communication and Importance of Communication	15 hrs.
Unit II	Audio Visual Aids Basic Principles and guidelines and Types of Audio Visual aids and its uses	15 hrs.
Unit III	Business Correspondence Purpose, Structure, Layout and form	15 hrs.
Unit IV	Types of Social Correspondence Seminars and Conference Group Discussion	15 hrs.
Unit V	Notice, Agenda and Minutes	15 hrs.

Books for Reference:

Developing Communication Skills

Second Edition, Krishna Mohan, Meera Banerji

Course Designed by: Ms.A. Jyothi Cassandra Devi

Course Reviewed by: Mrs. P. Rajeswari

Course Checked by: Dr.K.Kamala Suganya Kumari

**M.A. ENGLISH LITERATURE
SEMESTER II
CORE V - BRITISH LITERATURE II**

17MV05

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To enrich the learning experience of the students by introducing great poets like Milton, Dryden, Pope and others
- Ø To enjoy the felicity of expression and descriptive style of Addison and Steele
- Ø To make them comprehend the impact of socio-political events on literature

Unit I	Paradise Lost Book IX Canonization, Sunne Rising To His Coy Mistress Discipline	John Milton John Donne Andrew Marvell George Herbert	20hrs.
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Unit II	Sir Roger at Home Character of Will Wimble Sir Roger's Ancestors A Scene in a Stage Coach His Account and Disappointment of Love	Joseph Addison Richard Steele	10 hrs.
Unit III	All for Love	John Dryden	20 hrs.
Unit IV	Preface to Shakespeare	Dr. Johnson	15 hrs.
Unit V	Gulliver's Travels Robinson Crusoe	Jonathan Swift Daniel Defoe	10 hrs.

Books for Reference:

Galaxy of English Essayists- ed. M.G. Nair. Macmillan
An Anthology of Popular Essays and Poems- ed. A.G. Xavier
Expressions, An Anthology of English Prose –ed. G. Radhakrishnan Pillai

Course Designed by : Mrs. P. Rajeswari
Course Designed by : Mrs. K. Sathya Priya
Course Checked by : Dr. K. Kamala Suganya Kumari

M.A. ENGLISH LITERATURE
SEMESTER II
CORE VI - AMERICAN LITERATURE **17MV06**
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 65

- Ø To make the students perceive the criss-cross influence of culture and society on literature
- Ø To introduce the students to the new forms and the zeal of experimentation of writers
- Ø To make them understand the singularity of American English, its idiom and influence

Unit I	When Lilacs Last in the Dooryard Bloom'd Raven A Bird Came Down, This is My Letter Stopping by Woods, Birches Mirror	Walt Whitman Edgar Allan Poe Emily Dickinson Robert Frost Sylvia Plath	15 hrs.
Unit II	Glass Menagerie	Tennessee Williams	15 hrs.
Unit III	Self Reliance Where I Lived and What I Lived For	Ralph Waldo Emerson Henry David Thoreau	15 hrs.
Unit IV	The Snows of Kilimanjaro Pigeon Feathers Young Goodman Brown The Cask of Amontillado	Ernest Hemmingway John Updike Nathaniel Hawthorne Edgar Allan Poe	10hrs.
Unit V	Adventures of Tom Sawyer Pearl	Mark Twain John Steinbeck	10 hrs.

Books for Reference:

Ed. Dr.EgbertS.Oliver An Anthology of American Literature Eurasia Publishing House

William J.Fisher American Literature of the Nineteenth Century Eurasia Publishing House

Course Designed by : Mrs. S.SathyaPriya

Course Reviewed by : Mrs. P. Rajeswari

Course Checked by : Dr.K.Kamala Suganya Kumari

**M.A. ENGLISH LITERATURE
SEMESTER II**

CORE VII - LITERARY CRITICISM

17MV07

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 52

- Ø To cultivate a critical sense in the students while reading a work of art
- Ø To develop the skill of interpretation and evaluation
- Ø To provide the students with the knowledge of the trends, critical perspectives, theories and canons from the ancient to the modern

Unit I	Poetics	Aristotle	10hrs.
Unit II	Preface to Lyrical Ballads	William Wordsworth	10hrs.
Unit III	Tradition and Individual Talent Creative Writers and Day Dreaming	T.S.Eliot Sigmund Freud	10hrs.
Unit IV	Death of an Author	Roland Barthes	12hrs.
Unit V	Deconstruction What Post Modernism is?	Jaques Derrida Stephen R.C.Hicks	10hrs.

Books for Reference

B.K.Pattanayak Dynamics of Twentieth Century Literary Criticism

T.Ramakrishna Rao Comprehensive Modern Literary Theory

Harry Blamairs History of English Criticism

S.B.Wadikar New Trends in Literary Criticism

B.Prasad An Introduction to English Criticism

Stephen R.C.Hicks:Explaining Postmodernism, USA: Scholarly Publishing

Tempe,2004

Course Designed by : Ms. A. Jyothi Cassandra devi

Course Reviewed by : Mrs. K.SathyaPriya

Course Checked by : Dr.K.Kamala Suganya Kumari

**M.A. ENGLISH LITERATURE
SEMESTER II**

CORE VIII – LSRW SKILLS

17MV08

[For students admitted during the academic year 2017 – 2018 only]

Objectives:

Total Hours: 65

To improve the practical knowledge in LSRW Skills

Unit I	Listening Comprehension	15 hrs.
Unit II	Speaking Activities	15 hrs.
Unit III	Reading Comprehension	15 hrs.
Unit IV	Writing Activities	15 hrs.
Unit V	Practical Work: Phonetic Transcription	15hrs.

Books for Reference:

Better English Pronunciation J.D.O'Connor, Cambridge Edition, India, 1967.
 An Outline of English Phonetics, Jones Daniel, Eighth Edition, Cambridge, 1965.
 Writing Skills, Dr.P.Thailambal, ENNES Publications, Udumalpet
 Developing Reading Skill, Francoise Grellet, Cambridge Language Teaching Library.
 A Course in Language Teaching, Peeny Ur, Cambridge University Press, 1996
 English Language Teaching, Navita Arora, Mc Graw Hill Education, 2012
 Developing Communication Skills, Krishna Mohan/Meera Banerji, Laxmi Publications, 2009

Course Designed by : Dr.K.Kamala Suganya Kumari
 Course Reviewed by : Mrs. P. Rajeswari
 Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE SEMESTER II

CORE IX – RHETORIC AND JOURNALISM 17MV09

[For students admitted during the academic year 2017 – 2018 only]

Objectives:

Total Hours: 52

- Ø To enable them comprehend rhetoric and apply it in journalism
- Ø To make the students understand the significance of journalistic style
- Ø To strengthen their writing techniques in journalism

Unit I	Basic rhetoric and writing strategy, The nature of rhetoric	12 hrs.
Unit II	Rhetorical figures	10 hrs.
Unit III	Journalism, Role of Journalism in Society, Legal Status	10 hrs.
Unit IV	History of Journalism, Ethics of Journalism, and Electronic Media in Journalism	10 hrs.
Unit V	Art of Interviewing, Writing a Report, News Writing, Advertisement Writing, Reporting an incident and Narrating an event	10 hrs.

Books for Reference:

Introduction to Journalism & Mass Communication, J.C.Chaudhary, Authorspress, Delhi, 2007
 Essentials of Journalism, Ms.Meenu, Murari Lal & Sons, New Delhi, 2008.
 Theory and Practice of Journalism, B.N.Ahuja, Surjeet Publications, Delhi.
 Ethics of Journalism in Transition, Jitendra Kumar Sharma, Authors Press, Delhi, 2002

Journalism for Students, M.S.Sharma, Mohit Publications, Delhi, 2000.
 Introduction to News Reporting, Manoranjan Tripathy, Authors Press, Delhi, 2007
 The Journalist's Handbook, M.V.Kamath, Vikas Publishing House Pvt. Ltd,

Course Designed by : Mrs.K.Sathya Priya
 Course Reviewed by : Mrs.A.Kavitha
 Course Checked by : Dr.K.Kamala Suganya Kumari

Hungry Tide, Amitav Ghosh, Macmillan, Delhi.

M.A. ENGLISH LITERATURE
SEMESTER III
CORE X – BRITISH LITERATURE III **17MV10**
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To acquaint the students with the poems of the Romantic age
- Ø To make them appreciate the Pantheism of Wordsworth, sensuousness of Keats and the love of liberty of Shelley
- Ø To make them see the difference between the Romantic poetry and Victorian poetry as manifest in Tennyson, Browning and Arnold

Unit I	Ode on the Intimations of Immortality Christabel She walks in beauty Ode to a Skylark Ode to Autumn	William Wordsworth Samuel Taylor Coleridge Lord Byron Percy Bysshe Shelley John Keats	20 hrs.
Unit II	Ring Out Wild Bells, Tears, Idle tears My Last Duchess, Last Ride Together Sohrab and Rustum The Blessed Damozel	Alfred Lord Tennyson Robert Browning Matthew Arnold Dante Gabriel Rosetti	15 hrs.
Unit III	The South Sea House My First Play In Praise of Chimney Sweepers Murder As Fine Arts Of Persons One Would Wish to Have Seen	Charles Lamb Thomas De Quincey William Hazlitt	15 hrs.
Unit IV	Lady Windermere's Fan	Oscar Wilde	15 hrs.
Unit V	Kenilworth Silas Marner	Walter Scott George Eliot	10 hrs.

Course Designed by : Mrs. P. Rajeswari
 Course Reviewed by : Mrs.S.Sathyapriya
 Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE
SEMESTER III
CORE XI – NEW LITERATURES IN ENGLISH **17MV11**
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To introduce the students to the cultural and ethnic peculiarities of the colonial countries
- Ø To familiarise the students with anguish that are transmuted into art
- Ø To make the students appreciate the linguistic idiom and style of writers from multi-cultural background
- Ø To equip the students with adequate knowledge on Commonwealth literature to motivate intercultural aspects of literature

Unit I	POETRY AUSTRALIAN Standardization Nigger's Leap, New England AFRICAN Africa I Thank You God CANADIAN Journey to the Interior Like an Old Proud King in a Parable NEW ZEALAND The Man with the Wooden Leg Time	A.D.Hope Judith Wright David Diop Bernard B.Dadie Margaret Atwood A.J.M.Smith Katherine Mansfield Allen Curnow	20 hrs.
Unit II	POETRY PAKISTAN I am not that Woman On The Tenth Night of The Tenth Moon BANGLADESH My Daughter's Boy Friend The Monstrous Biped SINGAPORE & MALAYSIA Words for Father On Writing a Poem SRI LANKA There was a Country To a Student	Kishwar Naheed Ahmed Ali Razia Khan Shirley Lin E.E.Tiang Hong Yasmine Goomeratne Kamala Wijeratne	20 hrs.
Unit III	PROSE AUSTRALIAN Settling on the Land When the Sun Went down Steel Man Shooting the Moon The Shearing of the Cook's Dog	Henry Lawson	10 hrs.
Unit IV	DRAMA AFRICAN The Black Hermit	Ngugi wa Thiong'o	10 hrs.

Unit V	NOVEL INDIAN The God of Small Things AFRICAN Things Fall Apart	Arundhati Roy Chinua Achebe	15 hrs.
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Books for Reference:

An Anthology of Commonwealth Poetry, C.D. Narasimaiah, Macmillan Publishers, 1990.

Readings in Commonwealth Literature, Ed. William Walsh

While the Billy Boils, Henry Lawson, 1896.

Course Designed by : Ms.B.M.Benita Jenifer

Course Reviewed by : Ms.A.Velumani

Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE

SEMESTER III

CORE XII - TRANSLATION STUDIES AND PRACTICES 17MV12

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 65

- Ø To satisfy cross cultural curiosity and understand the essential difference between different social systems
- Ø To strengthen the language proficiency of the students in translation

Unit I	Definitions, Theories and Challenges of Translation	10 hrs.
Unit II	Thirukkural Translation: In Praise of God, In Praise of Rain, Utterance of Pleasant Words, Hospitality, Gratitude	15 hrs.
Unit III	The Victory, The Home Coming, The Devotee, The Renunciation, The Cabuliwallah	10 hrs.
Unit IV	The Coloured Curtain (Chayathirai) by Subrabharathimanian translated by P.Raja	15 hrs.
Unit V	Practical: Translation of a Short Story or a Prose piece by the student	15 hrs.

Books for Reference

Susan Bassnett McGuire Translation Studies

Savoy Theodore, H The Art of Translation

Bijay Kumar Das A Horizon to the Study of Translation

Sacred Kural – Thiruvalluva Nayanar – Book I – Virtue I to X chapters translated by Rev.G.U.Pope, New Delhi, Asian Educational Services, 1980.

The Hungry Stones & Other Stories – Macmillan, Delhi, 1916.

Subrabharathimanian, The Coloured Curtain Translation of Tamil Novel “Chayathirai” translated by P.Raja, B.R.Publishing Corporation, New Delhi, 2003.

Course Designed by : Mrs.S.Sathyapriya

Course Reviewed by : Mrs. P. Rajeswari

Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE
SEMESTER III
CORE XIII - FEMINIST LITERATURE **17MV13**
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 65

- Ø To create an awareness among the students about the problems of women
- Ø To make them realize the issues of women in a patriarchal society through literary works
- Ø To instill in them an impulse to attempt creative writing

Unit I	History of Feminist Movement A Vindication of the Rights of Women Chapter IX	Mary Wollstonecraft 15 hrs.
Unit II	“Female Aesthetic” from A Literature of Their Own	Elaine Showalter 15 hrs.
Unit III	Feminine Mystique Chapter XIV “New Life Plan for Women	Betty Friedan 15 hrs.
Unit IV	Cry, The Peacock	Anita Desai 10 hrs.
Unit V	Tara	Mahesh Dattani 10hrs.

Course Designed by : Mrs.K.Sathyapriya

Course Reviewed by : Ms . A.Velumani

Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE
SEMESTER III
CORE XIV –THEATRICAL ARTS **17MV14**
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 52

- Ø To give the students a successful career in the dramatic arts.
- Ø To make them experience theatre life as an actor, playwright, and producer

Unit I	History of Theatrical arts	10 hrs.
Unit II	The Conventions of Drama, Language of Drama	12 hrs.
Unit III	Elements of Drama	10 hrs.
Unit IV	How to Write a Play	10 hrs.
Unit V	How to Produce a Play?	10 hrs.

Books for Reference:

Theatre: A Very Short Introduction, Marvin Carlson, Oxford University Press India, 2014.
A Study of Indian Theatre, P. Thailambal, Ennes Publications, 2010.
A History of Theatrical Art in Ancient and Modern Time, Karl Mantzius, Peter Smith, 2012.
The Concise Oxford Companion to the Theatre, Phyllis Hartnoll and Peter Found.
Drama/ Theatre/ Performance (The New Critical Idiom), Simon Shepherd and Mick, Routledge, 2004.

On Theatre and the Art of Acting: a Guide to Discovery, Michael Chekhov, 2004
Mastering English Literature – Richard Gill, Macmillan, London, 1985.

Course Designed by : Mrs. P. Rajeswari
Course Reviewed by : Ms. A. Jyothi Cassandra Devi
Course Checked by : Dr. K. Kamala Suganya Kumari

M.A. ENGLISH LITERATURE
SEMESTER III
ELECTIVE III – RESEARCH METHODOLOGY 17MVE5
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 52

- Ø To introduce the students to the rudiments of research
- Ø To teach them the mechanics of research
- Ø To train them in the writing of assignments and research articles

Unit I	Research and Writing	12hrs.
Unit II	The Mechanics of Writing	10hrs.
Unit III	The Format of Research Paper	10hrs.
Unit IV	Citing Sources in the Text	10hrs.
Unit V	Preparing the List of Works Cited	10hrs.

Books for Reference:

MLA Handbook for Writers of Research Papers, VII Edition, East-West Press Pvt. Ltd., New Delhi, 2009.
Thesis and Project Work, C.J. Parsons
Thesis and Assignment Writing, Jonathan Anderson, B.H. Durston and M. Poole, Wiley Eastaern, New Delhi, 1970.

Course Designed by : Ms. A. Jyothi Cassandra devi
Course Reviewed by : Ms. A. Velumani
Course Checked by : Dr. K. Kamala Suganya Kumari

M.A. ENGLISH LITERATURE
SEMESTER III
ELECTIVE III – ELT and CALL **17MVE6**
[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To equip students with the ability to read, write with understanding and to make them autonomous learners
- Ø To enhance the competence of understanding by making connections and drawing on experiences
- Ø To make the students comprehend the importance of communications technology in providing universal access to learning
- Ø To expose the students to the methods of language teaching

Unit I	A brief history of Language Teaching The nature of approaches and methods in Language Teaching, The oral Approach and Situational Language Teaching	15hrs.
Unit II	Competence based Language Teaching Communicative Language Teaching Content based instructions Task-based Language Teaching Blended Teaching Method	15 hrs.
Unit III	English for specific purposes, Teaching English in multilingual societies, Research in Second language acquisition, Teaching large classes and mixed ability classes, Strategies and techniques for effective self-study, and A perspective on recent trends	15 hrs.
Unit IV	CALL and Communication Enhancing Language Learning Using Technology – Internet, Mobile, Smart Classroom, Web resources, iPod Online Teaching, Learning and Assessment Integrated technology and Learning E-content development Developing Blog	15 hrs.
Unit V	Practical Using oral approach or situational Language Teaching Content-based instruction Teaching any one of LSRW skills Voice and accent training using software Teaching practice – Extension activity	15 hrs.

Books for Reference:

Approaches and Methods in Language Teaching Jack. C Richards and Theodore Rodgers
Teacher Knowledge Test Cambridge University Press
A History of English Language Teaching, Second Edition A.P.R.Howett with
H.G.Widdowson

Developments in English for Specific Norms: A Multi-disciplinary Approach, Cambridge, England Dudley – Evans.T.andSt.John M.J.(1998) Cambridge University Press

Course Designed by : Ms. A.Jyothi Cassandra devi

Course Reviewed by : Ms. A.Velumani

Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE

SEMESTER IV

CORE XV- BRITISH LITERATURE IV

17MV15

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours 75

- Ø To familiarize the students with the current trends in literary genres
- Ø To enable them understand the new ideas, approaches and the impact of psychology, sociology, anthropology on literature

Unit I	The Waste Land	T.S.Eliot	20 hrs.
Unit II	Byzantium Thou Art Indeed Just, Lord Toads Jaguar In Memory of Yeats The Poet Prayer Before Birth	W.B. Yeats G.M.Hopkins Philip Larkin Ted Hughes W.H.Auden C.D. Lewis Louis Macneice	15 hrs.
Unit III	Comfortable Words Worship of the Wealthy Walking Tours Travel by Train A Book that Influenced Me Why the Novel Matters	Hillaire Belloc G.K.Chesterton R.L.Stevenson J.B.Priestley E.M.Forster D.H.Lawrence	20 hrs.
Unit IV	Silver Box	John Galsworthy	10 hrs.
Unit V	The Portrait of the Artist as Young man Time Machine	James Joyce H.G.Wells	10 hrs.

Course Designed by : Mrs. S.Sathyapriya

Course Reviewed by : Ms. A.Velumani

Course Checked by : Dr.K.Kamala Suganya Kumari

M.A. ENGLISH LITERATURE

SEMESTER IV

CORE XVI - PREPARATORY COURSE FOR NET

17MV16

[For students admitted from the academic year 2017– 2018 onwards]

Objectives:

Total Hours: 75

- Ø To enrich the knowledge of the British and American literatures
- Ø To prepare the students for the NET exam
- Ø To provide a thorough reading of the writers of all genres

Unit I	Elizabethan Age to Restoration period(1558-1700)	20 hrs.
Unit II	Age of Pope & Age of Johnson(1700-1798)	20 hrs.
Unit III	Romantic & Victorian Period(1798-1901) Pre-Raphaelites to Modern Period (1901-to the present day)	10 hrs.
Unit IV	American and Commonwealth Literatures	10 hrs.
Unit V	Literary theory and Criticism	15 hrs.

Books for Reference:

UGC/NET/JRC/SET Hira Lai Choudhary Paper- II&III Third edition Upkarprakashan, New Delhi-2013

Course Designed by : Mrs.B.Poorani
 Course Reviewed by : Ms.A.Jyothi Cassandra devi
 Course Checked by : Dr.K.Kamala Suganya Kumari

**M.A. ENGLISH LITERATURE
SEMESTER IV**

ELECTIVE IV – ENGLISH FOR COMPETITIVE EXAMINATIONS 17MVE7
[For students admitted from the academic year 2017– 2018 onwards]

Objectives: Total Hours: 75

Ø Training the students to face Competitive Examinations

Unit I	Basics of English, Spotting Errors, Sentence Completion	20 hrs.
Unit II	Letter Writng, Report Writing	15 hrs.
Unit III	Spelling , Vocabulary	20 hrs.
Unit IV	Some Notions ,Conventional and Idiomatic expressions,Phrasal verbs	15 hrs.
Unit V	Practical-Online test	5 hrs.

Books for Reference:

Effective Business Communication, Asha Kaul Prentice Hall, 2008.
 Modern Commercial Correspondence, R.S.N.Pillai ,Bagavathi S. Chand 2004
 Introduction to Public Speaking, Brent C.Oberg, Jaico 2011
 Public Speaking for All Occasions Simon Elliot, Orient Paperback

Course Designed by : Mrs.B.Poorani
 Course Reviewed by : Mrs. P. Rajeswari
 Course Checked by : Dr.K.Kamala Suganya Kumari

**M.A. ENGLISH LITERATURE
SEMESTER IV**

ELECTIVE-IV - ADVERTISING FOR MEDIA 17MVE8
[For students admitted from the academic year 2017– 2018 onwards]

Objectives: Total Hours:75

- Ø To sharpen and perfect the writing skills of the students
- Ø To enable them to get Jobs in the Media

Ø To increase their marketing skills

Unit I	Introduction to Advertising - Chapters 1 and 2	15 hrs.
Unit II	Kinds of Advertising - Chapters 3 and 4	15 hrs.
Unit III	Media for Advertising - Chapters 13 and 14	15 hrs.
Unit IV	Creation of Advertisement - Chapters 16,17 and 18	15 hrs.
Unit V	Practical: Writing an Advertisement	15 hrs.

Book for Reference:

S.A. Chunawall et al. Advertising Theory and Practice Himalaya Publishing House 2004

Scheme of Examination- CBCS Pattern
(For students admitted during the academic year 2016– 2017 only)

Course Code	Course	Ins. Hrs /Week	EXAMINATION				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester I							
15MV01	Core I - British Literature I	6	3	25	75	100	4
15MV02	Core II - Indian Literature in English	6	3	25	75	100	4
15MV03	Core III - Language and Linguistics	6	3	25	75	100	4
15MV04	Core IV - Soft Skills through Shakespeare	6	3	25	75	100	4
15MVE1	Elective I - Applied Grammar and Composition	6	3	25	75	100	4
Semester II							
15MV05	Core V - British Literature II	6	3	25	75	100	4
15MV06	Core VI - American Literature	5	3	25	75	100	4
15MV07	Core VII - Literary Criticism	4	3	25	75	100	4
16MV08	Core VIII –LSRW Skills	5	3	25	75	100	4
16MV09	Core IX- Rhetoric and Journalism	4	3	25	75	100	4
15MVE2	Elective II - Women in Development	4	3	25	75	100	4
	Internship	-	-	-	-	50	2
15MGCS	Cyber Security	2	2	50	-	50	Grade
15MLA1	Advanced Learners’ Course I – Subject Viva Voce	-	-	-	-	100	4*
Semester III							
15MV10	Core X - British Literature III	6	3	25	75	100	4
15MV11	Core XI - New Literatures in English	6	3	25	75	100	4
15MV12	Core XII - Translation Studies	5	3	25	75	100	4
15MV13	Core XIII - Feminist Literature	5	3	25	75	100	4
15MV14	Core XIV - Theatrical Arts	4	3	25	75	100	4
15MVE3	Elective III - Research Methodology	4	3	25	75	100	4
Semester IV							
15MV15	Core XV - British Literature IV	6	3	25	75	100	4
15MV16	Core XVI - Preparatory Course for SET AND NET	6	3	25	75	100	4
15MVE4	Elective IV- English for Competitive Examinations	6	3	25	75	100	4
	Project - Yearlong	-	-	100	100	200	8
15MVA2	Advanced Learners’ Course II - Literary Review	-	-	-	-	100	4*
	TOTAL					2250	90

M.A.ENGLISH LANGUAGE AND LITERATURE

SEMESTER I

CORE I - BRITISH LITERATURE I

15MV01

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To introduce the students to the culture, philosophy, and attitude to life of the poets and playwrights who set a literary tradition
- To familiarize the students with the depth and complexity of the literary forms of the age
- To make the students understand and appreciate the style, rhetoric of the language of the day and profundity of thought of the age

Unit I	<i>A Prologue to The Canterbury Tales</i> “Lover Comforteth” “The Means to attain Happy Life” “Forget not yet”, “The Appeal”	Geoffrey Chaucer Henry Howard (Surrey) Sir Thomas Wyatt	20hrs.
Unit II	<i>Prothalamian</i> Sonnets from <i>Amoretti</i> 1,2 <i>Fear No More the Heat O’ the Sun</i> Sonnet No.130	Edmund Spenser William Shakespeare	15 hrs.
*Unit III	Bacon’s <i>Essays</i> Of Truth, Of Love, Of Revenge, Of Friendship,	Francis Bacon	10 hrs.
Unit IV	<i>Edward II</i>	Christopher Marlowe	20 hrs.
Unit V	<i>An Apology for Poetry</i>	Sir Philip Sidney	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

The Winged Word, David Green, Macmillan Publishers India Ltd., Mumbai, 2013

Whispering Reeds An Anthology of English Poetry, D.K.Barua, Oxford University Press,2001

Peacock Volume I (P 232)

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by : Mrs. S.Sathya Priya

Course Checked by : Mrs. P.Rajeswari

M.A.ENGLISH LANGUAGE AND LITERATURE

SEMESTER I

CORE II – INDIAN LITERATURE IN ENGLISH 15MV02

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To familiarize the students with the different facets of Indian Writing in English.
- To enable them grasp the variety of literary output of Indian poets, novelists and playwrights
- To enhance the Indian English idiom and style

Unit I	Sita Play Things Rose of God The Old Woman The Night of the Scorpion A River Introduction Law of Rhythm	Toru Dutt Rabindranath Tagore Sri Aurobindo Sarojini Naidu NissimEzeikel A.K.Ramanujam Kamala Das Sri Ananda Acharya	20 hrs.
Unit II	The Secret of Work Students and Their Duties My Mother Sale My Visions for India	Swami Vivekananda Gopal Krishna Gokhale Dom Moraes Anita Desai Dr.A.P.J Abdul Kalam	15 hrs.
Unit III	<i>Hayavadana</i>	Girish Karnard	15 hrs.
Unit IV	The Value of Classical Tradition Today,		15 hrs.

	Moral Values in Literature, Freedom and Culture	K.R. Srinivasa Iyengar	
*Unit V	<i>Swami and Friends</i> <i>Train to Pakistan</i>	R.K.Narayan Kushwant Singh	10 hrs.

* Starred unit is a Self Study unit

Books for Reference

An Anthology of Indian English Poetry, Orient Longman.

Links, G.S.Balarama Gupta, Macmillan

Expressions: Anthology of English Prose, G.Radhakrishna Pillai, Emerald Publishers

Adventures of Criticism K.R.S.Iyengar Rupa and Co.

Course Designed by : Ms. A.Velumani

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs.P. Rajeswari

M.A.ENGLISH LANGUAGE AND LITERATURE

SEMESTER I

CORE III – LANGUAGE AND LINGUISTICS

15MV03

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To introduce the different theories regarding the origin of language in general and English in particular
- To enable the students understand the grammatical, structural and functional aspects of English
- To refine their modern linguistic perspectives and approaches to the study of language

Unit I	Origin of English and Descent of the English Language	15 hrs.
Unit II	Old English, Middle English and Standard English	20 hrs.
Unit III	The Growth of Vocabulary, Change of Meaning and Foreign Influences	15 hrs.

*Unit IV	Socio-Linguistics and Language Variation Psycholinguistics and Language Acquisition	10 hrs.
Unit V	Linguistic Stylistics and Computational Linguistics Language as Discourse, Language and Literature	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

An Outline History of Language F.T.Wood

An Introductory of Text Book of Linguistics and Phonetics - Radhey L. Varshney, Student Store, Bareilly.

Linguistics and Literary Style – S.Bhatnagar, N.K.Sharma, Alfa Publications, New Delhi.

Modern Linguistics N.Krishnaswamy et.al. Macmillan

Course Designed by : Mrs. P. Rajeswari

Course Reviewed by: Dr. J.Vijayalakshmi

Course Checked by : Mrs .P. Rajeswari

M.A.ENGLISH LANGUAGE AND LITERATURE

SEMESTER I

CORE IV– SOFT SKILLS THROUGH SHAKESPEARE 15MV04

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To train the students in study of character / human behaviour
- To use characters from classics/their behavior as parallels to reflect and introspect on their own behavior
- To enable them in the use of right effects and develop skills in bringing personal emotions under the scanner of cognition
- To train them in the use of characters/interactions from literature and other areas listed as case studies.

Unit I	Self Esteem	Coriolanus in <i>Coriolanus</i>	20hrs.
Unit II	Integrity	Enoborbus in <i>Antony and Cleopatra</i>	15 hrs.
Unit III	Managerial Ability	Portia in <i>Merchant of Venice</i>	15 hrs.
Unit IV	Sociability	Rosalind in <i>As You Like It</i>	15 hrs.

*Unit V	Shakespearean Sonnets, Shakespearean Heroines, Supernatural Elements, Shakespearean Theatre	10 hrs.
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* Starred unit is a Self Study unit

Course Designed by : Mrs. P. Rajeswari

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P. Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER I

ELECTIVE I – APPLIED GRAMMAR AND COMPOSITION

15 MVE1

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To improve the grammar of the students
- To train them understand the theories of grammar
- To enable them understand the different styles of writing through the use of different aspects of grammar

Unit I	Word Class, Word Formation, Sentence Patterns, Expansion of phrase into clause, Reduction of clause into phrase	15 hrs.
Unit II	Alternative structures - Active and Passive Voice, Degrees of Comparison, Assertion - Double Negative, Interrogation, Question Tags	20 hrs.
Unit III	Comprehension (Prose and Poetry Comprehension)	15 hrs.
Unit IV	Hints development	15 hrs.
* Unit V	Composition – Essay of 500 words	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Bhatnagar, RP Rajul Bhargava, English for Competitive Examinations Chennai: Macmillan India Limited, 1999 Vimp.2004.

Sarah Freeman: Written Communication

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by: Ms. A.Velumani

Course Checked by : Mrs. P. Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER II

CORE V - BRITISH LITERATURE II

15MV05

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To enrich the learning experience of the students by introducing great poets like Milton, Dryden, Pope and others
- To enjoy the felicity of expression and descriptive style of Addison and Steele
- To make them comprehend the impact of socio-political events on literature

Unit I	<i>Paradise Lost Book IX</i> Canonization, Sunne Rising To My Coy Mistress Discipline	John Milton John Donne Andrew Marvell George Herbert	20hrs.
Unit II	Sir Roger at Home Character of Will Wimble Sir Roger's Ancestors A Scene in a Stage Coach His Account and Disappointment of Love	Joseph Addison Richard Steele	10 hrs.
Unit III	<i>All for Love</i>	John Dryden	20 hrs.
Unit IV	<i>Preface to Shakespeare</i>	Dr. Johnson	15 hrs.
* Unit V	<i>Gulliver's Travels</i> <i>Robinson Crusoe</i>	Jonathan Swift Daniel Defoe	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Galaxy of English Essayists- ed. M.G. Nair.Macmillian

An Anthology of popular essays and poems- ed. A.G. Xavier

Expressions, An Anthology of English Prose –ed.G.Radhakrishnan Pillai

Course Designed by : Ms. A.Velumani

Course Designed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs.P. Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER II

CORE VI- AMERICAN LITERATURE

15MV06

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 65

- To make the students perceive the criss-cross influence of culture and society on literature
- To introduce the students to the new forms and the zeal of experimentation of writers
- To make them understand the singularity of American English, its idiom and influence

Unit I	Crossing Brooklyn Ferry, When Lilacs Last Bloomed, Raven Because I Could not, A Bird Came Down, This is My Letter Stopping by Woods, Road Not Taken, Birches Mirror	Walt Whitman Edgar Allan Poe Emily Dickinson Robert Frost Sylvia Plath	15 hrs.
Unit II	<i>Glass Menagerie</i>	Tennessee Williams	15 hrs.
Unit III	Self Reliance Where I Lived and What I Lived For	Ralph Waldo Emerson Henry David Thoreau	15 hrs.
*Unit IV	The Snows of Kilimanjaro Pigeon Feathers Young Goodman Brown The Cask of Amontillado	Ernest Hemmingway John Updike Nathaniel Hawthorne Edgar Allan Poe	10hrs.

Unit V	<i>Adventures of Tom Sawyer</i> <i>Pearl</i>	Mark Twain John Steinbeck	10 hrs.
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* Starred unit is a Self Study unit

Books for Reference:

Ed. Dr.EgbertS.Oliver*An Anthology of American Literature* Eurasia Publishing House

William J.Fisher*American Literature of the Nineteenth Century* Eurasia Publishing House

Course Designed by : Mrs. S.SathyaPriya

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P. Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER II

CORE VII - LITERARY CRITICISM

15MV07

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 52

- To cultivate a critical sense in the students while reading a work of art
- To develop the skill of interpretation and evaluation
- To provide the students with the knowledge of the trends, critical perspectives, theories and canons from the ancient to the modern

Unit I	Classical Criticism – Plato, Aristotle, Longinus	Brijidesh Prasad	10hrs.
Unit II	Lyrical Ballads	William Wordsworth	10hrs.
*Unit III	Tradition and Individual Talent Creative Writers and Day Dreaming	T.S.Eliot Sigmund Freud	10hrs.
Unit IV	Deconstruction Death of an Author	Jaques Derrida Roland Barthes	12hrs.
Unit V	Post Modernism		10hrs.

* Starred unit is a Self Study unit

Books for Reference

B.K.Pattanayak *Dynamics of Twentieth Century Literary Criticism*

T.RamakrishnaRao *Comprehensive Modern Literary Theory*

Harry Blamairs *History of English Criticism*

S.B.Wadikar *New Trends in Literary Criticism*

B.Prasad *An Introduction to English Criticism*

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by : Ms. P. Ramya

Course Checked by : Mrs. P. Rajeswari

M.A. ENGLISH LITERATURE SEMESTER II CORE VIII – LSRW SKILLS

16MV08

[For students admitted during the academic year 2016 – 2017 only]

Objectives:

Total Hours: 65

- To improve LSRW Skills

Unit I	Communicative Language Approaches Process of Listening, Reasons for Listening and Listening Activities	15 hrs.
Unit II	Characteristics of Spoken Language, Problems in Pronunciation and Teaching Pronunciation	20 hrs.
Unit III	The Concepts of Reading Skills, Reasons for Reading and Types of Reading Skills	10 hrs.
*Unit IV	Levels of Writing, The Writing Process, Summarizing and Précis Writing	10 hrs.
Unit V	Practical Work: Phonetic Transcription Telephonic Conversation, Public Speaking and Narration	10hrs.

* Starred unit is a Self Study unit

Books for Reference:

Better English Pronunciation J.D.O'Connor, Cambridge Edition, India, 1967.

An Outline of English Phonetics, Jones Daniel, Eighth Edition, Cambridge, 1965.

An Outline of General Phonetics, Bansal.R.K, OUP, 1971

Writing Skills, Dr.P.Thailambal, ENNES Publications, Udumalpet

Developing Reading Skill by Francoise Grellet, Cambridge Language Teaching Library.

Course Designed by : Ms.A.Jyothi Cassandra devi

Course Reviewed by : Dr.K.Kamala Suganya Kumari

Course Checked by : Mrs. P. Rajeswari

**M.A. ENGLISH LITERATURE
SEMESTER II**

CORE IX – RHETORIC AND JOURNALISM 16MV09

[For students admitted during the academic year 2016 – 2017 only]

Objectives: **Total Hours: 52**

- To make the students understand the significance of journalistic style
- To strengthen their knowledge in journalistic writing
- To enable them comprehend the new styles and techniques in journalism

Unit I	Techniques of Descriptive Writing, Report Writing and Narrative Skills	12 hrs.
*Unit II	Style of Writing in News Paper - Prose Writing, Vocabulary and Sentence Structure, Tone and Audience & 5Ws and 1H	10 hrs.
Unit III	History of Journalism, Ethics of Journalism, and Electronic Media in Journalism	10 hrs.
Unit IV	Art of Interviewing, Editing Techniques, Reporting Techniques	10 hrs.
Unit V	Practical Work : Writing a Report, News Writing, Advertisement Writing, Reporting an incident and Narrating an event	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Essentials of Journalism, Ms.Meenu, Murari Lal & Sons, New Delhi, 2008.

Theory and Practice of Journalism, B.N.Ahuja, Surjeet Publications, Delhi.

Ethics of Journalism in Transition, Jitendra Kumar Sharma, Authors Press, Delhi, 2002

Journalism for Students, M.S.Sharma, Mohit Publications, Delhi, 2000.

Introduction to News Reporting, Manoranjan Tripathy, Authors Press, Delhi, 2007

The Journalist's Handbook, M.V.Kamath, Vikas Publishing House Pvt. Ltd,

Course Designed by : Mrs.K.Sathya Priya

Course Reviewed by : Ms.A.Jyothi Cassandra devi

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

CORE X – BRITISH LITERATURE III 15ML10

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives: **Total Hours: 75**

- To acquaint the students with the poems of the Romantic age
- To make them appreciate the Pantheism of Wordsworth, sensuousness of Keats and the love of liberty of Shelley
- To make them see the difference between the Romantic poetry and Victorian poetry as manifest in Tennyson, Browning and Arnold

Unit I	Ode on the Intimations of Immortality Christabel <i>From Don Juan</i> (Stanza1-12) Ode to a Skylark	William Wordsworth Samuel Taylor Coleridge Lord Byron	
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	Ode to Autumn	Percy Bysshe Shelley John Keats	20 hrs.
Unit II	Ring Out Wild Bells, Tears, Idle tears My Last Duchess, Last Ride Together Sohrab and Rustum The Blessed Damozel	Alfred Lord Tennyson Robert Browning Matthew Arnold Dante Gabriel Rosetti	15 hrs.
Unit III	The South Sea House My First Play The Praise of Chimney Sweepers Murder As Fine Arts Of Persons One Would Wish to Have Seen	Charles Lamb Thomas De Quincey William Hazlitt	15 hrs.
Unit IV	<i>Lady Windermere's Fan</i>	Oscar Wilde	15 hrs.
*Unit V	<i>Kenilworth</i> <i>Silas Marner</i>	Walter Scott George Eliot	10 hrs.

* Starred unit is a Self Study unit

Course Designed by : Ms. P.Ramya

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P. Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

CORE XI – NEW LITERATURES IN ENGLISH 15MV11

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To introduce the students to the cultural and ethnic peculiarities of the colonial countries
- To familiarise the students with anguish that are transmuted into art
- To make the students appreciate the linguistic idiom and style of writers from multi-cultural background
- To equip the students with adequate knowledge on Commonwealth literature to motivate intercultural aspects of literature

Unit I	AUSTRALIAN Standardization Nigger's Leap, New England AFRICAN	A.D.Hope Judith Wright	
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	Africa I Thank You God CANADIAN Journey to the Interior Like an Old Proud King in a Parable NEW ZEALAND The Man with the Wooden Leg Time	David Diop Bernard B.Dadie Margret Atwood A.J.M.Smith Katherine Mansfield Allen Curnow	20 hrs.
Unit II	PAKISTAN I am not that Woman On The Tenth Night of The Tenth Moon BANGLA DESH My Daughter's Boy Friend The Monstrous Biped SINGAPORE & MALAYSIA Words for Father On Writing a Poem SRI LANKA There was a Country To a Student	Kishwar Naheed Ahmed Ali Razia Khan Shirley Lin E.E.Tiang Hong Yasmine Goomeratne Kamala Wijeratne	20 hrs.
Unit III	AUSTRALIAN Settling on the Land When the Sun Went down Steel Man Shooting the Moon The Shearing of the Cook's Dog	 Henry Lawson	10 hrs.
*Unit IV	FRENCH The Stranger AFRICAN Things Fall Apart	Albert Camus Chinua Achebe	10 hrs.
Unit V	GERMAN Mother Courage and her Children	Bertolt Brecht	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

An Anthology of Commonwealth Poetry, C.D. Narasimaiah, Macmillan Publishers, 1990.

Readings in Commonwealth Literature, Ed. William Walsh

While the Billy Boils, Henry Lawson, 1896.

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by : Mrs. S.SathyaPriya

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

CORE XII -TRANSLATION STUDIES

15MV12

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 65

- To satisfy cross cultural curiosity and understand the essential difference between different social systems
- To strengthen the language proficiency of the students in translation

Unit I	Definitions and Theories of Translation	10 hrs.
Unit II	<i>Thirukkural</i> Translation: In Praise of God, In Praise of Rain, Kindly Speech, Hospitality, Gratitude	15 hrs.
*Unit III	The Victory, The Home Coming, The Devotee, The Renunciation, The Cabuliwallah	10 hrs.
Unit IV	<i>Bridges (Paalangal)</i> by Sivasankari translated by S.Krishnan	15 hrs.
Unit V	Practical: Translation of a Short Story or a Prose piece by the student	15 hrs.

* Starred unit is a Self Study unit

Books for Reference

Susan BassnettMcGuire *Translation Studies*

Savoy Theodore, H *The Art of Translation*

BijayKumarDas *A Horizon to the Study of Translation*

Sacred Kural – *Thiruvalluva Nayanar* – Book I – Virtue I to X chapters

translated by Rev.G.U.Pope, New Delhi, Asian Educational Services, 1980.

The Hungry Stones & Other Stories – Macmillan, Delhi 1916

Bridges (Paalangal) by Sivasankari translated by S.Krishnan, New Horizon Media, Chennai,2004.

Course Designed by : Dr.K.KamalaSuganya Kumari

Course Reviewed by : Ms.A.Jyothi Cassandra Devi

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

CORE XIII –FEMINIST LITERATURE 15MV13

[For students admitted from the academic year 2015 – 2016 onwards]

Preamble

Total Hours: 65

- To create an awareness among the students about the problems of women
- To make them realize the issues of women in a patriarchal society through literary works
- To instil in them an impulse to attempt creative writing

Unit I	History of Feminist Movement A Vindication of the Rights of Women Chapter IX	Mary Wollstonecraft 15 hrs.
* Unit II	<i>A Room of One's Own</i>	Virginia Woolf 10 hrs.
Unit III	"Female Aesthetic" from <i>A Literature of Their Own</i>	Elaine Showalter 15 hrs.
Unit IV	<i>Feminine Mystique</i> Chapter XIV "New Life Plan for Women"	Betty Friedan 15 hrs.
Unit V	<i>Beauty Myth</i>	Naomi Woolf 10 hrs.

* Starred unit is a Self Study unit

Course Designed by : Ms. A.Velumani

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

CORE XIV –THEATRICAL ARTS

15MV14

[For students admitted from the academic year 2015 – 2016 onwards]

Preamble

Total Hours: 52

- To give the students a successful career in the *dramatic arts*.
- To make them experience theatre life as an actor, playwright, and producer

Unit I	History of Theatrical Arts	10 hrs.
Unit II	Indian Classical Theatre	10 hrs.
Unit III	Theatre Performance Studies and Management	10 hrs.
Unit IV	Studying Drama The conventions of Drama, Languages of drama, character and plot, tragedy and comedy	12 hrs.
* Unit V	Activity : Staging a Play	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Theatre: A Very Short Introduction, Marvin Calson, Oxford University Press India, 2014.

A Study of Indian Theatre, P.Thailambal, Ennes Publications, 2010.

A History of Theatrical Art in Ancient and Modern Time, Karl Mantzius, Peter Smith, 2012.

The Concise Oxford Companion to the Theatre, Phyllis Hartnoll and Peter Found.

Drama/ Theatre/ Performance (The New Critical Idiom), Simon Shepherd and Mick, Routledge, 2004.

On Theatre And the Art of Acting: a Guide to Discovery, Michael Chekhov, 2004

Mastering English Literature – Richard Gill, Macmillan, London, 1985.

Course Designed by : Mrs. P.Rajeswari

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

ELECTIVE III – RESEARCH METHODOLOGY 15MVE3

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 52

- To introduce the students to the rudiments of research
- To teach them the mechanics of research
- To train them in the writing of assignments and research articles

Unit I	Research and Writing	12hrs.
* Unit II	The Mechanics of Writing	10hrs.
Unit III	The Format of Research Paper	10hrs.
Unit IV	Case study, plot study focus on group discussion , personal interview, framing questionnaire.	10hrs.

Unit V	Types of research (experimental, survey, accent, historical)	10hrs.
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* Starred unit is a Self Study unit

Books for Reference:

MLA Handbook for Writers of Research Papers, VII Edition, East-West Press Pvt. Ltd., New Delhi, 2009.

Thesis and Project Work, C.J.Parsons

Thesis and Assignment Writing, Jonathan Anderson, B.H.Durstun and M.Poole, Wiley Eastaern, New Delhi, 1970.

Course Designed by : Dr J.Vijayalakshmi

Course Reviewed by : Ms. A.Velumani

Course Checked by : Mrs. P.Rajeswari

SEMESTER IV

CORE XV- BRITISH LITERATURE IV

15MV15

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours 75

- To familiarize the students with the current trends in literary genres
- To enable them understand the new ideas, approaches and the impact of psychology, sociology, anthropology on literature

Unit I	The Waste Land	T.S.Eliot	20 hrs.
Unit II	Byzantium Thou Art Indeed Just, Lord Toads Jaguar In Memory of Yeats The Poet Prayer Before Birth	W.B. Yeats G.M.Hopkins Philip Larkin Ted Hughes W.H.Auden C.D. Lewis Louis Macneice	15 hrs.
Unit III	Comfortable Words Worship of the Wealthy Walking Tours Travel by Train A Book that Influenced Me	Hillaire Belloc G.K.Chesterton R.L.Stevenson J.B.Priestley E.M.Forster D.H.Lawrence	

	Why the Novel Matters		20 hrs.
Unit IV	<i>Silver Box</i>	John Galsworthy	10 hrs.
* Unit V	<i>The Portrait of the Artist as Young man</i> <i>Time Machine</i>	James Joyce H.G.Wells	10 hrs.

* Starred unit is a Self Study unit

Course Designed by : Mrs. S.Sathyapriya

Course Reviewed by : Dr. J.VijayaLakshmi

Course Checked by : Mrs. P.Rajeswari

SEMESTER IV

CORE XVI - PREPARATORY COURSE FOR SET AND NET 15MV16

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To enrich the knowledge of the British and American literatures
- To prepare the students for the NET and SET exams
- To provide a thorough reading of the writers of all genres

Unit I	Elizabethan Age to Restoration period(1558-1700)	20 hrs.
Unit II	Age of Pope & Age of Johnson(1700-1798)	20 hrs.
* Unit III	Romantic & Victorian Period(1798-1901)	10 hrs.
Unit IV	Pre-Raphaelites to Modern Period (1901-to the present day)	10 hrs.
Unit V	American and Commonwealth Literatures	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

UGC/NET/JRC/SET Hira Lai Choudhary Paper- II&III Third edition Upkarprakashan, New Delhi-2013

Course Designed by : Ms. A.Velumani

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

SEMESTER IV

ELECTIVE IV – COMMERCIAL CORRESPONDENCE

AND PUBLIC SPEAKING

15MVE4

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours:75

- To empower the students with Public Speaking Skills
- To train the students to express their ideas clearly and coherently
- To enable them function as effective Commercial Correspondents
- To equip them with good Secretarial skills

Unit I	Principles of Commercial Correspondence -Mechanics of Writing, Report Writing, Circulars Notices, Memos, Agenda	20 hrs.
Unit II	Commercial Correspondence, Sales Letters, Secretarial Correspondence, Trade Correspondence, Writing of Minutes, Letters to Editors, Personal Complaints	15 hrs.
Unit III	Communication Apprehension, Technique of Delivery Listening Skills, Topic Selection and Organization and research, Different Modes of Speaking, Speaking with Different Purposes	15 hrs.
* Unit IV	Audiences, Techniques and Occasions, Props and Places, Construction and Contents, Voice, Stance and Delivery	10 hrs.
Unit V	Preparation of some report- Record work Public Speaking for 5 Minutes Advertisement Writing	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Effective Business Communication, Asha Kaul Prentice Hall, 2008.

Modern Commercial Correspondence, R.S.N.Pillai ,Bagavathi S. Chand 2004

Introduction to Public Speaking, Brent C.Oberg, Jaico 2011

Public Speaking for All Occasions Simon Elliot, Orient Paperback

Course Designed by : Ms. P.Ramya

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LITERATURE
SEMESTER IV
ELECTIVE IV – ENGLISH FOR COMPETITIVE EXAMINATIONS

[For students admitted from the academic year 2015– 2016] 15MVE4

Objectives:

Total Hours: 75

- To enhance students' language skills
- To strengthen their confidence level
- To enable them to get through TOEFL, IELTS, GRE and IAS Examination

*Unit I	Functional Grammar	15 hrs.
Unit II	Spotting Errors, Sentence Completion and Reconstructing Passages	15 hrs.
Unit III	Phrasal Verbs & Idioms, Cloze Test, Reading and Reasoning Expand the given ideas and Essays	20 hrs.
Unit IV	Body Language, Group Discussion and Interview Skills	15 hrs.
Unit V	Writing Curriculum Vitae and Job Applications	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Objective English , Dr.Lal and T.S.Jain, Upkar Prakashan, Agra
Competitive English , J.K.Gangal, S.Chand & Company Ltd., New Delhi, 2009.
English for Competitive Examinations, R.P.Bhatnagar, Macmillan India Limited, Delhi, 1994.

Course Designed by : Mrs.S.Sathya Priya

Course Reviewed by : Ms.A.Velumani

Course Checked by : Mrs. P.Rajeswar

M.A. ENGLISH LANGUAGE AND LITERATURE
 Scheme of Examination- CBCS Pattern
 (For students admitted from the academic year 2015 – 2016 onwards)

Course Code	Course	Ins. Hrs/ Week	EXAMINATION				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester I							
15ML01	Core I - British Literature I	6	3	25	75	100	4
15ML02	Core II - Indian Literature in English	6	3	25	75	100	4
15ML03	Core III - Language and Linguistics	6	3	25	75	100	4
15ML04	Core IV - Soft Skills through Shakespeare	6	3	25	75	100	4
15MLE1	Elective I - Applied Grammar and Composition	6	3	25	75	100	4
Semester II							
15ML05	Core V - British Literature II	6	3	25	75	100	4
15ML06	Core VI - American Literature	5	3	25	75	100	4
15ML07	Core VII - Literary Criticism	4	3	25	75	100	4
15ML08	Core VIII –LSRW Skills	5	3	25	75	100	4
15ML09	Core IX- Literature and Journalism	4	3	25	75	100	4
15MLE2	Elective II - Women in Development	4	3	25	75	100	4
	Internship	-	-	-	-	50	2
15MGCS	Cyber Security	2	2	50	-	50	Grade
15MLA1	Advanced Learners’ Course I – Subject Viva Voce	-	-	-	-	100	4*
Semester III							
15ML10	Core X - British Literature III	6	3	25	75	100	4
15ML11	Core XI - New Literatures in English	6	3	25	75	100	4
15ML12	Core XII - Translation Studies	5	3	25	75	100	4
15ML13	Core XIII - Feminist Literature	5	3	25	75	100	4
15ML14	Core XIV - Theatrical Arts	4	3	25	75	100	4
15MLE3	Elective III - Research Methodology	4	3	25	75	100	4

Semester IV							
15ML15	Core XV - British Literature IV	6	3	25	75	100	4
15ML16	Core XVI - Preparatory Course for SET AND NET	6	3	25	75	100	4
15MLE4	Elective IV- Commercial Correspondence and Public Speaking	6	3	25	75	100	4
	Project - Yearlong	-	-	100	100	200	8
15MLA2	Advanced Learners' Course II - Literary Review	-	-	-	-	100	4*
	TOTAL					2250	90

M.A.ENGLISH LANGUAGE AND LITERATURE

SEMESTER I

CORE I - BRITISH LITERATURE I

15ML01

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To introduce the students to the culture, philosophy, and attitude to life of the poets and playwrights who set a literary tradition
- To familiarize the students with the depth and complexity of the literary forms of the age
- To make the students understand and appreciate the style, rhetoric of the language of the day and profundity of thought of the age

Unit I	<i>A Prologue to The Canterbury Tales</i> “Lover Comforteth” “The Means to attain Happy Life” “Forget not yet”, “The Appeal”	Geoffrey Chaucer Henry Howard (Surrey) Sir Thomas Wyatt	20hrs.
Unit II	<i>Prothalamian</i> Sonnets from <i>Amoretti</i> 1,2 <i>Fear No More the Heat O’ the Sun</i> Sonnet No.130	Edmund Spenser William Shakespeare	15 hrs.
*Unit III	Bacon’s <i>Essays</i> Of Truth, Of Love, Of Revenge, Of Friendship,	Francis Bacon	10 hrs.

Unit IV	<i>Edward II</i>	Christopher Marlowe	20 hrs.
Unit V	<i>An Apology for Poetry</i>	Sir Philip Sidney	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

The Winged Word, David Green, Macmillan Publishers India Ltd., Mumbai, 2013

Whispering Reeds An Anthology of English Poetry, D.K.Barua, Oxford University Press, 2001

Peacock Volume I (P 232)

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by : Mrs. S.Sathya Priya

Course Checked by : Mrs. P.Rajeswari

SEMESTER I

CORE II – INDIAN LITERATURE IN ENGLISH 15ML02 **[For students admitted from the academic year 2015 – 2016 onwards]**

Objectives:

Total Hours: 75

- To familiarize the students with the different facets of Indian Writing in English.
- To enable them grasp the variety of literary output of Indian poets, novelists and playwrights
- To enhance the Indian English idiom and style

Unit I	Sita Play Things Rose of God The Old Woman The Night of the Scorpion A River Introduction Law of Rhythm	Toru Dutt Rabindranath Tagore Sri Aurobindo Sarojini Naidu NissimEzeikel A.K.Ramanujam Kamala Das Sri Ananda Acharya	20 hrs.
Unit II	The Secret of Work Students and Their Duties My Mother Sale My Visions for India	Swami Vivekananda Gopal Krishna Gokhale Dom Moraes Anita Desai Dr.A.P.J Abdul Kalam	15 hrs.

Unit III	<i>Hayavadana</i>	Girish Karnard	15 hrs.
Unit IV	The Value of Classical Tradition Today, Moral Values in Literature, Freedom and Culture	K.R. Srinivasa Iyengar	15 hrs.
*Unit V	<i>Swami and Friends</i> <i>Train to Pakistan</i>	R.K.Narayan Kushwant Singh	10 hrs.

* Starred unit is a Self Study unit

Books for Reference

An Anthology of Indian English Poetry, Orient Longman.

Links, G.S.Balarama Gupta, Macmillan

Expressions: Anthology of English Prose, G.Radhakrishna Pillai, Emerald Publishers

Adventures of Criticism K.R.S.Iyengar Rupa and Co.

Course Designed by : Ms. A.Velumani

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs.P. Rajeswari

SEMESTER I

CORE III – LANGUAGE AND LINGUISTICS

15ML03

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To introduce the different theories regarding the origin of language in general and English in particular
- To enable the students understand the grammatical, structural and functional aspects of English
- To refine their modern linguistic perspectives and approaches to the study of language

Unit I	Origin of English and Descent of the English Language	15 hrs.
Unit II	Old English, Middle English and Standard English	20 hrs.
Unit III	The Growth of Vocabulary, Change of Meaning and Foreign Influences	15 hrs.
*Unit IV	Socio-Linguistics and Language Variation Psycholinguistics and Language Acquisition	10 hrs.
Unit V	Linguistic Stylistics and Computational Linguistics Language as Discourse, Language and Literature	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

An Outline History of Language F.T.Wood

An Introductory of Text Book of Linguistics and Phonetics - Radhey L. Varshney, Student Store, Bareilly.

Linguistics and Literary Style – S.Bhatnagar, N.K.Sharma, Alfa Publications, New Delhi.

Modern Linguistics N.Krishnaswamy et.al. Macmillan

Course Designed by : Mrs. P. Rajeswari

Course Reviewed by: Dr. J.Vijayalakshmi

Course Checked by : Mrs .P. Rajeswari

SEMESTER I

CORE IV– SOFT SKILLS THROUGH SHAKESPEARE 15ML04

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To train the students in study of character / human behaviour
- To use characters from classics/their behavior as parallels to reflect and introspect on their own behavior
- To enable them in the use of right effects and develop skills in bringing personal emotions under the scanner of cognition
- To train them in the use of characters/interactions from literature and other areas listed as case studies.

Unit I	Self Esteem	Coriolanus in <i>Coriolanus</i>	20hrs.
Unit II	Integrity	Enoborbus in <i>Antony and Cleopatra</i>	15 hrs.
Unit III	Managerial Ability	Portia in <i>Merchant of Venice</i>	15 hrs.
Unit IV	Sociability	Rosalind in <i>As You Like It</i>	15 hrs.
*Unit V	Shakespearean Sonnets, Shakespearean Heroines, Supernatural Elements, Shakespearean Theatre		10 hrs.

* Starred unit is a Self Study unit

Course Designed by : Mrs. P. Rajeswari

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P. Rajeswari

SEMESTER I

ELECTIVE I – APPLIED GRAMMAR AND COMPOSITION

15 MLE1

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To improve the grammar of the students
- To train them understand the theories of grammar
- To enable them understand the different styles of writing through the use of different aspects of grammar

Unit I	Word Class, Word Formation, Sentence Patterns, Expansion of phrase into clause, Reduction of clause into phrase	15 hrs.
Unit II	Alternative structures - Active and Passive Voice, Degrees of Comparison, Assertion - Double Negative, Interrogation, Question Tags	20 hrs.
Unit III	Comprehension (Prose and Poetry Comprehension)	15 hrs.
Unit IV	Hints development	15 hrs.
* Unit V	Composition – Essay of 500 words	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Bhatnagar, RP Rajul Bhargava, English for Competitive Examinations Chennai: Macmillan India Limited, 1999 Vimp.2004.

Sarah Freeman: Written Communication

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by: Ms. A.Velumani

Course Checked by : Mrs. P. Rajeswari

SEMESTER II

CORE V - BRITISH LITERATURE II

15ML05

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To enrich the learning experience of the students by introducing great poets like Milton, Dryden, Pope and others
- To enjoy the felicity of expression and descriptive style of Addison and Steele

- To make them comprehend the impact of socio-political events on literature

Unit I	<i>Paradise Lost Book IX</i> Canonization, Sunne Rising To My Coy Mistress Discipline	John Milton John Donne Andrew Marvell George Herbert	20hrs.
Unit II	Sir Roger at Home Character of Will Wimble Sir Roger's Ancestors A Scene in a Stage Coach His Account and Disappointment of Love	Joseph Addison Richard Steele	10 hrs.
Unit III	<i>All for Love</i>	John Dryden	20 hrs.
Unit IV	<i>Preface to Shakespeare</i>	Dr. Johnson	15 hrs.
* Unit V	<i>Gulliver's Travels</i> <i>Robinson Crusoe</i>	Jonathan Swift Daniel Defoe	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Galaxy of English Essayists- ed. M.G. Nair.Macmillian

An Anthology of popular essays and poems- ed. A.G. Xaiver

Expressions, An Anthology of English Prose –ed.G.Radhakrishnan Pillai

Course Designed by : Ms. A.Velumani

Course Designed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs.P. Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER II

CORE VI- AMERICAN LITERATURE

15ML06

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 65

- To make the students perceive the criss-cross influence of culture and society on literature
- To introduce the students to the new forms and the zeal of experimentation of writers

- To make them understand the singularity of American English, its idiom and influence

Unit I	Crossing Brooklyn Ferry, When Lilacs Last Bloomed, Raven Because I Could not, A Bird Came Down, This is My Letter Stopping by Woods, Road Not Taken, Birches Mirror	Walt Whitman Edgar Allan Poe Emily Dickinson Robert Frost Sylvia Plath	15 hrs.
Unit II	<i>Glass Menagerie</i>	Tennessee Williams	15 hrs.
Unit III	Self Reliance Where I Lived and What I Lived For	Ralph Waldo Emerson Henry David Thoreau	15 hrs.
*Unit IV	The Snows of Kilimanjaro Pigeon Feathers Young Goodman Brown The Cask of Amontillado	Ernest Hemmingway John Updike Nathaniel Hawthorne Edgar Allan Poe	10hrs.
Unit V	<i>Adventures of Tom Sawyer</i> <i>Pearl</i>	Mark Twain John Steinbeck	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Ed. Dr.EgbertS.Oliver*An Anthology of American Literature* Eurasia Publishing House

William J.Fisher*American Literature of the Nineteenth Century* Eurasia Publishing House

Course Designed by : Mrs. S.SathyaPriya

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P. Rajeswari

SEMESTER II

CORE VII - LITERARY CRITICISM

15ML07

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 52

- To cultivate a critical sense in the students while reading a work of art
- To develop the skill of interpretation and evaluation
- To provide the students with the knowledge of the trends, critical perspectives, theories and canons from the ancient to the modern

Unit I	Classical Criticism – Plato, Aristotle, Longinus	Brijidesh Prasad	10hrs.
Unit II	Lyrical Ballads	William Wordsworth	10hrs.
*Unit III	Tradition and Individual Talent	T.S.Eliot	10hrs.
	Creative Writers and Day Dreaming	Sigmund Freud	
Unit IV	Deconstruction	Jaques Derrida	12hrs.
	Death of an Author	Roland Barthes	
Unit V	Post Modernism		10hrs.

* Starred unit is a Self Study unit

Books for Reference

B.K.Pattanayak *Dynamics of Twentieth Century Literary Criticism*

T.RamakrishnaRao *Comprehensive Modern Literary Theory*

Harry Blamairs *History of English Criticism*

S.B.Wadikar *New Trends in Literary Criticism*

B.Prasad *An Introduction to English Criticism*

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by : Ms. P. Ramya

Course Checked by : Mrs. P. Rajeswari

SEMESTER II

CORE VIII – LSRW SKILLS

15ML08

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 65

- To improve LSRW Skills

Unit I	Problems in Pronunciation, Speech Organs	10 hrs.
Unit II	Consonants and Vowels, Intonation	20 hrs.
Unit III	Phonetic Transcription	15 hrs.
Unit IV	Study Skills	10 hrs.
* Unit V	Précis Writing	10hrs.

* Starred unit is a Self Study unit

Books for Reference:

Better English Pronunciation J.D.O'Connor, Cambridge Edition, India, 1967.

An Outline of English Phonetics, Jones Daniel, Eighth Edition, Cambridge, 1965.

An Outline of General Phonetics, Bansal.R.K, OUP, 1971

Writing Skills, Dr.P.Thailambal, ENNES Publications, Udumalpet

Developing Reading Skill by Francoise Grellet, Cambridge Language Teaching Library.

Course Designed by : Mrs. P. Rajeswari

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P. Rajeswari

SEMESTER II

CORE IX – LITERATURE AND JOURNALISM 15ML09

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 52

- To make the students understand the significance of literature in journalism
- To strengthen their knowledge in journalistic writing
- To enable them comprehend the new styles and techniques in journalism

Unit I	The Bible, Shakespeare and the Journals	10 hrs.
Unit II	History of Journalism in India, Kinds of Journalism and Press Laws	10 hrs.
Unit III	Ethics of Journalism and Art of Interviewing	12 hrs.
Unit IV	Electronic Media in Journalism	10 hrs.
*Unit V	Writing for Newspaper, Headline Writing, Editing Techniques, Reporting Techniques	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Essentials of Journalism, Ms.Meenu, Murari Lal & Sons, New Delhi, 2008.

Theory and Practice of Journalism, B.N.Ahuja, Surjeet Publications, Delhi.

Ethics of Journalism in Transition, Jitendra Kumar Sharma, Authors Press, Delhi, 2002

Journalism for Students, M.S.Sharma, Mohit Publications, Delhi, 2000.

Introduction to News Reporting, Manoranjan Tripathy, Authors Press, Delhi, 2007

Journalism Made Simple, David Wanwright, Rupa & Co., Calcutta, 1986.

The Journalist's Handbook, M.V.Kamath, Vikas Publishing House Pvt. Ltd,

Course Designed by : Ms. P.Ramya

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

CORE X – BRITISH LITERATURE III

15ML10

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To acquaint the students with the poems of the Romantic age
- To make them appreciate the Pantheism of Wordsworth, sensuousness of Keats and the love of liberty of Shelley
- To make them see the difference between the Romantic poetry and Victorian poetry as manifest in Tennyson, Browning and Arnold

Unit I	Ode on the Intimations of Immortality Christabel <i>From Don Juan</i> (Stanza 1-12) Ode to a Skylark Ode to Autumn	William Wordsworth Samuel Taylor Coleridge Lord Byron Percy Bysshe Shelley John Keats	20 hrs.
Unit II	Ring Out Wild Bells, Tears, Idle tears My Last Duchess, Last Ride Together Sohrab and Rustum The Blessed Damozel	Alfred Lord Tennyson Robert Browning Matthew Arnold Dante Gabriel Rossetti	15 hrs.
Unit III	The South Sea House My First Play The Praise of Chimney Sweepers Murder As Fine Arts Of Persons One Would Wish to Have Seen	Charles Lamb Thomas De Quincey William Hazlitt	15 hrs.
Unit IV	<i>Lady Windermere's Fan</i>	Oscar Wilde	15 hrs.
*Unit V	<i>Kenilworth</i> <i>Silas Marner</i>	Walter Scott George Eliot	10 hrs.

* Starred unit is a Self Study unit

Course Designed by : Ms. P.Ramya

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P. Rajeswari

SEMESTER III

CORE XI – NEW LITERATURES IN ENGLISH

15ML11

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To introduce the students to the cultural and ethnic peculiarities of the colonial countries
- To familiarise the students with anguish that are transmuted into art
- To make the students appreciate the linguistic idiom and style of writers from multi-cultural background
- To equip the students with adequate knowledge on Commonwealth literature to motivate intercultural aspects of literature

Unit I	AUSTRALIAN		
	Standardization	A.D.Hope	
	Nigger's Leap, New England	Judith Wright	
	AFRICAN		
	Africa	David Diop	
	I Thank You God	Bernard B.Dadie	
	CANADIAN		
	Journey to the Interior	Margret Atwood	
	Like an Old Proud King in a Parable	A.J.M.Smith	
	NEW ZEALAND		
Unit II	The Man with the Wooden Leg	Katherine Mansfield	
	Time	Allen Curnow	20 hrs.
	PAKISTAN		
	I am not that Woman	Kishwar Naheed	
	On The Tenth Night of The Tenth Moon	Ahmed Ali	
	BANGLA DESH		
	My Daughter's Boy Friend		
	The Monstrous Biped	Razia Khan	
	SINGAPORE & MALAYSIA		

	Words for Father On Writing a Poem SRI LANKA There was a Country To a Student	Shirley Lin E.E.Tiang Hong Yasmine Goomeratne Kamala Wijeratne	20 hrs.
Unit III	AUSTRALIAN Settling on the Land When the Sun Went down Steel Man Shooting the Moon The Shearing of the Cook's Dog	 Henry Lawson	10 hrs.
*Unit IV	FRENCH The Stranger AFRICAN Things Fall Apart	 Albert Camus Chinua Achebe	10 hrs.
Unit V	GERMAN Mother Courage and her Children	 Bertolt Brecht	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

An Anthology of Commonwealth Poetry, C.D. Narasimaiah, Macmillan Publishers, 1990.

Readings in Commonwealth Literature, Ed. William Walsh

While the Billy Boils, Henry Lawson, 1896.

Course Designed by : Dr. J.Vijayalakshmi

Course Reviewed by : Mrs. S.SathyaPriya

Course Checked by : Mrs. P.Rajeswari

SEMESTER III

CORE XII -TRANSLATION STUDIES

15ML12

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 65

- To satisfy cross cultural curiosity and understand the essential difference between different social systems
- To strengthen the language proficiency of the students in translation

Unit I	Definitions and Theories of Translation	10 hrs.
Unit II	<i>Thirukkural</i> Translation: In Praise of God, In Praise of Rain, Kindly Speech, Hospitality, Gratitude	15 hrs.
*Unit III	The Victory, The Home Coming, The Devotee, The Renunciation, The Cabuliwallah	10 hrs.
Unit IV	<i>Bridges (Paalangal)</i> by Sivasankari translated by S.Krishnan	15 hrs.
Unit V	Practical: Translation of a Short Story or a Prose piece by the student	15 hrs.

* Starred unit is a Self Study unit

Books for Reference

Susan BassnettMcGuire *Translation Studies*

Savoy Theodore, H *The Art of Translation*

BijayKumarDas *A Horizon to the Study of Translation*

Sacred Kural – *Thiruvalluva Nayanar* – Book I – Virtue I to X chapters

translated by Rev.G.U.Pope, New Delhi, Asian Educational Services, 1980.

The Hungry Stones & Other Stories – Macmillan, Delhi 1916

Bridges (Paalangal) by Sivasankari translated by S.Krishnan, New Horizon Media, Chennai,2004.

Course Designed by : Dr.K.KamalaSuganya Kumari

Course Reviewed by : Ms.A.Jyothi Cassendra Devi

Course Checked by : Mrs. P.Rajeswari

M.A. ENGLISH LANGUAGE AND LITERATURE

SEMESTER III

CORE XIII –FEMINIST LITERATURE

15ML13

[For students admitted from the academic year 2015 – 2016 onwards]

Preamble

Total Hours: 65

- To create an awareness among the students about the problems of women
- To make them realize the issues of women in a patriarchal society through literary works
- To instil in them an impulse to attempt creative writing

Unit I	History of Feminist Movement A Vindication of the Rights of Women Chapter IX	Mary Wollstonecraft 15 hrs.
* Unit II	<i>A Room of One's Own</i>	Virginia Woolf 10 hrs.
Unit III	“Female Aesthetic” from <i>A Literature of Their Own</i>	Elaine Showalter 15 hrs.
Unit IV	<i>Feminine Mystique</i> Chapter XIV “New Life Plan for Women	Betty Friedan 15 hrs.
Unit V	<i>Beauty Myth</i>	Naomi Woolf 10 hrs.

* Starred unit is a Self Study unit

Course Designed by : Ms. A.Velumani

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

SEMESTER III

CORE XIV –THEATRICAL ARTS

15ML14

[For students admitted from the academic year 2015 – 2016 onwards]

Preamble

Total Hours: 52

- To give the students a successful career in the *dramatic arts*.
- To make them experience theatre life as an actor, playwright, and producer

Unit I	History of Theatrical Arts	10 hrs.
Unit II	Indian Classical Theatre	10 hrs.
Unit III	Theatre Performance Studies and Management	10 hrs.
Unit IV	Studying Drama The conventions of Drama, Languages of drama, character and plot, tragedy and comedy	12 hrs.
* Unit V	Activity : Staging a Play	10 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Theatre: A Very Short Introduction, Marvin Calson, Oxford University Press India, 2014.

A Study of Indian Theatre, P.Thailambal, Ennes Publications, 2010.

A History of Theatrical Art in Ancient and Modern Time, Karl Mantzius, Peter Smith, 2012.

The Concise Oxford Companion to the Theatre, Phyllis Hartnoll and Peter Found.

Drama/ Theatre/ Performance (The New Critical Idiom), Simon Shepherd and Mick, Routledge, 2004.

On Theatre And the Art of Acting: a Guide to Discovery, Michael Chekhov, 2004

Mastering English Literature – Richard Gill, Macmillan, London, 1985.

Course Designed by : Mrs. P.Rajeswari

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

SEMESTER III

ELECTIVE III – RESEARCH METHODOLOGY 15MLE3

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 52

- To introduce the students to the rudiments of research
- To teach them the mechanics of research
- To train them in the writing of assignments and research articles

Unit I	Research and Writing	12hrs.
* Unit II	The Mechanics of Writing	10hrs.
Unit III	The Format of Research Paper	10hrs.
Unit IV	Case study, plot study focus on group discussion , personal interview, framing questionnaire.	10hrs.
Unit V	Types of research (experimental, survey, accent, historical)	10hrs.

* Starred unit is a Self Study unit

Books for Reference:

MLA Handbook for Writers of Research Papers, VII Edition, East-West Press Pvt.
Ltd., New Delhi, 2009.

Thesis and Project Work, C.J.Parsons

Thesis and Assignment Writing, Jonathan Anderson, B.H.Durstun and M.Poole,
Wiley Eastaern, New Delhi, 1970.

Course Designed by : Dr J.Vijayalakshmi

Course Reviewed by : Ms. A.Velumani

Course Checked by : Mrs. P.Rajeswari

SEMESTER IV**CORE XV- BRITISH LITERATURE IV****15ML15****[For students admitted from the academic year 2015 – 2016 onwards]****Objectives:****Total Hours 75**

- To familiarize the students with the current trends in literary genres
- To enable them understand the new ideas, approaches and the impact of psychology, sociology, anthropology on literature

Unit I	The Waste Land	T.S.Eliot	20 hrs.
Unit II	Byzantium Thou Art Indeed Just, Lord Toads Jaguar In Memory of Yeats The Poet Prayer Before Birth	W.B. Yeats G.M.Hopkins Philip Larkin Ted Hughes W.H.Auden C.D. Lewis Louis Macneice	15 hrs.
Unit III	Comfortable Words Worship of the Wealthy Walking Tours Travel by Train A Book that Influenced Me Why the Novel Matters	Hillaire Belloc G.K.Chesterton R.L.Stevenson J.B.Priestley E.M.Forster D.H.Lawrence	20 hrs.
Unit IV	<i>Silver Box</i>	John Galsworthy	10 hrs.
* Unit V	<i>The Portrait of the Artist as Young man</i> <i>Time Machine</i>	James Joyce H.G.Wells	10 hrs.

* Starred unit is a Self Study unit

Course Designed by : Mrs. S.Sathyapriya

Course Reviewed by : Dr. J.VijayaLakshmi

Course Checked by : Mrs. P.Rajeswari

SEMESTER IV

CORE XVI - PREPARATORY COURSE FOR SET AND NET

15ML16

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:

Total Hours: 75

- To enrich the knowledge of the British and American literatures
- To prepare the students for the NET and SET exams
- To provide a thorough reading of the writers of all genres

Unit I	Elizabethan Age to Restoration period(1558-1700)	20 hrs.
Unit II	Age of Pope & Age of Johnson(1700-1798)	20 hrs.
* Unit III	Romantic & Victorian Period(1798-1901)	10 hrs.
Unit IV	Pre-Raphaelites to Modern Period (1901-to the present day)	10 hrs.
Unit V	American and Commonwealth Literatures	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

UGC/NET/JRC/SET Hira Lai Choudhary Paper- II&III Third edition Upkarprakashan, New Delhi-2013

Course Designed by : Ms. A.Velumani

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

SEMESTER IV

ELECTIVE IV – COMMERCIAL CORRESPONDENCE

AND PUBLIC SPEAKING

15MLE4

[For students admitted from the academic year 2015 – 2016 onwards]

Objectives:
Hours:75

Total

- To empower the students with Public Speaking Skills
- To train the students to express their ideas clearly and coherently
- To enable them function as effective Commercial Correspondents
- To equip them with good Secretarial skills

Unit I	Principles of Commercial Correspondence -Mechanics of Writing, Report Writing, Circulars Notices, Memos, Agenda	20 hrs.
Unit II	Commercial Correspondence, Sales Letters, Secretarial Correspondence, Trade Correspondence, Writing of Minutes, Letters to Editors, Personal Complaints	15 hrs.
Unit III	Communication Apprehension, Technique of Delivery Listening Skills, Topic Selection and Organization and research, Different Modes of Speaking, Speaking with Different Purposes	15 hrs.
* Unit IV	Audiences, Techniques and Occasions, Props and Places, Construction and Contents, Voice, Stance and Delivery	10 hrs.
Unit V	Preparation of some report- Record work Public Speaking for 5 Minutes Advertisement Writing	15 hrs.

* Starred unit is a Self Study unit

Books for Reference:

Effective Business Communication, Asha Kaul Prentice Hall, 2008.

Modern Commercial Correspondence, R.S.N.Pillai ,Bagavathi S. Chand 2004

Introduction to Public Speaking, Brent C.Oberg, Jaico 2011

Public Speaking for All Occasions Simon Elliot, Orient Paperback

Course Designed by : Ms. P.Ramya

Course Reviewed by : Dr. J.Vijayalakshmi

Course Checked by : Mrs. P.Rajeswari

M.A.ENGLISH LANGUAGE AND LITERATURE (SF)

Semester wise Distribution with Scheme of Examination

[For students admitted during the academic year **2014 – 2015** onwards]

Sem	Course code	Course	Credits	ESE Hrs.	CIA	Marks ESE TOTAL	
I	14ML01	Core I British Literature I	5	3	25	75	100
	14ML02	Core II Shakespeare	5	3	25	75	100
	14ML03	Core III Language and	5	3	25	75	100
	14MLE1	Linguistics	3	3	25	75	100
		Elective I – Grammar	3	3	100	-	100
		Diploma Course – I					
II	14ML04	Core IV British Literature II	5	3	25	75	100
			5	3	25	75	100
	14ML05	Core V American Literature	5	3	25	75	100
	14ML06	Core VI Indian Writing in	5	3	25	75	100
	14ML07	English	3	3	25	75	100
	14MLE2	Core VII Literary Criticism					
		ElectiveII-Commercial	3	3	100	-	100
		Correspondence and Public Speaking	4*	3	-	100	100
	14MLA1	Diploma Course II Advanced Learner's Course I – Literary Review					
III	14ML08	Core VIII British Literature III	5	3	25	75	100
	14ML09	Core IX New Literatures	5	3	25	75	100
	14ML10	Core X Translation Studies	5	3	25	75	100
	14MLE3	Elective III – Research	3	3	25	75	100
		Methodology	3	3	100	-	100
		Diploma Course III					
IV	14ML11	Core XI British Literature IV	5	3	25	75	100
	14ML12	Core XII Preparatory Course	5	3	25	75	100
		for SET & NET	3	3	25	75	100
	14MLE4	Elective IV Feminist Literature	6	-	100	100	200
		Project- Yearlong	3	-	100	-	100
	14MLA2	Diploma Course IV - Project Advanced Learners' Course II - Teaching English at the Primary School Level	4*	3	-	100	100
		Total Credits	90				

M.A.ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER I

CORE I - BRITISH LITERATURE I (14ML01)

[For students admitted during the academic year 2014-2015]

Preamble

Total Hours : 75

Any student of English literature should have a sound knowledge of British literature because it is the mother from which the other literatures like the American and the Commonwealth have sprung. The period of study begins from Chaucer and extends up to the early part of the seventeenth century. The objectives of this paper are

- to introduce the students to the culture, philosophy, and attitude to life of the poets and playwrights who set a literary tradition
- to familiarize the students with the depth and complexity of the literary forms of the age
- to make the students understand and appreciate the style , rhetoric of the language of the day and profundity of thought of the age

Module I	<i>A Prologue to The Canterbury Tales</i> “Lover Comforteth” “The Means to attain Happy Life” “Forget not yet” The Appeal [From Peacock Volume I p – 110, 111, 114, 115, 116]	Chaucer Surrey Wyatt	15hrs.
Module II	<i>Prothalamian</i> Sonnets from <i>Amoretti</i> From Peacock Volume I – Sonnets- 1,2 p.232]	Spenser	15 hrs.
Module III	Bacon’s <i>Essays</i> Of Studies, Of Truth, Of Revenge, Of Friendship, Of Love	Bacon	10 hrs.
Module IV	<i>Edward II</i>	Marlowe	20 hrs
Module V	<i>An Apologie for Poetry</i>	Sir Philip Sidney	15 hrs

M.A.ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER I

CORE COURSE II – SHAKESPEARE (14ML02)

[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

Shakespeare is a world renowned playwright who gave an identity and prestige to English literature. A study of English literature would be incomplete without knowledge of his plays. The objectives of this paper are -

- to acquaint the students with Shakespeare's dramatic art in terms of genres like tragedy, comedy, tragi-comedy and historical plays
- to make the students enjoy the graces of the language and expression as exemplified in the plays as symbols, imageries, humour, soliloquies and witty dialogues
- to expose the students to the thematic variety from domestic issues to social and political problems, and also to his style and poetic imagination

Module I	<i>A Midsummer Night's Dream</i>	15hrs.
Module II	<i>Macbeth</i>	20hrs.
Module III	<i>Julius Caesar</i>	15hrs.
Module IV	<i>Richard II</i>	15hrs
Module V	Shakespearean Sonnets, Shakespearean heroines, Supernatural Elements, Shakespearean theatre and 20 th century appraisal of Shakespeare - A.C.Bradley and Wilson Knight	10hrs.

M.A.ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER I

CORE III – LANGUAGE AND LINGUISTICS (14ML03)

[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

This paper is intended to provide a complete knowledge of the origin, growth, diachronic development, socio-cultural impact and the different theories of the English language in the modern context. The objectives of the paper are –

- to introduce the students to the different theories regarding the origin of language in general and English in particular
- to make the students understand the grammatical, structural and functional aspects of English
- to let the students comprehend the typical phonological peculiarities that make English distinct and unique
- to show the students the effects of the impact of socio-cultural factors on language
- to expose the students to the modern linguistic perspectives and approaches to the study of language

Module I	Origin of English – Old English - Middle English - Modern English	15hrs.
Module II	The Renaissance and After – The growth of Vocabulary – Change of Meaning – Foreign Influences - The Evolution of Standard English – from <i>An Outline</i>	20 hrs.

	<i>History of Language</i> F.T.Wood	
Module III	Problems in Pronunciation, How the Speech organs works in English, The Consonants of English, Consonant Sequences	20hrs.
Module IV	The Vowels of English, Words in Company, Intonation from <i>Better English Pronuciation</i> J.D.O'Connor	10hrs.
Module V	Language as Discourse, Language and Literature from <i>Modern Linguistics</i> N.Krishnaswamy et.al., Macmillan	10hrs.

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER I
ELECTIVE I – GRAMMAR (14 MLE1)
[For students admitted during the academic year 2014-2015]

Preamble

Total Hours 52

This paper is introduced to strengthen the sense of grammar and usage of the English language to the students. The objectives of this paper are

- to improve the grammar of the students
- to train them to understand the theories of grammar
- to enable them to understand the different styles of writing through the use of different aspects of grammar

Module I	What Grammar is and is not, Sentences and their parts	10 hrs.
Module II	Words, Phrases	10 hrs.
Module III	Clauses, Subordination and Coordination	10 hrs.
Module IV	Basic and derived structures, Discourse analysis: speech and writing, Discourse analysis: tenor and domain	12 hrs.
Module V	Analysis of literary discourse, Grammar and problems of usage	10 hrs.

References:

- *English Grammar for Today: A New introduction* Geoffrey Leech et.al.
London, Macmillan Education Ltd., 1982

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II
CORE IV - BRITISH LITERATURE II (14ML04)
[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

This paper is an extension of the paper British Literature I in the first Semester. The period that this paper covers is the late seventeenth century and early eighteenth century. The objectives of this paper are

- to enrich the learning experience of the students by exposing them to great poets like Milton, Dryden, Pope and others
- to make them know of the circumstances that lead to the birth of the novel
- to let them enjoy the felicity of expression and descriptive style of Addison and Steele, the pioneers of journalism
- to make them comprehend the impact of socio-political events on literature

Module I	<i>Paradise Lost Book IX</i> Canonization, Good Morrow, Sunne Rising To My Coy Mistress Discipline To Daffodils, Blossoms To Athea from Prison, The Rose [From Peacock Volume II]	Milton Donne Marvell Herbert Herrick Lovelace	15 hrs
Module II	From <i>Coverley Papers</i> Sir Roger at Home Character of Will Wimble Sir Roger's Ancestors A Scene in a Stage Coach His Account and Disappointment of Love	Addison Steele	15 hrs
Module III	<i>All for Love</i>	Dryden	20 hrs
Module IV	<i>Preface to Shakespeare</i>	Dr. Johnson	15 hrs
Module V	<i>Gulliver's Travels</i> <i>Robinson Crusoe</i>	Swift Defoe	10 hrs

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II
CORE V- AMERICAN LITERATURE (14ML05)
[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

American literature reflects the multi-cultural and multi-ethnic society of America with prismatic significance. The objectives of this course are

- to make the students perceive the criss-cross influence of culture and society on literature

- to introduce the students to the new forms and the zeal of experimentation of writers
- to make them understand the singularity of American English, its idiom and influence

Module I	Crossing Brooklyn Ferry, When Lilacs Last Bloomed, Passage to India Raven Because I Could not, A Bird Came Down, This is My Letter Stopping by Woods, Road Not Taken, Birches Daddy	Walt Whitman E.A.Poe Emily Dickinson Robert Frost Sylvia Plath	20 hrs.
Module II	Where I lived and What I lived for?	Emerson Thoreau	15 hrs.
Module III	<i>Glass Menagerie</i>	Tennessee Williams	15 hrs.
Module IV	<i>Adventures of Tom Sawyer</i> <i>Pearl</i>	Mark Twain Steinbeck	15hrs.
Module V	The Snows of Kilimanjaro Pigeon Feathers Young Goodman Brown The Cask of Amontillado	Hemmingway Updike Hawthorne E.A.Poe	10 hrs.

Units I, II, III, and V are from

William J.Fisher *American Literature of the Nineteenth Century* Eurasia Publishing House
Ed.Dr.EgbertS.Oliver *An Anthology of American Literature* Eurasia Publishing House

Units I, II, III, and V are from

William J.Fisher *American Literature of the Nineteenth Century* Eurasia Publishing House
Ed.Dr.EgbertS.Oliver *An Anthology of American Literature* Eurasia Publishing House

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II
CORE VI - INDIAN WRITING IN ENGLISH (14ML06)
[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

Indian Writing in English is recognised globally as a literature with individuality and merit. The objectives of this course are

- to familiarize the students with the different facets of Indian Writing in English.
- to let them grasp the variety of literary output of Indian poets, novelists and playwrights
- to let them understand the Indian English idiom and style

Module I	Our Causarina Tree, Lotus Silent Steps, Breezy April Rose of God, Tiger and the Deer Coramandal Fishers, The Queen's Rival	Toru Dutt Tagore Aurobindo Sarojini Naidu	
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	The Night of Scorpion Introduction [From <i>An Anthology of Indian English Poetry</i> Orient Longman]	NissimEzeikel Kamala Das	20hrs.
Module II	The Secret of Work Students and Their Duties My Mother Sale My Visions for India [From G.S.Balarama Gupta <i>Links</i> Macmillan G.Radhakrishna Pillai <i>Expressions: Anthology of English Prose</i> Emerald Publishers]	Vivekananda Gokhale Dom Moraes Anita Desai Dr.APJ Abdul Kalam	20hrs.
ModuleIII	<i>Hayavadana</i>	GirishKarnard	10hrs.
ModuleIV	<i>Swami and Friends</i> <i>Trin to Pakistan</i>	R.K.Narayan Kushwant Singh	10hrs.
Module V	The Value of Classical Tradition Today, Moral Values in Literature, Freedom and Culture [From K.R.S.Iyengar <i>Adventure of Criticism</i> Rupa& Co.]	K.R. Srinivasa Iyengar	15hrs.

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II

CORE VII - LITERARY CRITICISM (14ML07)

[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

Literary Criticism has evolved into a special subject of study in the context of the growing changes in critical trends. The objectives of this course are

- to cultivate a critical sense in the students while reading a work of art
- to develop the skill of interpretation and evaluation
- to provide the students with the knowledge of the trends, critical perspectives, theories and canons from the ancient to the modern

Module I	Classical Criticism – Plato, Aristotle, Longinus	Brijidesh Prasad	15hrs
Module II	Lyrical Ballads	Wordsworth	15hrs
Module III	Tradition and Individual Talent Creative Writers and Day Dreaming	T.S.Eliot SigmundFreud	15hrs
Module IV	Deconstruction Death of an Author	Jaques Derrida Roland Barthes	15hrs
Module V	Post Modernism		15hrs

Books for Reference

B.K.Pattanayak *Dynamics of Twentieth Century Literary Criticism*
T.RamakrishnaRao *Comprehensive Modern Literary Theory*
Harry Blamairs *History of English Criticism*
S.B.Wadikar *New Trends in Literary Criticism*
B.Prasad *An Introduction to English Criticism*

M.A. ENGLISH LANGUAGE AND LITERATURE (SF) SEMESTER II

ELECTIVE II – COMMERCIAL CORRESPONDENCE AND PUBLIC SPEAKING (14MLE2)

[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 52

This paper is offered as an Elective to enable the students to gain employment by virtue of their proficiency in written communication in the context of trade and business. Along with that the motive is to make the students good at Public Speaking which may be an added advantage when they take up managerial posts. The objectives of the course are -

- to empower the students with Public Speaking Skills
- to train the students to express their ideas clearly and coherently
- to make them function as effective Commercial Correspondents
- to equip them with good Secretarial skills

Module I	Principles of Commercial Correspondence -Mechanics of Writing, Report Writing, Circulars Notices, Memos, Agenda . Chapters III, IV, V, VI from <i>Effective Business Communication</i> Asha Kaul Prentice Hall, 2008.	10hrs.
Module II	Commercial Correspondence, Sales Letters, Secretarial Correspondence, Trade Correspondence, Writing of Minutes, Letters to Editors, Personal Complaints Chapters 3,4,6,7,9,10,,11,12,,13, 24, 27, 28 from <i>Modern Commercial Correspondence</i> , R.S.N.Pillai ,Bagavathi S. Chand 2004	10hrs.
Module III	Communication Apprehension, Technique of Delivery Listening Skills, Topic Selection and Organization and research, Different Modes of Speaking, Speaking with Different Purposes from <i>Introduction to Public Speaking</i> , Brent C.Oberg, Jaico 2011	10hrs.
Module IV	Audiences, Techniques and Occasions, Props and Places, Construction and Contents, Voice, Stance and Delivery from <i>Public Speaking for All Occasions</i> Simon Elliot, Orient Paperback.	10hrs.
Module V	Preparation of some report- Record work Public Speaking for 5 Minutes Advertisement Writing	12hrs.

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER III
CORE COURSE VIII – BRITISH LITERATURE III (14ML08)
[For students admitted during the academic year 2014-2015]

Preamble

Total Hours : 75

This paper includes the Romantic and Victorian ages. The objectives of this paper are

- to acquaint the students with the play of fancy and imagination in the poems of the Romantic age
- to make them appreciate the Pantheism of Wordsworth, sensuousness of Keats and the love of liberty of Shelley
- to make them see the difference between the Romantic poetry and Victorian poetry as manifest in Tennyson, Browning and Arnold

ModuleI	Ode on the Intimations of Immortality Christabel Ode on a Grecian Urn Ode to a Skylark	Wordsworth Coleridge Keats Shelley	15hrs
ModuleII	Ring Out Wild Bells, Tears, Idle tears My Last Duchess, Last Ride Together Sohrab and Rustum The Blessed Damozel	Tennyson Browning Arnold D.G. Rossetti	15hrs
ModuleIII	A Dissertation Upon a Roast Pig My First Play The Praise of Chimney Sweepers Murder As Fine Arts Of Persons One Would Wish to Have Seen	Lamb Thomas DeQuincy William Hazlitt	15hrs
ModuleIV	<i>Lady Windermere's Fan</i>	Oscar Wilde	10hrs
Module V	<i>Kenilworth</i> <i>Silas Marner</i>	Walter Scott George Eliot	20hrs

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER III
CORE IX – NEW LITERATURES (14ML09)
[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

This paper encompasses the literatures produced by the Commonwealth countries and the Afro- Americans. The problems of the people are similar and they have voiced their repressed sensibilities in every genre of literature. The objectives of this paper are

- to introduce the students to the cultural and ethnic peculiarities of the colonial countries
- to make the students recognize the anguish and pain of repression and suppression that are transmuted into art

- to make the students appreciate the linguistic idiom and style of writers from multi-cultural background
- to equip the students with adequate knowledge on Commonwealth literature and Harlem literature

Module I	Australia Standardization Nigger's Leap, New England Journey to the Interior The Man with the Wooden Leg Time I am not that Woman From <i>An Anthology of Commonwealth Poetry</i> by C.D. Narasimaiah	A.D.Hope Judith Wright Margret Atwood Katherine Mansfield Allen Curnow Kishwar Naheed	15hrs
Module II	The Negro Speaks of Rivers Let America Be America Again Life Is Fine Still I Rise Africa A Far Cry from Africa From <i>An Anthology of Commonwealth Poetry</i> by C.D. Narasimaiah	Langston Hughes Maya Angelou David Diop Derek Walcott	15hrs
Module III	<i>The Cup of Tea</i> <i>Things Fall Apart</i>	Katherine Mansfield Wole Soyinka	10hrs
Module IV	<i>The Color Purple</i> <i>The English Patient</i>	Alice Walker Michael Ondaatjee	20hrs
Module V	The Novelist as a Teacher Poetry in English From <i>Readings in Commonwealth Literature</i> Ed. William Walsh	Chinua Achebe Louis Dudek	15hrs

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER III

CORE X -TRANSLATION STUDIES (14ML10)

[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours 75

Translation is viewed as linguistic bridge- building and it brings together people of the world through translated literature. The objectives of this course are

- to afford the students a glimpse of world literature through translation
- to allow them to make a comparative study of the SL and TL in terms of thought , style and generic variation
- to satisfy cross cultural curiosity and understand the essential different between different social systems

- to strengthen the proficiency of the students in both English and Tamil which would fetch them jobs as translators in the media and the Government organizations

Module I	Definitions and Theories of Translation	10hrs
Module II	<i>Thirukkural</i> Translation: In Praise of God, In Praise of Rain, Kindly Speech, Hospitality, Gratitude	10hrs
Module III	Translation – from English to Tamil - Shakespeare's Play <i>Macbeth</i> translated by Dr. N.Subrahmanian	20 hrs.
Module IV	<i>Our Mother Earth</i> -Bharathiyar	20 hrs.
Module V	Practical: Translation of a Short Story or a Prose piece by the student	15 hrs

Books for Reference

Susan BassnettMcGuire *Translation Studies*
 Savoy Theodore, H *The Art of Translation*
 BijayKumarDas *A Horizon to the Study of Translation*
 Sacred Kural – *Thiruvalluva Nayanar* – Book I – Virtue I to X chapters
 translated by Rev.G.U.Pope, New Delhi, Asian Educational Services,
 1980.
Macbeth –Tamil Translation by DrN.Subrahmanian

M.A. ENGLISH LANGUAGE AND LITERATURE (SF) SEMESTER III **ELECTIVE III – RESEARCH METHODOLOGY (14MLE3)** [For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 52

Research Methodology is a method to inculcate in the students the search for knowledge,a systematic investigation with an open mind, to establish novel facts, solve new or existing problems, and prove new ideas. The objectives of this paper are

- to introduce the students to the rudiments of research
- to teach them the mechanics of research
- to train them in the writing of assignments and research articles

Module I	Research and Writing	10hrs
Module II	The Mechanics of Writing	10hrs
Module III	The Format of Research Paper	10hrs
Module IV	Preparing the List of Works Cited	10hrs
Module V	Citing Sources in the Text	12hrs

Prescribed Text Book

MLA Handbook for Writers of Research Papers, VII Edition, East-West Press Pvt. Ltd., New Delhi, 2009.

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER IV

CORE XI - BRITISH LITERATURE IV (14ML11)

[For students admitted during the year 2014-2015]

Preamble

Total Hours 75

This paper focuses on the modern period. The objectives of this period are

- to familiarize the students with the current trends in literary genres
- to let them understand the new ideas, approaches and the impact of psychology, sociology, anthropology on literature
- to expose them to the prolificacy of experimental fiction

Module I	The Waste Land Byzantium Sailing to Byzantium Windhover	T.S.Eliot W.B. Yeats Hopkins	15hrs.
Module II	Church Going, Toads Pike, Jaguar Unknown Citizen, In Memory of Yeats The Poet Prayer Before Birth	Philip Larkin Ted Hughes W.H.Auden C.D. Lewis Louis Macneice	13 hrs
Module III	Comfortable Words Worship of the Wealthy Walking Tours Travel by Train A Book that Influenced Me Why the Novel Matters	Belloc G.K.Chesterton R.L.Stevenson J.B.Priestley E.M.Forster D.H.Lawrence	20 hrs.
Module IV	<i>Silver Box</i>	John Galsworthy	12 hrs
Module V	<i>The Portrait of the Artist as Young man</i> <i>Time Machine</i>	James Joyce H.G.Wells	15 hrs

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER IV

CORE XII - PREPARATORY COURSE FOR SET & NET (14ML12)

[For students admitted during the year 2014-2015]

Preamble

Total Hours 75

This course is framed to enable the students of literature to take up competitive examination for the recruitment of teachers. The course is intended

- to enrich the knowledge of the British and American literatures
- to prepare the students for the NET and SET exams
- to provide a thorough reading of the writers of all genres

Module I	Elizabethan age to Restoration period(1558-1700)	15 hrs.
Module II	Age of Pope & age of Johnson(1700-1798)	15 hrs.
Module III	Romantic & Victorian Period(1798-1901)	15 hrs.
Module IV	Pre-Raphaelites to Modern Period (1901-to the present day)	10 hrs.
Module V	American and Commonwealth Literatures	20 hrs.

Books for Reference:

- UGC – NET/JRF/SET English Literature V.Kumar Publications
- UGC – NET/JRF/SET English Literature Trueman Specific Series, Danika Publish Co. New Delhi, 2011
- An Objective approach to English literature – Dr.S.N.Arora, BarailleyPublications,

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER IV
ELECTIVE IV – FEMINIST LITERATURE (14ML12)
[For students admitted during the year 2014-2015]

Preamble

Total Hours: 52

Feminist Literature has evolved out of the Feminist Movements and has caused a revolution in literary studies. The objectives of this paper are

- to create an awareness among the students about the problems of women
- to make them realize the issues of women in a patriarchal society through literary works
- to make them reflect on the views expressed by Liberal and Radical Feminists
- to instill in them an impulse to attempt creative writing

Module I	History of Feminist Movement A Vindication of the Rights of Women Chapter IX	Mary Wollstonecraft 10 hrs.
Module II	<i>A Room of One's Own</i>	Virginia Woolf 10 hrs.
Module III	"Female Aesthetic" from <i>A Literature of Their Own</i>	Elaine Showalter 10 hrs.
Module IV	<i>Feminine Mystique</i> Chapter XIV "New Life Plan for Women"	Betty Friedan 12 hrs.
Module V	<i>Beauty Myth</i>	Naomi Woolf 10 hrs.

SEMESTER II
**ELECTIVE II – COMMERCIAL CORRESPONDENCE AND
PUBLIC SPEAKING (14MLE2)**

[For students admitted during the academic year 2014 – 2015]

Preamble

Total Hours : 75

This paper is offered as an Elective to enable the students to gain employment by virtue of their proficiency in written communication in the context of trade and business.

Along with that the motive is to make the students good at Public Speaking which may be an added advantage when they take up managerial posts. The objectives of the course are -

- to empower the students with Public Speaking Skills
- to train the students to express their ideas clearly and coherently
- to make them function as effective Commercial Correspondents
- to equip them with good Secretarial skills

Module I	Principles of Commercial Correspondence -Mechanics of Writing, Report Writing, Circulars Notices, Memos, Agenda . Chapters III, IV, V, VI from <i>Effective Business Communication</i> Asha Kaul Prentice Hall, 2008.	10hrs.
Module II	Commercial Correspondence, Sales Letters, Secretarial Correspondence, Trade Correspondence, Writing of Minutes, Letters to Editors, Personal Complaints Chapters 3,4,6,7,9,10,,11,12,,13, 24, 27, 28 from <i>Modern Commercial Correspondence</i> , R.S.N.Pillai ,Bagavathi S. Chand 2004	10hrs.
Module III	Communication Apprehension, Technique of Delivery Listening Skills, Topic Selection and Organization and research, Different Modes of Speaking, Speaking with Different Purposes from <i>Introduction to Public Speaking</i> , Brent C.Oberg, Jaico 2011	10hrs.
Module IV	Audiences, Techniques and Occasions, Props and Places, Construction and Contents, Voice, Stance and Delivery from <i>Public Speaking for All Occasions</i> Simon Elliot, Orient Paperback.	10hrs.
Module V	Preparation of some report- Record work Public Speaking for 5 Minutes Advertisement Writing	12hrs.

M.A.ENGLISH LANGUAGE AND LITERATURE (SF)

Semester wise Distribution of Papers

[For students admitted during the academic year 2012 – 2013]

Sem	Course code	Course	Credits	ESE Hrs.	Marks		
					CIA	ESE	TOTAL
I	12ML01	Core I British Literature I	5	3	25	75	100
	12ML02	Core II Shakespeare	5	3	25	75	100
	12ML03	Core III Language and	5	3	25	75	100
	12MLE1	Linguistics	4	3	25	75	100
		Elective I - Commercial Correspondence and Public Speaking	2	3	25	75	100
		Diploma Course – I					
II	12ML04	Core IV British Literature II	5	3	25	75	100
	12ML05	Core V American Literature	5	3	25	75	100
	12ML06	Core VI Indian Writing in	5	3	25	75	100
	12ML07	English	4	3	25	75	100
	12MLE2	Core VII Literary Criticism	4	3	25	75	100
		Elective II - Advertising And Media Writing	4*	3	-	100	
	12MLA1	Advanced Learner's Course I – Literary Review	2	3	100	25	75
III		Diploma Course II					100
	12ML08	Core VIII British Literature III	5	3	25	75	100
	12ML09	Core IX New Literatures	5	5	25	75	100
	12ML10	Core X Translation and	4	3	25	75	100
	12MLE3	Comparative Study – English and Tamil	4	3	25	75	100
		Elective III ELT & CALL	3	3	25	75	100
IV		Diploma Course III					
	12ML11	Core XI British Literature IV	5	3	25	75	100
	12ML12	Core XII Preparatory Course for SET&NET	5	3	25	75	100
			4	3	25	75	100
	12MLE4	Elective IV Feminist Literature	8	-	-	-	200
IV	12MLA2	Project- Yearlong	4*	3	-	100	100
		Advanced Learners' Course II - Teaching English at the Primary School Level	2	3	25	75	100
		Diploma Course IV					

M.A.ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER I

CORE COURSE II – SHAKESPEARE (12ML02)

[For students admitted during the academic year 2012 – 2013]

Preamble

Total Hours : 75

Shakespeare is a world renowned playwright who gave an identity and prestige to English literature. A study of English literature would be incomplete without a knowledge of his plays. The objectives of this paper are -

- to acquaint the students with Shakespeare's dramatic art in terms of genres like tragedy, comedy, tragi-comedy and historical plays
- to make the students enjoy the graces of the language and expression as exemplified in the plays as symbols, imageries, humour, soliloquies and witty dialogues
- to expose the students to the thematic variety from domestic issues to social and political problems, and also to his style and poetic imagination

Module I	<i>The Merchant of Venice</i>	15hrs.
Module II	<i>Macbeth</i>	20hrs.
Module III	<i>Antony and Cleopatra</i>	15hrs.
Module IV	<i>Henry IV Part I</i>	15hrs
Module V	Shakespearean Sonnets, Fools and Clowns, Shakespearean theatre and 20 th century appraisal of Shakespeare 10hrs.	

M.A.ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER I

CORE III – LANGUAGE AND LINGUISTICS (12ML03)

[For students admitted during the academic year 2012 – 2013]

Preamble

Total Hours : 75

This paper is intended to provide a complete knowledge of the origin, growth, diachronic development, socio-cultural impact and the different theories of the English language in the modern context. The objectives of the paper are -

- to introduce the students to the different theories regarding the origin of language in general and English in particular
- to make the students understand the grammatical, structural and functional aspects of English
- to let the students comprehend the typical phonological peculiarities that make English distinct and unique

- to show the students the effects of the impact of socio-cultural factors on language
- to expose the students to the modern linguistic perspectives and approaches to the study of language

Module I	Origin of English – Foreign Influences, Old English, Middle English and Modern English – The Renaissance and After –The growth of Vocabulary – Change of Meaning – The evolution of Standard English – from <i>An Outline History of Language</i> F.T.Wood 15hrs.
Module II	Introduction to Phonology – Organs of speech – Vowels and Consonants – Stress and Intonation – Phonetic transcription - from <i>A Textbook of English Phonetics for Indian Students</i> T. Balasubramanian, Macmillan 20hrs.
Module III	Linguistics, Semantics, Language Change, Some Movements <i>Language and Linguistics</i> John Lyons- chapters 1,2,4,5,6,7 15hrs.
Module IV	Language and Mind, Language and Society, Language and Culture <i>Language and Linguistics</i> John Lyons- chapters 8,9,10 15hrs.
Module V	Language as Discourse, Language and Literature from <i>Modern Linguistics</i> N.Krishnaswamyet.al.,Macmillan 10hrs.

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER I

ELECTIVE I – COMMERCIAL CORRESPONDENCE AND PUBLIC SPEAKING (12MLE1)

[For students admitted during the academic year 2012 – 2013]

Preamble

Total Hours : 75

This paper is offered as an Elective to enable the students to gain employment by virtue of their proficiency in written communication in the context of trade and business. Along with that the motive is to make the students good at Public Speaking which may be an added advantage when they take up managerial posts. The objectives of the course are -

- to empower the students with Public Speaking Skills
- to train the students to express their ideas clearly and coherently
- to make them function as effective Commercial Correspondents
- to equip them with good Secretarial skills

Module I	Principles of Commercial Correspondence -Mechanics of Writing, Report Writing, Circulars Notices, Memos, Agenda .From <i>Effective Business Communication</i> AshaKaul Prentice Hall, 2008.Chapters III, IV, V, VI	15hrs.
Module II	Commercial Correspondence, Sales Letters, Secretarial Correspondence, Trade Correspondence, Writing of Minutes, Letters to Editors, Personal Complaints, From <i>Modern Commercial Correspondence</i> , R.S.N.Pillai ,Bagavathi S. Chand 2004 Chapters 3,4,6,7,9,10,,11,12,,13, 24, 27, 28	15hrs.
Module III	Communication Apprehension, Technique of Delivery Listening Skills, Topic Selection and Organization and research, Different Modes of Speaking, Speaking with Different Purposes – From <i>Introduction to Public Speaking</i> , Brent C.Oberg, Jaico 2011	15hrs.
Module IV	Audiences, Techniques and Occasions, Props and Places, Construction and Contents, Voice, Stance and Delivery from <i>Public Speaking for All Occasions</i> Simon Elliot, Orient Paperback	10hrs.
Module V	Preparation of Report of Some Kind - ESE Public Speaking For 5 Minutes -	20hrs.

**M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II**

CORE IV - BRITISH LITERATURE II (12ML04)

[For students admitted during the academic year 2012 – 2013]

PreambleTotal Hours : 65

This paper is an extension of the paper British Literature I in the first Semester. The period that this paper covers is the late seventeenth century and early eighteenth century. The objectives of this paper are

- to enrich the learning experience of the students by exposing them to great poets like Milton, Dryden, Pope and others
- to make them know of the circumstances that lead to the birth of the novel
- to let them enjoy the felicity of expression and descriptive style of Addison and Steele, the pioneers of journalism
- to make them comprehend the impact of socio-political events on literature

Module I	<i>Paradise Lost</i> Book IX Canonization, Good Morrow, Sunne Rising To My Coy Mistress Discipline To Daffodils, Blossoms To Athea from Prison, The Rose [From Peacock Volume II]	Milton Donne Marvell Herbert Herrick Lovelace 15hrs
	From <i>Coverley Papers</i> Sir Roger at Home Sir Roger at Church Character of Will Wimble	Addison

Module II	Sir Roger's Ancestors A Scene in a Stage Coach His Account and Disappointment of Love	Steele 10hrs
Module III	<i>All for Love</i> <i>School for Scandal</i>	Dryden Sheridan 15hrs
Module IV	<i>Preface to Shakespeare</i> <i>Life of Johnson</i>	Dr. Johnson Boswell 15hrs
Module V	<i>Gulliver's Travels</i> <i>Robinson Crusoe</i>	Swift Defoe 10hrs

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II

CORE V- AMERICAN LITERATURE (12ML05)

[For students admitted during the academic year 2012 – 2013]

Preamble

Total Hours : 65

American literature reflects the multi-cultural and multi-ethnic society of America with prismatic significance. The objectives of this course are

- to make the students perceive the criss cross influence of culture and society on literature
- to introduce the students to the new forms and the zeal of experimentation of writers
- to make them understand the singularity of American English, its idiom and influence

Module I	Song of Myself, Crossing Brooklyn Ferry, When Lilacs Last Bloomed, Passage to India Raven Because I Could not, A Bird Came Down, This is My Letter Stopping by Woods, Road Not Taken, Birches, Fire and Ice Daddy	Walt Whitman E.A.Poe Emily Dickinson Robert Frost Sylvia Plath 15hrs.
Module II	The American Scholar Where I lived What I lived for	Emerson Thoreau 15hrs.
Module III	Glass Menagerie Emperor Jones	Tennessee Williams Eugene O Neill 15hrs.
Module IV	Pudd'nhead Wilson Turn of the Screw	Mark Twain Henry James 10hrs.
Module V	Open Boat The Snows of Kilimanjaro Chrysanthemums Pigeon Feathers Young Goodman Brown The Cask of Amontillado	Crane Hemmingway Steinbeck Updike Hawthorne E.A.Poe 10hrs.

Units I, II, III, and V are from

William J.Fisher *American Literature of the Nineteenth Century* Eurasia Publishing House

Ed.Dr.EgbertS.Oliver *An Anthology of American Literature* Eurasia Publishing House

Units I, II, III, and V are from

William J.Fisher *American Literature of the Nineteenth Century* Eurasia Publishing House

Ed.Dr.EgbertS.Oliver *An Anthology of American Literature* Eurasia Publishing House

M.A. ENGLISH LANGUAGE AND LITERATURE (SF) SEMESTER II

CORE VI - INDIAN WRITING IN ENGLISH (12ML06)

[For students admitted during the academic year 2012 – 2013]

Preamble

Total Hours : 65

Indian Writing in English is recognised globally as a literature with individuality and merit.

The objectives of this course are

- to familiarize the students with the different facets of Indian Writing in English.
- to let them grasp the variety of literary output of Indian poets, novelists and playwrights
- to let them understand the Indian English idiom and style

Module I	Our Causarina Tree, Lotus Silent Steps, Breezy April Rose of God, Tiger and the Deer Coramandal Fishers, The Queen's Rival The Night of Scorpion Introduction In the Zoo [From <i>An Anthology of Indian English Poetry</i> Orient Longman]	Toru Dutt Tagore Aurobindo Sarojini Naidu NissimEzeikel Kamala Das A.K.Ramanujam 15hrs.
Module II	The Secret of Work Students and Their Duties Indian Culture The Soul of India My Mother [From G.S.Balarama Gupta <i>Links</i> Macmillan]	Vivekananda Gokhale Aurobindo Sarojini Naidu Tom Moraes 15hrs.
ModuleIII	<i>Hayavadana</i>	GirishKarnard 10hrs.
ModuleIV	<i>A Bend in the Ganges</i> <i>Inheritance of Loss</i> Collected Stories	ManoharMalgonkar Kiran Desai Tagore 10hrs.
Module V	The Value of Classical Tradition Today, Moral Values in Literature, Freedom and Culture [From K.R.S.Iyengar <i>Adventure of Criticism</i> Rupa& Co.]	K.R.SrinivasaIyengar 15hrs.

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II
CORE VII - LITERARY CRITICISM (12ML07)
 [For students admitted during the academic year 2012 – 2013]

Preamble

Total Hours : 65

Literary Criticism has evolved into a special subject of study in the context of the growing changes in critical trends. The objectives of this course are

- to cultivate a critical sense in the students while reading a work of art
- to develop the skill of interpretation and evaluation
- to provide the students with the knowledge of the trends, critical perspectives, theories and canons from the ancient to the modern
-

Module I	Classical Criticism – Plato, Aristotle, Longinus	Brijdesh Prasad 15hrs
Module II	Lyrical Ballads Study of Poetry	Wordsworth Mathew Arnold 15hrs
Module III	Tradition and Individual Talent Creative Writers and Day Dreaming	T.S.Eliot Sigmund Freud 10hrs
Module IV	Deconstruction Death of an Author	Jaques Derrida Roland Barthes 10hrs
Module V	Post Modernism Female Aesthetics	Elaine Showalter 15hrs

Books for Reference

B.K.Pattanayak *Dynamics of Twentieth Century Literary Criticism*
 T.Ramakrishna Rao *Comprehensive Modern Literary Theory*
 Harry Blamairs *History of English Criticism*
 S.B.Wadikar *New Trends in Literary Criticism*
 B.Prasad *An Introduction to English Criticism*

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER II

ELECTIVE II – ADVERTISING AND MEDIA WRITING (12MLE2)

[For students admitted during the academic year 2012 – 2013]

Preamble

Total Hours : 65

Globalisation has given a tremendous boost to advertising activity and it has become a lucrative possession. In order to bring out the inner potential of our students in creative writing and increase their employment opportunities, this paper is offered. The objectives of this paper are

- to sharpen and perfect the writing skills of the students
- to enable them to get Jobs in the Media
- to increase their marketing skills

Module I	Introduction to Advertising Chapters 1 and 2	10hrs
Module II	Kinds of Advertising Chapters 3 and 4	15hrs
ModuleIII	Media for Advertising Chapters 13 and 14	15hrs
ModuleIV	Creation of Advertisement Chapters 16,17 and 18	10hrs
ModuleV	Writing an Advertisement	15hrs

Prescribed Text Book

S.A.Chunawall et al. *Advertising Theory and Practice* Himalaya Publishing House
2004

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER III
CORE COURSE VIII – BRITISH LITERATURE III (11ML08 & 12ML08)
 [For students admitted during the academic year 2012 – 2013& 2011 -2012]

Preamble

Total Hours : 75

This paper includes the Romantic and Victorian ages. The objectives of this paper are

- to acquaint the students with the play of fancy and imagination in the poems of the Romantic age
- to make them appreciate the Pantheism of Wordsworth, sensuousness of Keats and the love of liberty of Shelley
- to make them see the difference between the Romantic poetry and Victorian poetry as manifest in Tennyson, Browning and Arnold

ModuleI	Ode on the Intimations of Immortality Ancient Mariner Endymion Adonais	Wordsworth Coleridge Keats Shelley 15hrs
ModuleII	Ring Out Wild Bells, Tears, Idle tears My Last Duchess, Last Ride Together Sohrab and Rustum The Blessed Damozel Echo	Tennyson Browning Arnold D.G.Rosetti Christina Rosetti 15hrs
ModuleIII	A Dissertation Upon a Roast Pig My First Play	Lamb

		Lamb
Module IV	Dream Children Murder As Fine Arts Of Persons One Would Wish to Have Seen On Shakespeare from <i>Hero As Poet</i>	Lamb Thomas DeQuincy William Hazlitt Carlyle 15hrs
Module V	The Importance of being Ernest Kenilworth Emma Jude, the Obscure Great Expectations	Oscar Wilde Walter Scott Jane Austen 10hrs Thomas Hardy Charles Dickens 20hrs

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER III

CORE IX – NEW LITERATURES (11ML09 & 12ML09)

[For students admitted during the academic year 2012 – 2013 & 2011-2012]

Preamble
: 75

Total Hours

This paper encompasses the literatures produced by the Commonwealth countries and the Afro- Americans. The problems of the people are similar and they have voiced their repressed sensibilities in every genre of literature. The objectives of this paper are

- to introduce the students to the cultural and ethnic peculiarities of the colonial countries
- to make the students recognize the anguish and pain of repression and suppression that are transmuted into art
- to make the students appreciate the linguistic idiom and style of writers from multi-cultural background
- to equip the students with adequate knowledge on Commonwealth literature and Harlem literature

Module I	Australia Standardization Nigger's Leap, New England Journey to the Interior The Man with the Wooden Leg Time From <i>An Anthology of Commonwealth Poetry</i> by C.D. Narasimaiah	A.D.Hope Judith Wright Margret Atwood Katherine Mansfield Allen Curnow 15hrs
Module II	The Negro Speaks of Rivers Let America Be America Again Life Is Fine Still I Rise Africa A Far Cry from Africa From <i>An Anthology of Commonwealth Poetry</i> by C.D. Narasimaiah	Langston Hughes Maya Angelou David Diop Derek Walcott 15hrs
Module III	The Cup of Tea The Road	Katherine Mansfield Wole Soyinka 10hrs
Module IV	The Color Purple	Alice Walker

	Beloved	Toni Morrison 20hrs
Module V	The Novelist as a Teacher Poetry in English From <i>Readings in Commonwealth Literature</i> Ed. William Walsh	Chinua Achebe Louis Dudek 15hrs

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER III

CORE X -TRANSLATION AND COMPARATIVE STUDY– ENGLISH AND TAMIL(11ML10 & 12ML10)

[For students admitted during the academic year 2012 – 2013 & 2011 -2012]

Preamble

Total Hours 75

Translation is viewed as linguistic bridge- building and it brings together people of the world through translated literature. The objectives of this course are

- to afford the students a glimpse of world literature through translation
- to allow them to make a comparative study of the SL and TL in terms of thought , style and generic variation
- to satisfy cross cultural curiosity and understand the essential different between different social systems
- to strengthen the proficiency of the students in both English and Tamil which would fetch them jobs as translators in the media and the Government organizations

Module I	Definitions and Theories of Translation 10hrs
Module II	Introduction to the Principles of Comparative Literature 10hrs
Module III	Translation – from English to Tamil - Marlowe's <i>Dr. Faustus</i> translated by Dr. N.Subrahmanian 20 hrs.
Module IV	Translation from Tamil to English - <i>Tirukkural</i> – G.U. Pope and KasturiSrinivasan Chapters 1 – 5 20 hrs.
Module V	Translation of a Short Story or a Prose piece by the student with comments on the problems of translation 15 hrs

Books for Reference

Susan BassnettMcGuire*Translation Studies*

Savoy Theodore, H *The Art of Translation*

BijayKumarDas *A Horizon to the Study of Translation*

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER III

ELECTIVE III – ELT and CALL (11 MLE3 & 12 MLE3)

[For students admitted during the academic year 2012 – 2013 & 2011 -2012]

Preamble

Total Hours 75

English Language Teaching has become an integral part of Post Graduate Programmes in English Literature. With the assistance of Computer Technology Language Teaching has acquired a special significance. The objectives of the paper are

- to equip students with the ability to read, write with understanding and to make them autonomous learners
- to enhance the competence of understanding by making connections and drawing on experiences
- to make the students comprehend the importance of communications technology in providing universal access to learning
- to expose the students to the methods of language teaching

Module I	1.A brief history of Language Teaching <ul style="list-style-type: none">• The nature of approaches and methods in Language Teaching• The oral Approach and Situational Language Teaching 10 hrs.
Module II	<ul style="list-style-type: none">• Competency – based Language Teaching• Communicative Language Teaching• Content – based instructions• Task-based Language Teaching• Blended Teaching Method 15 hrs.
Module III	<ul style="list-style-type: none">• Teaching, Listening, Speaking, Reading and Writing• English for specific purposes• Teaching English in multilingual societies• Research in Second language acquisition• Teaching large classes and mixed ability classes• Strategies and techniques for effective self study• A perspective on recent trends 20 hrs
Module IV	<ul style="list-style-type: none">• CALL and Communication• Enhancing Language Learning• Using Technology – Internet, Mobile, Smart Classroom, Web resources, iPod• Online Teaching, Learning and Assessment• Integrated technology and Learning• E-content development• Developing Blog 10 hrs.
Module V	Practical <ul style="list-style-type: none">• Using oral approach or situational Language Teaching

	<ul style="list-style-type: none"> • Content-based instruction • Teaching any one of LSRW skills • Voice and accent training using software • Teaching practice – Extension activity 	20 hrs
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References:

- *Approaches and Methods in Language Teaching* Jack. C Richards and Theodore Rodgers
- *Speaking and Learning Skills II*
- *Communicative Skills*
- *Teacher Knowledge Test* Cambridge University Press
- *A History of English Language Teaching* Second Edition A.P.R.Howett with H.G.Widdowson
- *Developments in English for Specific Norms: A Multi-disciplinary Approach* Cambridge, England Dudley – Evans.T.andSt.John M.J.(1998) Cambridge University Press

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER IV
CORE XI - BRITISH LITERATURE IV (11ML11 & 12ML11)
 [For students admitted during the year 2011 – 2012 & 2012 – 2013]

Preamble

Total Hours 75

This paper focuses on the modern period. The objectives of this period are

- to familiarize the students with the current trends in literary genres
- to let them understand the new ideas, approaches and the impact of psychology, sociology, anthropology on literature
- to expose them to the prolificacy of experimental fiction

Module I	The Waste Land Byzantium Sailing to Byzantium Windhover	T.S.Eliot W.B. Yeats W.B.Yeats Hopkins
15 hrs		
Module II	Church Going, Toads Pike, Jaguar Unknown Citizen, In Memory of Yeats The Poet Prayer Before Birth	Philip Larkin Ted Hughes W.H.Auden C.D. Lewis Louis Macneice
13 hrs		
Module III	Comfortable Words Worship of the Wealthy Walking Tours Travel by Train Indian Jugglers Why the Novel Matters	Belloc G.K.Chesterton R.L.Stevenson J.B.Priestley E.M.Forster D.H.Lawrence
12 hrs		

Module IV	Murder in the Cathedral The Apple Cart	T.S.Eliot G.B.Shaw
20hrs		
Module V	The Portrait of the Artist as Young man 1984 Lord Jim Time Machine	James Joyce George Orwell Joseph Conrad H.G.Wells
15 hrs		

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)
SEMESTER IV

CORE XII - PREPARATORY COURSE FOR SET & NET (11ML12 & 12ML12)
[For students admitted during the year 2011 – 2012 & 2012 – 2013]

Preamble

Total Hours 75

This course is framed to enable the students of literature to take up competitive examination for the recruitment of teachers. The course is intended

- to enrich the knowledge of the British and American literatures
- to prepare the students for the NET and SET exams
- to provide a thorough reading of the writers of all genres

Module I	Elizabethan age to Restoration period(1558-1700)	15 hrs.
Module II	Age of Pope & age of Johnson(1700-1798)	15 hrs.
Module III	Romantic & Victorian Period(1798-1901)	15 hrs.
Module IV	Pre-Raphaelites to Georgian Period (1901-1936)	15 hrs.
ModuleV	The Modern Period(1936-present)	15 hrs.

Books for Reference:

- UGC – NET/JRF/SET English Literature V.Kumar Publications
- UGC – NET/JRF/SET English Literature Trueman Specific Series, Danika Publish Co. New Delhi, 2011
- An Objective approach to English literature – Dr.S.N.Arora, BarailleyPublications,

M.A. ENGLISH LANGUAGE AND LITERATURE (SF)

SEMESTER IV

ELECTIVE IV – FEMINIST LITERATURE (11ML12 & 12 ML E4)
[For students admitted during the year 2011 – 2012 & 2012 – 2013]

Preamble

Total Hours 75

Feminist Literature has evolved out of the Feminist Movements and has caused a revolution in literary studies. The objectives of this paper are

- to create an awareness among the students about the problems of women

- to make them realize the issues of women in a patriarchal society through literary works
- to make them reflect on the views expressed by Liberal and Radical Feminists
- to instill in them an impulse to attempt creative writing

Module I	History of Feminist Movement <i>A Vindication of the Rights of Women</i> Chapter IX	Mary Woolstoncroft 15 hrs.
Module II	<i>A Room of One's Own</i>	Viriginia Woolf 15 hrs.
Module III	"Female Aesthetic" from <i>A Literature of Their Own</i>	Elaine Showalter 15 hrs.
Module IV	<i>Feminine Mystique</i> Chapter XIV "New Life Plan for Women"	Betty Friedan 15 hrs.
Module V	<i>Beauty Myth</i>	Naomi Woolf 15 hrs.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Programme - B.A. Economics
Scheme of Examination – CBCS Pattern
(For the Students admitted from the academic year 2017-2018 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
117TA1/ 117MY1/ 117HD1/ 117FR1	Semester I						
	Part I – Language I	6	3	25	75	100	4
117EN1	Part II English I	6	3	25	75	100	4
	Part III						
117E01	Core I - Micro Economics I	5	3	25	75	100	4
117E02	Core II - Agricultural Economics	5	3	25	75	100	4
117AE1	Allied I - Principles of Management	6	3	25	75	100	4
117EVS	Part IV Environmental Studies	2	2	50	-	50	2
217TA2/ 217MY2/ 217HD2/ 217FR2	Semester II						
	Part I – Language II	6	3	25	75	100	4
217EN2	Part II English II	6	3	25	75	100	4
	Part III						
217E03	Core III – Micro Economics II	5	3	25	75	100	4
217E04	Core IV – Demography	5	3	25	75	100	4
217AE2	Allied II – Principles of Accountancy	6	3	25	75	100	4
217VEC	Part IV Value Education	2	2	50	-	50	2
317TA3/ 317MY3/ 317HD3/	Semester III						
	Part I – Language III	6	3	25	75	100	4

317FR3							
317EN3	Part II English III	6	3	25	75	100	4
317E05	Part III Core V– Urban Economics	4	3	25	75	100	4
317E06	Core VI – Economics of Marketing	3	3	25	50	75	3
317AE3	Allied III – Mathematical Methods	6	3	25	75	100	4
317NHE	Part IV Non Major Elective – Home Economics	2	2	50	-	50	2
317ES1	Skill Enhancement Course I – Communication Skills for Business	3	3	75	-	75	3
417TA4/ 417MY4/ 417HD4/ 417FR4	Semester IV Part I – Language IV	6	3	25	75	100	4
417EN4	Part II English IV	6	3	25	75	100	4
417E07	Part III Core VII – Macro Economics I	4	3	25	75	100	4
417E08	Core VIII – Economic Doctrines	3	3	25	50	75	3
417AE4	Allied IV – Statistics	6	3	25	75	100	4
417NGA	Part IV General Awareness	-	1	50	-	50	2
417ES2	Skill Enhancement Course II – Tally Accounting Programme- Practical	3	3	75	-	75	3
417GIS	Information Security	2	2	50	-	Grade	Grade
417ALE	ALC I Subject Viva Voce	-	-	-	100	100	4*

Yellow colour denoted Skilled based courses, Employment oriented and Entrepreneurship skilled.

B.A. Economics

Semester I

Part III – Core I – Micro Economics I

117E01

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 65

Course Objectives:

- ❖ To equip the students with the basic tools and methods of economic analysis.
- ❖ To understand the behaviour of economic agents as a consumer and producer.

Unit I:

(13 Hours)

Introduction: Nature and Scope of Economics - Definitions of Economics - Wealth, Welfare, Scarcity and Growth-Principles of Economics- Distinction between Micro and Macro Economics - Inductive and Deductive methods - Static and Dynamic Analysis - Partial and General Equilibrium.

Unit II:

(13 Hours)

Theory of Demand - Cardinal approach to Consumption Analysis - Law of Diminishing Marginal Utility - Law of Equi- Marginal Utility - Law of Demand – Exceptional Curves - Determinants of Demand - Elasticity of Demand - Types and Degrees – Measurement-Factors influencing Elasticity of Demand.

Unit III:

(13 Hours)

Theory of Consumption - Ordinal approach to Consumption Analysis - Indifference Curve Analysis - Scale of Preference - Indifference Curves- Properties - Marginal Rate of Substitution - Consumer's Equilibrium - Income, Price and Substitution effects - Consumer's Surplus.

Unit IV:

(13 Hours)

Factors of Production: Characteristics of Land- Characteristics of Labour - Efficiency of Labour - Division of Labour - Characteristics of Capital - Characteristics of Organization- Elasticity of Supply - Factors affecting Elasticity of Supply.

Unit V:

(13 Hours)

Theory of Production: Production Function - Laws of Returns - Law of Variable Proportions - Returns to Scale - Producer's Equilibrium using Isoquants - Economies of Scale- Internal and External - Diseconomies.

Books for Study:

1. S. Sankaran, Micro Economics, Margham Publications, Madras, 2015.
2. Cauvery & others, Micro Economic Theory, S. Chand & Co. (P) Ltd., Delhi 2012

Book for Reference:

1. M.L Jhingan, Micro Economic Theory, Vrinda Publications (P) Ltd., New Delhi, 2015.

B.A. Economics

Semester I

Part III – Core II – Agricultural Economics

117E02

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 65

Course Objectives:

- ❖ Basic economic Principles applied in agricultural production and marketing.
- ❖ Efficient organization of scarce resources and factors of agricultural production.

Unit I:

(13 Hours)

Introduction: Agriculture- Meaning- Importance of Agriculture- Special features and problems of Agriculture - Causes for low productivity in agriculture.

Unit II:

(13 Hours)

Land Utilization in India - Agricultural Holdings – Land Reforms: Sub- division and Fragmentation of Holdings- Effects. Cropping Pattern – Factors influencing Cropping Pattern.

Unit III:

(13 Hours)

Agricultural Inputs - Irrigation – Types. HYV Seeds, Fertilizers and Manures, implements and machinery. Sources of Agricultural Finance. New Agricultural Strategy and Green Revolution- Effects. A Brief Note on Need for Second Green Revolution

Unit IV:

(13 Hours)

Post Green Revolution Developments-Contract Farming - Organic Farming – Precision Farming-Sustainable Agriculture-Food Security in India.

Unit V:

(13 Hours)

Agriculture Marketing and Price - Defects of Agricultural Marketing-Measures taken to improve Agricultural Marketing - Fluctuations in Agricultural Prices- Reasons-Agricultural Price Policy in India- Public Distribution System- Objectives- Defects

Book for Study:

1. S. Sankaran, Agricultural Economy of India, Margham Publications, Chennai, 2015.

Books for Reference:

1. Ruddar Dutt & K.P.M. Sundaram, Indian Economy, S. Chand & Co Ltd, New Delhi, 2016.
2. S.K. Misra & Puri.V. Indian Economy- Its Development Experience, Himalaya Publishing House, Mumbai, 2015.

B.A. Economics

Semester I

Part III – Allied I – Principles of Management

117AE1

(For the students admitted from the academic year 2017 -2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

- ❖ To explore the basic concepts and functions of management.
- ❖ To understand how managers manage business organizations in the dynamic global environment.
- ❖ To examine how business decisions are made using various tools and techniques to maintain the competitive advantage.

Unit I: (15 Hours)
Management: Definition – Features – Functions – Importance - Administration and Management - Manager: Functions – Role – Responsibilities - Entrepreneur and Manager.

Unit II: (15 Hours)
Planning: Definition – Characteristics – Objectives - Advantages and Limitations - Steps in Planning Process - Management by Objectives (MBO) - Decision Making - Decision Making Process.

Unit III: (15 Hours)
Organisation: Functions – Nature – Importance - Classification of Organisation: Formal and Informal Organisation - Difference between Formal and Informal Organisation - Directing: Meaning and Principles.

Unit IV: (15 Hours)
Delegation: Elements – Principles – Types – Advantages - Problems. Decentralization – Advantages – Disadvantages - Departmentation: Need – Factors - Basis.

Unit V: (15 Hours)
Controlling – Steps - Requirements of Effective Control System – Features - Need – Advantages – Limitations - Coordination - Features – Importance – Types - Problems- Steps for effective Co-ordination.

Book for Study:

1. T. Ramasamy, Principles of Management, Himalaya Publishing House, Mumbai, 2016.

Book for Reference:

1. P.C Tripathi & P.N Reddy, Principles of Management, Tata McGraw Hill Ltd., New Delhi, 2014.

**B.A. Economics
Semester II**

Part III – Core III – Micro Economics II

217E03

(For the students admitted from the academic year 2017 - 2018 onwards)

Credits: 4

Hours: 65

Course Objectives:

- ❖ To equip the students with the tools of economic analysis to deal with different economic phenomena.
- ❖ To impart knowledge about the behaviour of economic agents namely producer and factor owner as price fluctuates in the market.

Unit I: (13 Hours)
Cost and Revenue: Concepts of Cost and Revenue- Average, Marginal and Total cost- Nature of short and long run average cost curves. Revenue: Average Revenue, Marginal Revenue, Total Revenue- Importance of Revenue Curves- Equilibrium of the firm under marginal conditions.

Unit II: (13 Hours)
Structure of Market- Perfect Competition: Meaning- Price and Output determination in the short run and long run. Time Element- Monopoly: Meaning- Features- Price and Output

Determination- Price Discrimination and its degrees – Price Determination under Discriminating Monopoly- Dumping- Difference between Perfect competition and Monopoly.

Unit III: (13 Hours)

Monopolistic Competition: Meaning and Features- Equilibrium of the Firm- Group Equilibrium- Selling Costs - Oligopoly: Features- Kinked Demand Curve Model- Duopoly and Monopsony (Meaning only).

Unit IV: (13 Hours)

Factor Pricing- Difference between factor pricing and commodity pricing- Marginal Productivity Theory. Ricardian Theory of Rent- Quasi Rent and Transfer Earnings- Modern Theory of Rent. Wages- Types - Theories of Wages- Backward sloping supply curve of labour.

Unit V: (13 Hours)

Interest- Gross Interest and Net Interest- Loanable Fund Theory of Interest- Liquidity Preference Theory of Interest. Profit: Gross and Net Profits- Innovation and Risk Bearing Theories of Profit.

Books for Study:

1. S. Sankaran, Micro Economics, Margham Publications, Madras, 2015.
2. Cauvery & Others, Micro Economic Theory, S. Chand & Co. (P) Ltd., Delhi 2012

Books for Reference:

1. M.L Jhingan, Micro Economics, Economic Analysis, S. Chand & Co., Delhi, 2012.
2. Lokanathan V, Economic Analysis (Principles of Economics), S. Chand & Co, New Delhi, 2010.

B.A. Economics

Semester II

Part III – Core IV – Demography

217E04

(For the students admitted from the academic year 2017 - 2018 onwards)

Credits: 4

Hours: 65

Course Objectives:

- ❖ To define and differentiate the demographic concepts, terminology, theories and formulas.
- ❖ To familiarize the sources of demographic data.
- ❖ To describe basic demographic indicators.
- ❖ To study the population policies.

Unit I: (13 Hours)

Demography: Meaning, Scope and importance, Sources of Demographic Data: Census-meaning and characteristics, Vital Registration, Sample Survey. Growth of Population – Causes and its effects on Economic Development.

Unit II: (13 Hours)

Theories of Population: Malthusian Theory of Population - New Malthusianism – Optimum Theory of Population – Comparison of Malthusian Theory with the Optimum Theory- Theory of Demographic Transition.

Unit III: (13 Hours)

Population Structure and Characteristics: Birth Rate, its trends and causes – Death Rate, its trends and causes – Trends in sex ratio, age structure, literacy rate, density – Demographic Dividend- Migration: Types of Migration – Brain drain.

Unit IV: (13 Hours)

Urbanization: Meaning– Causes and Consequences of Urbanization – Suggested Urban Policy – Labour Force - Meaning - Levels of Labour Force Participation.

Unit V: (13 Hours)

Government Policy for Population Control: Objectives – Measures – Population Policy of India – National Population Policy 2000 – Current Demographic Policy - FPAI - Family Planning Programme and Progress in India- Drawbacks of Family Planning Programme – Suggestions for Effective Implementation.

Books for Study:

1. M.L. Jhingan, Bhatt & J.N. Desai, Demography, Vrinda Publications (P) Ltd, Delhi, 2014.
2. Asha A. Bhende & Tara Kanitkar, Principles of Population Studies, Himalaya Publishing House, Bombay, 2015.

Books for Reference:

1. Ruddar Datt & Sundaram, Indian Economy, S. Chand & Co Ltd., Delhi, 2013.
2. A.N. Agarwal, Indian Economy (Problems of Development and Planning) New Age International (P) Ltd., New Delhi, 2017.
3. <http://www.fbaindia.org>

B.A. Economics

Semester II

Part III – Allied II – Principles of Accountancy 217AE2

(For the students admitted from the academic year 2017 - 2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

- ❖ To provide knowledge of accounting concepts and principles
- ❖ To apply principles and concepts of accounting in the preparation of financial statements.

Unit I: (Theory only) (15 Hours)

Accounting: Definition – Objectives – Functions – Advantages and Limitations –Basic Terms – Rules of Accounting – Classification of Accounting – Rules of Double Entry System – Concepts and Conventions.

Unit II: (Problems only) (15 Hours)

Journal – Ledger - Trial Balance

Unit III: (Problems only) (15 Hours)

Preparation of Final Accounts of Sole Trader

Unit IV: (Problems only) (15 Hours)

Bills of Exchange (Excluding Accommodation Bills) – Single Entry System – Statement of Affairs method only

Unit V: (Problems only)**(15 Hours)**

Accounts of non-trading concerns – Receipts and Payments Account – Income and Expenditure Account - Balance Sheet.

Note: Theory carries 25 marks and Problems carry 50 marks.

Books for Study:

1. S.P. Jain and K.L. Narang, Principles of Accountancy, Kalyani Publishers, Ludhiana, 2014

Books for Reference:

1. T. S. Grewal, Introduction to Accountancy, S. Chand & Co Ltd, New Delhi, 2016.
2. T.S. Reddy & A. Murthy, Financial Accounting, Margham Publications, New Delhi, 2016.

CURRICULUM DESIGN

Sri G.V.G. Visalakshi College for Women (Autonomous), Udumalpet

Affiliated to Bharathiar University

Post Graduate & Research Department of Economics

Scheme of Examination – CBCS Pattern

Programme - B.A. Economics

(For the Students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
115TA1/ 115MY1/ 115HD1/ 115FR1/ 115EN1	Part I – Language I	6	3	25	75	100	4
	Part II – English I	6	3	25	75	100	4
	Part III						
115E01	Core I - Micro Economics I	5	3	25	75	100	4
115E02	Core II - Agricultural Economics	5	3	25	75	100	4
115AE1	Allied I - Principles of Management	6	3	25	75	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
	Semester II						
215TA2/ 215MY2/ 215HD2/ 215FR2/ 215EN2	Part I – Language II	6	3	25	75	100	4
	Part II – English II	6	3	25	75	100	4
	Part III						
215E03	Core III–Micro Economics II	5	3	25	75	100	4
215E04	Core IV – Demography	5	3	25	75	100	4

215AE2	Allied II – Statistics	6	3	25	75	100	4
215VEC	Part IV – Value Education	2	2	50	-	50	2
Semester III							
315TA3/ 315MY3/ 315HD3/ 315FR3/ 315EN3	Part I – Language III	6	3	25	75	100	4
	Part II – English III	6	3	25	75	100	4
	Part III						
315E05	Core V– Economics of Investment Management	4	3	25	75	100	4
315E06	Core VI – Economics of Marketing	3	3	25	50	75	3
315AE3	Allied III – Mathematical Methods	6	3	25	75	100	4
315ES1	Part IV						
	Skill Based Course I – Communication Skills for Business	3	3	75	-	75	3
315NCM	Non Major Elective Course I – Consumerism	2	2	50	-	50	2
Semester IV							
415TA4/ 415MY4/ 415HD4/ 415FR4 415EN4	Part I – Language III	6	3	25	75	100	4
	Part II – English III	6	3	25	75	100	4
	Part III						
415E07	Core VII – Urban Economics	4	3	25	75	100	4
415E08	Core VIII – Economic Doctrines	3	3	25	50	75	3
415AE4	Allied IV – Services Marketing	6	3	25	75	100	4
415ES2	Part IV						
	Skill Based Course II – Management Information System	3	3	75	-	75	3
415NGA	Non Major Elective Course II General Awareness (Online)	-	1	50	-	50	2
415GIS	Information Security	2	2	50	-	Grade	Grade
415EX1/	Part V - Extension	-	-	50	-	50	2

415EX2/ 414EX4/ 414EX5 415ALE	ALC I - Subject Viva Voce	-	-	-	100	100	4*
Semester V							
Part III							
515E09	Core IX –Macro Economics	6	3	25	75	100	4
515E10	Core X–Monetary Economics	6	3	25	75	100	4
515E11	Core XI – Entrepreneurship Development	5	3	25	75	100	4
515E12	Core XII – Economics of Tourism	5	3	25	75	100	4
515EE1	Elective I – Principles of Insurance	5	3	25	75	100	4
Part IV							
515ES3	Skill Based Course III – Computer Applications in Business - Practical	3	3	75	-	75	3
Semester VI							
Part III							
615E13	Core XIII–Fiscal Economics	6	3	25	75	100	4
615E14	Core XIV – International Economics	5	3	25	75	100	4
615E15	Core XV– Indian Economic Development	5	3	25	75	100	4
615EE2	Elective II – Banking Practices	5	3	25	75	100	4
615EE3	Elective III – Retail Business Management	6	3	25	75	100	4
Part IV							
615ES4	Skill Based Course IV – Tally Accounting Programme - Practical	3	3	75	-	75	3
615EX3	Part V - Extension	-	-	50	-	50	2
615ALE	ALC II- Subject Viva Voce	-	-	-	100	100	4*
TOTAL						3500	140

Starred Credits are treated as additional credits which are optional.

B.A. Economics

Semester III

Part III – Core V – Economics of Investment Management 315E05

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble:

The aim of the course is to

- ❖ equip the students with the knowledge of different investment opportunities available in the economy.
- ❖ helps in proper choice of investment mode.

Unit I

(10 Hours)

Meaning – Importance of Investment - Principles of Investment – Factors Favourable for Investment – Investment and Speculation – Investment and Gambling – Investment Media – Features of an Investment Programme.

Unit II

(11 Hours)

Insurance – Need for Life Insurance – UTI – Investment in Units- Schemes of UTI – Post Office Small Saving Scheme – Need for Small Savings - Public Provident Fund – Objectives- Eligibility Conditions – Tax Concessions. Investment in Land, Gold, Silver, Diamonds, Stamps, Antiques.

Unit III

(10 Hours)

Investment in Fixed Deposits with Companies and Commercial Banks - Stock Exchange – Meaning – Functions - Organization – Mechanics of Security Trading in Stock Exchanges – Kinds of Trading Activity.

Unit IV

(10 Hours)

Listing of Securities – Meaning – Objectives – Advantages - Disadvantages of Listing. Shares – Meaning – Kinds of Shares – Equity Shares – Features, Preference Shares – Features – Private Equities – Debentures- Kinds – Features

Unit V

(11 Hours)

Mutual Funds – Kinds – Advantages and Disadvantages- Schemes of Mutual Fund – Investment and Tax Planning (a basic knowledge) - Role of Securities Exchange Board of India.

Book for Study:

1. Preeti Singh, Investment Management Security Analysis and Portfolio Management
Himalaya Publishing House, Mumbai, 2014

Books for Reference:

1. Radha Parameswaran and Nedunchenzhian, Investment Management, Prasanna Publishing House, New Delhi, 2012
2. Prasanna Chandra, The Investment Game - How to Win, Tata McGraw Hill, New Delhi, 2011

B.A. Economics

Semester III

Part III – Core VI – Economics of Marketing

315E06

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The aim of the course is

- ❖ to introduce the students to the area of marketing which is an important practical side to the economics.
- ❖ to equip the students with the knowledge regarding the concepts and techniques of marketing.
- ❖ to develop the self employment skill in the students.

Unit I

(7 Hours)

Marketing – Definition - Importance of Marketing – Features of Marketing – Functions of Marketing-Role of Marketing.

Unit II

(8 Hours)

Product Mix – Product Life Cycle – Meaning and Definition of Branding, Packaging and labelling (in brief) – New Product Development: Factors to be considered before introducing a new product – Product Elimination

Unit III

(7 Hours)

Buyer Behaviour – Meaning – Factors influencing Buyer Behaviour – Market Segmentation– Basis for Market Segmentation.

Unit IV

(8 Hours)

Pricing of Products – Meaning - Objectives – Factors influencing Pricing Decision –Sales Promotion: Consumer Sales Promotion – Dealer Sales Promotion, Sales Force Promotion.

Unit V

(8 Hours)

Personal Selling–Essentials of Salesmanship –Advertising – Benefits of Advertising Direct Marketing –Types – Media Marketing

Books for Study

1. R.S.N. Pillai and Bagavathi, Marketing Management, Sultan Chand & Co, New Delhi, 2012
2. Rajan Nair, Marketing, Sultan Chand & Co, New Delhi, 2011.

Books for Reference

1. Philip Kotler & Gary Armstrong, Principles of Marketing, Prentice-Hall of India (P) Ltd, New Delhi, 2010.
2. M. Govindarajan, Marketing Management, Concepts, Cases, Challenges and Trends, Prentice – Hall of India Pvt., Ltd, New Delhi, 2009.

B.A. Economics

Semester III

Part III – Allied III – Mathematical Methods

315AE3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course helps the students

- ❖ to gain elementary mathematical knowledge and
- ❖ to know the application of mathematical techniques in economic theories

Unit I (15 Hours)

Mathematical Economics and Algebra: Nature and scope of mathematical economics- Mathematical operations with decimal and fractions- Ratios and Proportions- - Progression- Arithmetic Progression, Harmonic Progression and Geometric Progression.

Unit II (15 Hours)

Matrix Algebra: Matrix- Types- Addition – Subtraction- Multiplication. Determinants- Transpose of a matrix- Inverse of matrix – Solution of simultaneous equations- Cramer's rule- Matrix inversion method (3x3)

Unit III (15 Hours)

Differentiation: - Process of Differentiation- Rules of Differentiation- Exponential and Logarithmic- Derivatives of Higher order

Unit IV (15 Hours)

Application of Derivatives in Economics- Elasticity of Demand, Cost, Revenue function- Profit maximization and cost minimization. Partial Derivatives-Maxima and Minima of One Variable and Nature of Curves.

Unit V (15 Hours)

Mathematics of Finance: Simple interest, Compound interest- Discounting: Trade Discount- Quantity Discount–Cash Discount- Bankers Discount-True Discount and Bankers Gain.

Note: Theory carries 25 marks and Problems carry 50 marks.

Books for Study:

1. D. Bose, Mathematical Economics, Himalaya Publishing House, Delhi, 2007
2. B.C Mehta & B.C Madnani, Mathematics for Economists, Sultan Chand & Sons, New Delhi, 2013.
3. M. Wilson, Business Mathematics, Himalaya Publishing House, Delhi, 2007
4. P.A. Navinatham, Business Mathematics & Statistics, Jai Publishing House, Trichy, 2011
5. J .K.Sharma, Business Mathematics, Ane Books Pvt. Ltd., Delhi, 2014
6. R.S Bharawaj, Mathematics for Economics and Business, Excel books, Delhi, 2006.

B.A. Economics

Semester III

Part IV – Skill Based Course I – Communication Skills for Business 315ES1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The objective of the course is

- ❖ To develop self-confidence in managing the business
- ❖ To equip the students with correct and effective Communication Skills for successful entrepreneurship.

Unit I

(7 Hours)

Communication - Meaning – Importance - Objectives – Principles of Communication-
Media of Communication

Unit II

(7 Hours)

Oral Communication, Verbal, Non verbal and Audio-Visual Presentation, Telephone
Skills and Etiquettes

Unit III

(8 Hours)

Written Communication –Kinds of Business Letter – Essentials of a Business Letter –
Enquiries and replies - Orders and their execution- Sales letters - Application letters

Unit IV

(8 Hours)

Agency correspondence – Insurance - Bank Correspondence – Correspondence with
public authorities and other agencies- Letter to the editor of news papers.

Unit V

(8 Hours)

Report writing - Importance - Kinds – Characteristics of a good report - Report by
individuals and committees

Books for Study:

1. Reddy, Appannaiah & Nagaraj and Raja Rao, Essentials of Business Communication, Himalaya Publishing House, New Delhi, 2003

Books for Reference:

1. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication, Sultan Chand and Sons, New Delhi, 1997.
2. Krishna Mohan & Meera Banerji, Developing Communication Skills, Macmillan Indian Ltd., Chennai, 1987
3. M.S. Ramesh & C. Pattenshetti, Business Communication, S. Chand &Co, Delhi, 2000.
4. L.A. Woolcott & W.R. Unwin, Mastering Business Communication, Macmillan Education Ltd, Chennai.2002.

B.A. Economics

Semester IV

Part III - Core VII - Urban Economics

415E07

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble:

The aim of the course is to

- ❖ create an awareness of the role of rapid economic growth on urbanization.
- ❖ understand the process of urbanization.
- ❖ study the issues of urbanization and its settlement.

Unit I

(11 Hours)

Urban Economics:-Definition-Subject matter – concepts - Agglomeration effects-The Indifference Principle –The Monocentric city Model-The Axioms of Urban Economics

Unit II

(10 Hours)

Urbanisation: meaning--Features-Trends- –Causes and Consequences of urbanization

Unit III

(10 Hours)

Concepts of Urbanisation in India: –Urban Sprawl- Urban Agglomeration- -Pseudo-Urbanization.-Urban Morphology.

Unit IV

(11 Hours)

Urban Infrastructure - Problems of Urbanization – Environment and Health - Solution to urban problems – Human Settlements- types of settlements - Settlement hierarchy-Central Place theory

Unit V

(10 Hours)

Urban Planning in India - Features of Urban Planning. Principles of Urban Planning in India - Urban Policy in India

Books for Study:

1. M.L. Jhingan, Bhatt, Demography, Vrinda Publication (P) Ltd, Delhi, 2011(For Units II & IV)
2. Ashok Purohit, Urbanisation in India, Volume I, II, ABD Publishers, Delhi, 2012 (For Unit III)
3. Pulla Rao, Urbanisation in India, ABD Publishers, Delhi, 2012 (For Units IV & V)
4. Materials downloaded from the internet (For Units I to IV)

Course Designed by : Dr. K.Kaliammal

Course Reviewed by : Dr. P. Geetha

Checked by : Dr. R. Radhika

B.A. Economics

Semester IV

Part III - Allied IV – Services Marketing

415AE4

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is to

- ❖ learn the various marketing strategies for service firms
- ❖ understand the marketing approach of banking and insurance services

Unit I

(15 Hours)

Services: Reasons for growth of service sector- Role of services in an economy- Definition- Types- Characteristics- Differences between Goods and Services- Services marketing – Need –Challenges to Service Managers-Classification of Services.

Unit II

(15 Hours)

Services Marketing Mix - Elements. Pricing in Services-Role-Steps-Objectives-Factors affecting Pricing decisions- Methods of Pricing in Services-Pricing Strategies. Service promotion-Promotion Mix for Services (in brief) Advertising-Sales Promotion-Personal Selling –Public Relations and Publicity-Direct Marketing.

Unit III

(15 Hours)

Place in services- Location- Channels-Designing a distribution System-Direct and Indirect Distribution-Franchising-Role of Customer in the Distribution System. People in services-Types of Service Personnel-Developing Customer Conscious Employees-Role of the Frontline Staff.

Unit IV

(16 Hours)

Bank Marketing-Concept-Justification-Behavioural Profile of users- Factors influencing the Behavioural Profile-Marketing Information System for banks- Importance of MIS to the banking organization-Market Segmentation-Marketing Mix for the Banking Organisations.

Unit V

(14 Hours)

Insurance Marketing-Concept-Users of Insurance Services - Behavioural Profile of Users-Marketing Segmentation-Marketing Information System-Marketing Mix.

Books for Study

1. Vasanti Venugopal & Raghu V.N, Services Marketing, Himalaya Publishing House, Mumbai, 2001 (For I, II, III Units)
2. S.M. Jha, Services Marketing, Himalaya Publishing House, Mumbai, 2008 (For IV & V Units)

Books for Reference

1. P.N. Reddy & Appannaiah, Services Marketing, Himalaya Publishing House, Mumbai, 2002
2. Anil Kumar & Nirmala B. Balaji, Services Marketing and Management, S. Chand & Co, New Delhi, 2006.

B.A. Economics

Semester IV

Part IV-Skill Based Course II-Management Information System 415ES2

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The aim of the course is to equip students with

- the knowledge of information systems adopted in office management
- to develop the skill in determining the information requirements and formulation of an information system plan.

Unit I

(9 Hours)

Management Information System: Meaning-Definition-Computer Based- User - Machine System-Integrated system- Need for a data base- Utilisation of Database-MIS and Decision Support Systems.

Unit II

(8 Hours)

Structure of MIS: Structure: Programmable decisions- Unstructured –Non-Programmable Decisions-Production Subsystem- Logistics Subsystem.

Unit III

(7 Hours)

Information Based Support System: Transaction Processing Support System- Operational Control- Management Control- Strategic Planning Support System.

Unit IV

(7 Hours)

Information System Requirements: Master Plan-Goals- Objectives- Architecture-Current Capabilities- Forecast of developments affecting the plan- Maintenance of the Master Plan.

Unit V

(7 Hours)

Implementation of Management Information System: Meaning- Theories of Organisational change- The Change Agent- Mechanisms for Successful Implementation-Socio-Technical Approach to System Design and Implementation

Book for Study:

1. Gordon B. Davis & Margrethe H.Olson , Management Information Systems, Conceptual Foundations, Structure and Development, Tata Mc-Graw Hill Publishing Co., Delhi, 2007

Books for Reference:

1. Jawa Dekar (Wamans), Management Information Systems, I Edition, Tata Mc-Graw Hill Publishing Company, New Delhi, 2013.
2. Gagan Varshini & Others, Management Information System, Global Book Publishing Company, Coimbatore, 2011

B.A. Economics

Semester V

Part III – Core IX – Macro Economics

515E09

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course is designed to

- ❖ make the students aware of the basic theoretical framework underlying the field of macro economics
- ❖ expose the students to macroeconomic aspects in Keynesian and Post- Keynesian Economics

Unit I

(15 Hours)

Definition, Nature and Scope of Macro Economics- Circular Flow of Income, Closed Economy Model- Open Economy Model- Importance of Circular flow of Income- National Income- Concepts, Measurement- Difficulties in Measurement of National Income - Uses of National Income analysis- Social Accounting- Various forms of Social Accounting and their uses

Unit II

(15 Hours)

Classical Theory of Employment: Say's Law of Market-Pigou's wage cut policy- Keynesian Theory of Employment. Effective Demand- Under employment equilibrium. Difference between Classical Theory of Employment and Keynes Theory of Employment

Unit III

(15 Hours)

Consumption Function- Average and Marginal Propensity to Consume- Determinants of Consumption Function - Keynes's Psychological Law of Consumption Function- Absolute Income Hypothesis-Duesenberry's Relative Income Hypothesis-Friedman's Permanent Income Hypothesis- Modigliani Life Cycle Hypothesis.

Unit IV

(15 Hours)

Savings- Determinants of Saving- Investment Function- Types of Investment- Determinants of Investment. Marginal Efficiency of Capital and Rate of Interest(only Liquidity Preference Theory of Interest)- Saving and Investment equality- Classical Approach- Keynesian Approach – Multiplier- Working and Leakages- Principle of Acceleration- Super Multiplier.

Unit V

(15 Hours)

Post- Keynesian Macro Analysis- Contribution of Hicks and Hansen- IS LM function- Primary and Secondary – Objectives of General Macroeconomic Policy- Supply – Side economics.

Book for Study:

1. R. Cauvery & Others, Macro Economics, S. Chand & Company Ltd. New Delhi, 2004

Books for Reference:

1. M.L. Jhingan, Macro Economic Theory, Vrinda Publications, (P) Ltd. New Delhi, 2011
2. S. Sankaran, Macro Economics, Margham Publications, Chennai, 2004.

B.A. Economics
Semester V
Part III – Core X – Monetary Economics **515E10**
(For the students admitted from the academic year 2015-2016 onwards)
Credits: 4 **Hours: 75**

Preamble:

The course aims at

- ❖ understanding the role of money, theories of money and how money is managed in modern economy.

Unit I (15 Hours)

Money- Definition- Kinds- Functions- Merits and Demerits - Monetary Standards- Monometallism and Bimetallism- Gold Standard – Causes for the breakdown of Gold Standard - Paper Standard- Principles and methods of Note Issue.

Unit II (15 Hours)

Theories of Money- Fisher Quantity theory of money- Cambridge version of Quantity- Reformulation of Keynes theory of money and prices– Friedman’s Restatement of Quantity theory of money.

Unit III (15 Hours)

Inflation – Meaning – definition – causes - types - control. Deflation - control- Business cycles- meaning- phases- types- Monetary theories of Trade Cycles.

Unit IV (15 Hours)

Banking- Meaning - Kinds - Commercial Banks – Functions - Central Bank – Functions - Method of Credit Control- Money Market and Capital Market (a brief idea only)

Unit V (15 Hours)

Monetary Policy- Objectives and Tools - RBI and Monetary Policy – NBFI - Meaning- Types - Importance

Book for Study:

1. S. Sankaran, Monetary Economics, Margham Publications, Chennai, 2005.

Books for Reference:

1. M.L Jhingan, Monetary Economics, Konark Publishers Pvt., Ltd, New Delhi, 2010
2. Cauvery & others, Monetary Economics, S. Chand & Co. Ltd, New Delhi, 2012

B.A. Economics
Semester V
Part III – Core XI – Entrepreneurship Development **515E11**
(For the students admitted from the academic year 2015-2016 onwards)
Credits: 4 **Hours: 65**

Preamble:

The aim of the course is

- ❖ to develop an interest in entrepreneurial activity and
- ❖ to equip them with entrepreneurial skills for self – employment.

Unit I (13 Hours)
Entrepreneurship–Meaning and Definition–Importance–factors affecting entrepreneurial growth – Social, Economic and Environmental factors. Types and functions of an entrepreneur – Qualities of a successful entrepreneur.

Unit II (12 Hours)
Women Entrepreneurs: Concepts, functions and role of women entrepreneurs – Growth of women entrepreneurs, problems of women entrepreneurs – role of women entrepreneurs associations – Selection of Industry by women entrepreneurs. Types of Industries / Business suitable for women entrepreneurs – Rural women entrepreneurs.

Unit III (12 Hours)
Search for a business idea – Sources – Processing and selection – Selection of types of Organization – Project classification and identification – Project objectives – Internal and external constraints – Format for a report.

Unit IV (10 Hours)
Training and finance objectives of training – Phases of EDP – Special agencies for training – Institutional finance with special emphasis of commercial banks. IDBI, IFCI, ICICI, IRBI, SFCS, SISI, Khadi and Village Industries Commission - Types of incentives and subsidies (A Brief study)- Micro Finance.

Unit V (18 Hours)
Group Project

Books for Reference:

1. E. Gordon & K. Natarajan, Entrepreneurship Development, Himalaya Publishing House, New Delhi, 2005
2. S. Mohan & R. Elangovan, Current Trends in Entrepreneurship, Deep & Deep Publications Pvt, Ltd., New Delhi, 2006.
3. R. Saravanakumar, R. Parameswaran & T. Jayalakshmi, A Text book of Information Technology, S. Chand & Company Ltd., New Delhi, 2003
4. C.B. Gupta & Srinivasan, Entrepreneurial Development, Sultan Chand & Sons, New Delhi, 2003

B.A. Economics

Semester V

Part III – Core XII – Economics of Tourism

515E12

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is

- ❖ to create an understanding of the growing importance of the tourism industry in an economy
- ❖ to enlighten the students on the various opportunities in the tourism sector for self-employment

Unit I (13 Hours)

Meaning and Nature of Tourism- Definition of Tourist and Tourism-Motivation of Tourism- Basic Components of Tourism- Tourism Demand- Factors influencing Tourism Demand- Medical Tourism

Unit II (13 Hours)

Economic Benefits and Costs of Tourism- Impacts on Income, Employment and Output- Multiplier Effect- Trickle-down Effect- Infrastructure Development- Regional Development- Employment Generation – Balance of Payment- Role of Entrepreneurial activity.

Unit III (13 Hours)

The Role of State in Promoting Tourism- Role and Functions of a Travel Agency- Accommodation – Types- Definition of Hotel- Classifications- Supplementary Accommodation- Classifications.

Unit IV (13 Hours)

Environmental and Cultural Impacts of Tourism – Tourism and International understandings- Tourism Marketing: Definition- Tourism Product- Marketing Process and Functions- Peculiarities of Tourism Marketing.

Unit V (13 Hours)

“India as a Tourist Paradise”- Growth of Tourism in India- Tourist Administration in India- Sargeant Committee Report- The Role of ITDC in Tourism Development- Future of Tourism – World Tourism Organisation.

Books for Study:

1. A.K Bhatia, International Tourism- Fundamental and Practices, Sterling Publishers Pvt. Ltd. New Delhi, 2010
2. Sharma K.K, Tourism and Economic Development, Sarup & Sons, New Delhi, 2004

Books for Reference:

1. A.K Bhatia, Tourism Development – Principles and Practices, Sterling Publications Pvt, Ltd, New Delhi, 2010
2. Gulab Nabi, Socio Economic Impact of Tourism, Pioneer Publishers, Jaipur, 2000.
3. Badan B.S & Harish Bhatt, Tourism and Economic Development, Common Wealth Publishers, New Delhi, 2008.

B.A. Economics

Semester V

Part III - Elective I - Principles of Insurance 515EE1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims to

- ❖ provide knowledge to basic concepts and importance of Insurance
- ❖ impart knowledge on the various insurance legislations

Unit I (13 Hours)

Risk and Insurance: Risk –Meaning, Definition, and Classification of Risk. Insurance Meaning, Definition, Nature, Functions, Principles of Insurance, Importance of Insurance, Terms used in Insurance

Unit II (13 Hours)

Types of Insurance: Life Insurance: Kinds of Life Insurance-Non Life Insurance: Kinds of Non-Life Insurance

Unit III (13 Hours)

Insurance Document: Introduction –Proposal Form –Policy Form-Cover Note-Certificate of Insurance – Endorsement –Cancellation

Unit IV (13 Hours)

Insurance Legislation in India: The Insurance Act 1938 – Life Insurance Act 1956 – General Insurance Corporation of India – Insurance Regulatory and Development Authority of India and its functions

Unit V (13 Hours)

Insurance Intermediaries: Introduction-Insurance Broker-Functions of Broker-Insurance Agents-Duties of Agents –Surveyors and Loss Assessors –Functions –Third Party Administrator-Code of Conduct.

Books for Study:

1. Karam Pal, B.S.Bodla & M.C. Garg, Insurance Management, Principles and Practices, Deep and Deep Publications Pvt. Ltd., Delhi, 2007. (For Unit I, II, IV, V)
2. Insurance Institute of India, Practice of General Insurance, 2004 (For Unit III)

Book for Reference

1. P. Periasamy, Principles and Practice of Insurance, Himalaya Publishing House, Mumbai, 2005.

B.A. Economics

Semester V

Part IV-Skill Based Course III - Computer Applications in Business 515ES3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The course covers the essential skills for using all the programs separately and as a team

- it equips the students to develop their own application using Graphical user Interface.
- to learn Power Point Presentation Graphics Program.
- knowledge of Microsoft Access as Database Management System to organizing staggering information about personal and business life.

List of Practical:

MS Word (10 Hours)

1. Type a paragraph and perform the following changes:
Font Size, Font style, Line spacing, Page setup (margin) , Text color, Center heading
Under line a text, Bullets/numbering, Alignment (Justify, centre, left, right)
2. Type a document and perform the following:
Insert header, Find and replace, Cut, copy and paste, Change case
3. Prepare an advertisement for a product
4. Send an application to many companies for suitable job using mail merge option

MS Excel (9 Hours)

5. Prepare Payroll for employee
6. Draw a Chart using Excel with the details : Student Name and Marks of 5 subjects

MS Power point (9 Hours)

7. Design a Sports Day Invitation and prepare Slides describing various events in Power Point.

8. Display various departments and courses offered in our college using Power point
MS Access (10 Hours)
9. Create a database for Employee Details and generate a report for Pay Slip using MS Access
10. Create a database for Customer Information and generates a report with the customer name in ascending order.

Books for Study:

1. R. Parameswaran, Computer Application in Business, S.Chand & Company Ltd., New Delhi, 2012
2. Sanjay Saxena, MS Office 2007 in a Nutshell, Vikas Publishing House, New Delhi, 2013

Book for Reference:

1. Ron Mansfield, Working in Microsoft Office, Tata McGraw Hill Publishing Co. Ltd, Delhi, 2005.

B.A. Economics

Semester VI

Part III – Core XV – Indian Economic Development

615E15

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course enables the students

- ❖ to have an essential understanding of various issues of the Indian Economy
- ❖ to have the ability to comprehend & critically appraise the current Indian economic problems

Unit I

(13 Hours)

Characteristics of Indian Economy as a Developing Economy – Problems of Economic Development - Poverty – Causes, Measures to Eradicate Poverty, Poverty Alleviation Programmes- Unemployment – Types, Causes, Nature and Extent, Government Policy for removing Unemployment.

Unit II

(13 Hours)

Capital Formation, Meaning, Importance, Sources, Reasons for low Capital Formation, Measures for increasing Capital Formation – Human Capital Formation in India- Causes for rise in prices in India- Control of Inflation in India.

Unit III

(11 Hours)

Role of Industrialization – Industrial Policies of 1956, 1980 and 1991 –Role and Importance of Small Scale Industries – Industrial Sickness in India – Causes, Consequences and Remedial Measures - Features of Indian Industrial Labour - Social Security Measures in India.

Unit IV

(13 Hours)

Service Sector - Meaning, Importance, Growth of Service Sector – Contribution to GDP- IT Sector – Software Sector – Research and Development in India – India's Space achievements – ISRO – Functions.

Unit V

(15 Hours)

Importance of Foreign Trade for a Developing Economy - India's Foreign Trade, Volume Value, Composition and Direction – Foreign Capital, Need, Forms, Government's Policy towards Foreign Capital – Foreign Exchange Reserves - Brief Study on the Policies of Liberalisation, Privatisation and Globalisation.

Books for Study:

1. Ruddar Dutt & K.P.M Sundaram, Indian Economy, S. Chand & Co. Ltd., Delhi, 2014

Books for Reference:

1. S.K Misra & V.K. Puri, Indian Economy, Its Development Experience, Himalaya Publishing House, Mumbai, 2014
2. Ishwar D. Dhingra, Indian Economy, S. Chand & Co., Delhi, 2010
3. S. Sankaran, Indian Economy, Margham Publications, Chennai, 2014

B.A. Economics**Semester VI****Part III - Elective II – Banking Practices****615EE2****(For the students admitted from the academic year 2015-2016 onwards)****Credits: 4****Hours: 75****Preamble:**

This course aims to

- ❖ provide basic knowledge about the importance and functions of commercial banks
- ❖ acquire practical knowledge and skills in banking transactions

Unit I**(15 Hours)**

Definition of a Banker and Customer – General relationship – Special relationship – Banking services.

Unit II**(15 Hours)**

Deposit accounts –Types: Saving Bank A/C, Current A/C, Fixed Deposit A/C, RD A/C, Non Resident A/C, Foreign Currency (non-resident) A/C – Opening and Operation of deposit account.

Unit III**(15 Hours)**

Negotiable Instruments –Cheque - Bill of Exchange – Promissory Note - Crossing of Cheque –Endorsement.

Unit IV**(15 Hours)**

Principles of sound lending – loans and advances –Modes of creating charge-Pledge - Hypothecation – Mortgages

Unit V**(15 Hours)**

E-Banking: Meaning-Services-Internet Banking-Services-Merits and Demerits-Phone Banking: Meaning, Features, Merits and Demerits-Mobile Banking: Meaning, Features and Services-ATM -Meaning, Features and Services-Debit Card and Credit Card.

Books for Study:

1. E. Gordon & K. Natarajan, Banking Theory –Law & Practice, Himalaya Publishing House, Bombay, 2005
2. S. Gurusamy, Banking Theory –Law & Practice Tata McGraw Hill Ltd., Delhi, 2009.

Books for Reference:

1. P.N. Varshney, Banking Law and Practice, Sultan Chand & Sons Delhi, 2012
2. Gulsan & K. Kapoor, Banking Law and Practice, Sultan Chand & Co Ltd., Delhi, 2010

B.A. Economics

Semester VI

Part III – Elective III – Retail Business Management

615EE3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course aims to know

- ❖ the essential aspects of retail management.

Unit I

(15 Hours)

Retailing – Meaning – Functions – Classifications – Merchandising – Concept – Factors affecting Buying Function – Role and Responsibilities of Merchandiser.

Unit II

(16 Hours)

Role of Retail Marketing – Retail Marketing Mix – STP Approach – Role of Technology in Retail – Importance of IT in Retail – Factors affecting the use of Technology – Application of Technology in Retail – Electronic Data Interchange, Internet retailing – Mobile Commerce.

Unit III

(15 Hours)

Retail Pricing – Concept – Elements – Price Determination – Strategies – Supply Chain Management – Need – Evolution.

Unit IV

(16 Hours)

Retail Store – Meaning – Responsibilities of Store Managers. Retail Location – Types – Steps in choosing a Retail Location. Store Design – Principles – Elements: Exterior and Interior

Unit V

(13 Hours)

Practical – Field Visit – Report Preparation

B.A. Economics

Semester VI

Part IV - Skill Based Course IV– Computerized Tally – Practical

615ES4

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The objective of the course is

- ❖ to familiarize the students with accounting skills using tally software.

List of Practical:

1. Company creation, Enabling Accounting Features
2. Pre-defined groups
3. Creation and Alteration of New Groups (Single and Multiple)
4. Creation and Alteration of Ledger (Single and Multiple)
5. Creation and Alteration of Cost categories and Cost centre
6. Accounting Vouchers (Payment, Receipt, Contra, Journal)
7. Altering Inventory Features
8. Creation and Alteration of Stock Group (Single and Multiple)
9. Creation and Alteration of Stock Category (Single and Multiple)
10. Creation and Alteration of Units of Measure

11. Creation and Alteration of Stock Item (Single and Multiple)
12. Creation and Alteration of Godown
13. Display of Stock summary
14. Accounting Voucher (Purchase, Sales)
15. Display of Books, Trial Balance, Profit and Loss Account and Balance Sheet

Books for Study:

1. Namrata Agarwal and Sanjay Kumar, Financial Accounting on Computers using Tally, Dreamtech Press, New Delhi, 2010
2. Vishnu Priya Singh, Tally up to 9 Release 3.0 with CD, Computech Publishers, 2009.

Post Graduate & Research Department of Economics
Scheme of Examination – CBCS Pattern
Programme: M.A. Economics
(For the Students admitted from the academic year 2017-2018 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
17ME01	Core I – Advanced Micro Economics	6	3	25	75	100	4
17ME02	Core II – Mathematical Techniques for Economic Analysis	6	3	25	75	100	4
17ME03	Core III - Research Methodology in Economics	6	3	25	75	100	4
17ME04	Core IV - Human Resource Management	4	3	25	75	100	4
17ME05	Core V - Management of Small Business	4	3	25	75	100	4
17MEE1/ 17MEE2	Elective I- Soft Skills / Industrial Economics	4	3	25	75	100	4
Semester II							
17ME06	Core VI- Advanced Macro Economics	6	3	25	75	100	4
17ME07	Core VII-Public Economics	6	3	25	75	100	4
17ME08	Core VIII- Economics of Human Resources	6	3	25	75	100	4
17ME09	Core IX- Econometrics	6	3	25	75	100	4
17MEE3/ 17MEE4	Elective II- Women in Development / Gender and Development	6	3	25	75	100	4
17MEIS	Internship	-	-	50	-	50	2
17MGCS	Cyber Security - Level I	2	2	50	-	Grade	Grade
17MEA1	Advanced Learners Course I– Subject Viva Voce	-	-	-	100	100	4*
Semester III							
17ME10	Core X- Economics of Money and Financial Institutions	6	3	25	75	100	4
17ME11	Core XI-Operations Research	6	3	25	75	100	4
17ME12	Core XII-Economics of Growth and Development	6	3	25	75	100	4
17ME13	Core XIII – Statistical Techniques for Economic Analysis	6	3	25	75	100	4

17MEE5/ 17MEE6	Elective III- Computer Application Techniques- Practical / Labour Economics	6	3	40/25	60/75	100	4
Semester IV							
17ME14	Core XIV - Export Procedures and Documentation	6	3	25	75	100	4
17ME15	Core XV- Environmental Economics	6	3	25	75	100	4
17ME16	Core XVI – Statistical Packages for Data Analysis - Practical	6	3	40	60	100	4
17MEE7/ 17MEE8	Elective IV- Health Economics /Marketing Management	6	3	25	75	100	4
17MEPV	Project and Viva Voce	6	-	-	200	200	8
17MEA2	Advanced Learners Course –II Subject Viva Voce	-	-	-	100	100	4*
TOTAL						2250	90

M.A. Economics Semester I

Core II - Mathematical Techniques for Economic Analysis 17ME02 (For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

The content of the course is designed

- ❖ to acquaint the students with economic concepts in mathematical format.
- ❖ to train the students to use the techniques of mathematical analysis which are commonly applied to understand and analyse economic problems.
- ❖ to develop an aptitude towards quantitative analysis of economic phenomenon.

Unit I (15 Hours)

Derivatives and their interpretation: Rules of differentiation. Economic Applications- Elasticity of Demand, AR and MR, Profit Maximization and Cost Minimization

Unit II (15 Hours)

Partial Derivatives: Technique of Partial differentiation, Partial Derivatives of Second Order, Cross Partial Derivatives. Application of Partial Derivatives in Economics - Demand Analysis, Utility Analysis and Production Analysis.

Unit III (15 Hours)

Maxima and Minima of a function of one variable and two variable – Optimal values and Extreme values- Lagrangian Multiplier – Homogeneous Function and their properties – Euler's Theorem.

Unit IV (15 Hours)

Integration – Indefinite Integration – Definite Integrals – Economic applications of Integration – Total function from marginal function – Consumer's surplus – Producer's surplus.

Unit V (15 Hours)

Matrix Algebra - Transpose of a Matrix - Determinants - Rank of a matrix – Inverse of a matrix (3 x 3) and Cramer's Rule.

Note: Theory carries 25 marks and problems carry 50 marks.

Book for Study:

1. Mehta & Madnani, Mathematics for Economists, Sultan Chand & Sons, New Delhi, 2016
2. D. Bose, An Introduction to Mathematical Economics, Himalaya Publishing House, Mumbai, 2015.

M.A. Economics

Semester I

Elective I - Soft Skills

17MEE1

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 52

Course Objectives:

- ❖ To develop and use soft skills for effective performance in today's environment.
- ❖ To help the students to learn and improve the art of Group Discussion and preparatory steps for interview.
- ❖ To equip the students to face the competitive examinations and placements.

Unit I (10 Hours)

Soft Skills: Meaning, Importance, Characteristics, Soft Skills Training – Practicing Soft Skills. Life Skills: Attitude: Meaning – Features – Formation of Attitude – Positive Attitude: Benefits – Developing Positive Attitude – Obstacles – Staying Positive. Communication: Definition – Process – Channels – Importance - Barriers – Overcoming Barriers.

Unit II (11 Hours)

Communication Skills: Art of Listening – Kinds of Listening – Poor Listening Habits – Advantages of Active Listening. Speaking Skills: Benefits. Art of Writing: Importance – Writing Tips – Drawbacks of Written Communication. E-mail etiquette: Need – Rules.

Unit III (11 Hours)

Group Discussion: Meaning – Need – Characters Tested in GD – Types – Consequences – Behaviour in a GD – Do's and Don'ts.

Interview Skills: Meaning – Types – Traits Tested – Types of Questions asked - Reasons for Selecting or Rejecting a Candidate – Do's: On the day of Interview – On the Interview Table – Don'ts.

Preparing CV/ Resume: Meaning – Purpose – Types of Resumes – CV Writing Tips – Do's and Don'ts.

Unit IV (10 Hours)

Body Language – Meaning – Forms – Uses – Interpreting Body Language – Developing Confidence with correct Body Language. Etiquette: Benefits – Classification: Personal – Business Meeting – Social – Interview – Telephone interview – Professional – Work etiquettes.

Unit V (10 Hours)

Time Management: The 80:20 rule – Sense of Time Management – Feature - Secrets of Time Management - Time Management Matrix – Steps for successful Time Management – Difficulties.

Stress Management: Meaning – Effects of Stress – Kinds of Stress – Sources – Stress management tips.

Books for Reference:

1. Alex. K. Soft Skills- Know yourself and know the world, S. Chand & Company Pvt. Ltd, New Delhi, 2014.
2. Hariharan. S, Sundararajan. N & Shanmugapriya S.P. Soft Skills, MJP Publishers, Chennai, 2010.

M.A. Economics

Semester II

Core IX- Econometrics

17ME09

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

The course aims at

- ❖ developing understanding of economic relationships and statistical methods relevant for the analysis of this relationship.
- ❖ enhancing the skills of students for taking up research in economics.

Unit I (15 Hours)

Definition, Scope and Division of Econometrics- Methodology of Econometric research- Specification and estimation of the model- Evaluation of the parameter estimates-Desirable properties of an econometric model.

Unit II (15 Hours)

The Simple Linear Regression Model – assumptions – Least Squares criterion and the normal equations of OLS – Properties of the least square estimates.

Unit III (15 Hours)

Multiple Regression – Model with two explanatory variables – linear and non-linear relationship – Semilog, Double log, Inverse and Polynomial forms.

Unit IV (15 Hours)

Auto Correlation – Meaning - Causes – Consequences – Test for Auto Correlation. Multicollinearity – Meaning – Causes – Consequences – Test for Multicollinearity- Heteroscedasticity.

Unit V (15 Hours)

Lagged Variables and distributed lag models – Almon, Koyck, Nerlove and Cagan Models. Simultaneous equation models – Structural, Reduced and Recursive models.

Note: Only theory questions to be asked from all the units

Books for Reference:-

1. Dhanasekaran. K, Econometrics, Vrinda Publications (P) Ltd, Delhi, 2011.
2. Koutsoyiannis. A, Econometrics, The Macmillan Press Ltd, London, 1997.
3. Damodar N. Gujarati, Basic Econometrics, McGraw-Hill Singapore, 2009.

M.A. Economics

Semester III

Core XI - Operations Research

17ME11

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

The course helps the student

- ❖ to gain knowledge of appropriate basic quantitative techniques
- ❖ to develop skills in economic management problems

Unit I

(15 Hours)

Operations Research -Meaning – Definition–Methodology of Operations Research – Scope of Operations Research- Techniques of Operations Research- Limitations of Operations Research.

Unit II

(15 Hours)

Linear Programming – Definition- Basic concepts of Linear Programming – Mathematical formulation of the problem-Graphical method of solving LPP- Simplex method (two variables only).

Unit III

(15 Hours)

Transportation– Definition-Solution of Transportation problems–Methods of Transportation problems- Test of Optimality (UV method). Assignment problems –Solution of assignment problem (Hungarian Method).

Unit IV

(15 Hours)

Game Theory – Meaning- Significance of game theory – Essential features of game theory – Limitations of game theory- pay off matrix – Two persons zero sum game. Pure strategy– Saddle point – mixed strategy – odds method, dominance method and sub-games method.

Unit V

(15 Hours)

Inventory Control-type of Inventories-Variables-Inventory Cost-Classification of Inventory Models-Selective Inventory Control (ABC Analysis) -Economic Order Quantity Models: Instantaneous Replenishment without Shortages-Instantaneous Replenishment with Shortages (Problems only).

Note: Theory carries 25 marks and problems carry 50 marks.

Book for Study:

1. Naidu N.V. R. and others, Operations Research, International Publishing House Pvt. Ltd., New Delhi, 2011.

Book for Reference:

1. Kanti Swarup Gupta P.K, Operations Research, Sultan Chand & Sons, New Delhi, 2015.

M.A. Economics**Semester III****Core XIII – Statistical Techniques for Economic Analysis 17ME13**

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

The objectives of this course are to

- ❖ create the necessary ground for developing modern techniques in research.
- ❖ train the students to compute statistical parameters and data analysis through statistical packages.

Unit I (15 Hours)

Theoretical Distributions: Binomial – properties, fitting a Binomial Distribution; Poisson Distribution–Constants – fitting a Poisson Distribution; Normal distribution – Properties, Area under Normal curve, fitting a Normal Curve.

Unit II (15 Hours)

Measures of Location: Arithmetic Mean, Median, Mode. Measures of Dispersion: Standard Deviation – Coefficient of Variation - Mean Deviation.

Unit III (15 Hours)

Simple Correlation – Multiple Correlation – Simple Linear Regression Analysis – Regression with Two Variables.

Unit IV (15 Hours)

Trend Analysis: Forecasting through Time Series Analysis. Analysis of Variance: One way and Two way Classification.

Unit V (15 Hours)

Testing of Hypothesis – Student's 't' test (Simple and Paired) - 'Z' test - 'F' test – Chi Square test for Goodness of fit.

Note: Theory carries 25 marks and problems carry 50 marks.

Book for Reference

S.P Gupta: Statistical Methods, Sultan Chand & Sons, New Delhi, 2016.

M.A. Economics**Semester III****Elective III – Computer Application Techniques – Practical 17MEE5**

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

The course helps

- ❖ to provide conceptual understanding of the image editing, graphics and designing tools.
- ❖ to enhance the employable skills in computer applications.

List of Programs:**Image Editing Tool:**

1. Design a Flower shop advertisement using 3D text.
2. Create different layer effects.
3. Design a student identity card.

Graphics Tool:

4. Create a program using Drawing Tools (Scenery, Train, Car, Bus, Computer, Hut)
5. Create a logo using Corel Draw.
6. Create an invitation for college day/Sports day
7. Create a Greeting card (Birthday, Mother's day, Pongal, Diwali).
8. Create a Visiting Card.

Image Designing Tool:

9. Create an advertisement to work with Layers.
10. Create a program using Drawing Tools (Train, Computer, Doll, Car)
11. Create a program Newsletter using Text tools.
12. Create a program to import images and align the images.
13. Create a program for Transformation of an object.
14. Create a program to work with Frames (Advertisement, Banners, Flex)
15. Design a pamphlet using 4 fold templates.
16. Create a program for masking a picture.
17. Design a certificate (Functions, state level, national level championship).
18. Create a front page design for books.
19. Create a pamphlet for college prospectus.

M.A. Economics**Semester IV****Core XVI – Statistical Packages for Data Analysis - Practical 17ME16****(For the students admitted from the academic year 2017-2018 onwards)****Credits: 4****Hours: 75****Course Objectives:**

The course is designed to

- ❖ create the necessary ground for developing modern techniques in research.
- ❖ train the students to compute statistical parameters and data analysis through statistical packages.

Unit I**(15 Hours)**

An overview of SPSS – creating new data file – opening a data file - data entry – inset rows – insert columns – editing data – assigning variable names and value labels – Merging data files: adding cases – add variables.

Unit II**(15 Hours)**

Frequencies – Descriptive Statistics. Managing Data: Listing cases, replacing missing values, computing new variables, recording variables, exploring data, selecting cases, sorting cases, merging files.

Unit III (15 Hours)

Cross Tabulation and Chi-Square Analysis – Descriptive Statistics: Measures of Central Tendency - means - procedure – Data Transformations: Computing values – calculator- bad functions – conditional expressions. Recoding values – recode into same variable – recode into different variables. Charts – Bar, line and pie.

Unit IV (15 Hours)

Bivariate Correlation: Partial Correlations and the correlation matrix– t test procedure: Independent –samples, paired samples, and one sample tests.

Unit V (15 Hours)

One way ANOVA procedure: One way analysis of variance - Simple Linear Regression - Multiple Regression analysis.

Books for Reference:

1. Dhanasekaran. K, Computer Applications in Economics –Vrinda Publications, 2013
2. Rajathi A & Chandran, P, SPSS for You, MJP, Publishers, Chennai, 2010
3. Cunningham J.B & James O. Aldrich, Using SPSS – An Interactive hands-on Approach, Sage Publications, New Delhi, 2012
4. Gupta & Hitesh Gupta, SPSS 17.0 for Researchers, International Book House Pvt. Ltd., Mumbai, 2011

M.A. Economics

Semester I

Core V– Management of Small Business 17ME05

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 52

Course Objectives:

The course would equip the students with

- ❖ organization skills in the setting up and managing of the various aspects of a small business unit.
- ❖ entrepreneurial skill and business communicative skills.

Unit I (12 Hours)

Definition, classification of a small scale industry. Forms of organization: sole – proprietorship, partnership, joint – stock companies and co–operatives, line organization and functional organization. Old business, New Business and Franchise.

Unit II (10 Hours)

Procedural aspects: Rules and regulations governing a small scale industry, Taxation benefits and incentives for the promotion of small scale industries. Project classification and identification. Project objectives, Constraints and Format for a report.

Unit III (10 Hours)

Institutional assistance to small scale industry: need for institutional support, Institutions supporting and assisting small scale industries: SIDCO, DIC, NSIC, SFC, SIDBI, IFCI, IDBI, EXIM, Women Entrepreneurs: Type of Industries suitable for women entrepreneurs.

Unit IV (10 Hours)

Production Planning: Production Channel and Control, Methods of Marketing, Incentives and subsidies schemes available for export.

Unit V (10 Hours)

Business Correspondence: Banking, Insurance, Agency. Drafting the structure of business letters, Sales and Trade letters and Electronic Communication methods.

Books for Reference:

1. Vasant Desai, Management of a Small Scale Industry, Himalaya Publishing House, Delhi, 2015.
2. Bhawna Bhatnagar & Ankur Budhiraja, Entrepreneurship Development & Small Business Management, Vayu Education of India, New Delhi, 2011.
3. Ruddar Dutt & K. M. Sundaram, Indian Economy, S. Chand & Co., Ltd., Delhi, 2016

M.A. Economics

Semester IV

Core XIV - Export Procedures and Documentation 17ME14

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 75

Course Objectives:

The course is designed

- ❖ to familiarize the students with the procedures of export trade and
- ❖ to expose them with the procedures of export documentation.

Unit I (15 Hours)

Export – Types of exports – organizing exports – starting an export business – processing an export order – Labelling, Packaging, Packing and Marking of Export Consignments.

Unit II (15 Hours)

Indian Laws relating to Export Trade – Transportation and Shipment of goods for export – Quality Control and pre – shipment inspection – Central Excise Clearance of goods for export.

Unit III (15 Hours)

Export Documentation – Master Documents I and II – Marine and Air Cargo Insurance – Documents relating to payment, Letter of Credit, Bill of Exchange, Trust Receipt, Letter of Hypothecation and Bank's Certificate for Payment – Documentation practices in India – Need for preparing export documents in India.

Unit IV (15 Hours)

Export Finance – importance – methods – pre shipment and post shipment – sources, short, medium and long term – methods of payment to exports – Role and functions of EXIM Bank of India and Export Credit Guarantee Corporation of India.

Unit V (15 Hours)

Export Pricing– objectives – importance – price and non – price factors in pricing decisions - Methods of pricing. Export policy - the pre - reform period. – An overall view of export promotion policies – critical evaluation of export policy – New Trade policy, the reform period – critical evaluation of the New Trade Policy. Special Economic Zones – New Export – Import Policy 2010– 2011.

Books for Reference:

1. Kapoor. D.C, Export Management, Vikas Publishing House, New Delhi, 2013.
2. Kathiresan. S and Radha. V, Export Management, Prasanna Publishers, Chennai, 2012.
3. Balagopal T.A.S, Export Management, Himalaya Publishing House, Delhi, 2014.
4. Misra and Puri, Indian Economy, Himalaya Publishing House, New Delhi, 2015.

M.A. Economics**Semester II****Credits: 2****Internship****17MEIS****(For the students admitted from the academic year 2017-2018 onwards)**

The student shall undergo the Institutional Training in any small scale industry for two weeks. A report submitted by the student on the completion of the training would be subject to Internal Evaluation with 25 marks for report and 25 marks for viva voce.

(2016-17)

CURRICULUM DESIGN

Sri G.V.G. Visalakshi College for Women (Autonomous), Udumalpet

Affiliated to Bharathiar University

Post Graduate & Research Department of Economics

Scheme of Examination – CBCS Pattern

Programme - B.A. Economics

(For the Students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
115TA1/ 115MY1/ 115HD1/ 115FR1/ 115EN1	Part I – Language I	6	3	25	75	100	4
	Part II – English I	6	3	25	75	100	4
	Part III						
115E01	Core I - Micro Economics I	5	3	25	75	100	4
115E02	Core II - Agricultural Economics	5	3	25	75	100	4
115AE1	Allied I - Principles of Management	6	3	25	75	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
	Semester II						
215TA2/ 215MY2/ 215HD2/ 215FR2/ 215EN2	Part I – Language II	6	3	25	75	100	4
	Part II – English II	6	3	25	75	100	4

	Part III						
215E03	Core III–Micro Economics II	5	3	25	75	100	4
215E04	Core IV – Demography	5	3	25	75	100	4
215AE2	Allied II – Statistics	6	3	25	75	100	4
215VEC	Part IV – Value Education	2	2	50	-	50	2
	Semester III						
315TA3/ 315MY3/ 315HD3/ 315FR3/ 315EN3	Part I – Language III	6	3	25	75	100	4
	Part II – English III	6	3	25	75	100	4
	Part III						
315E05	Core V– Economics of Investment Management	4	3	25	75	100	4
315E06	Core VI – Economics of Marketing	3	3	25	50	75	3
315AE3	Allied III – Mathematical Methods	6	3	25	75	100	4
315ES1	Part IV						
	Skill Based Course I – Communication Skills for Business	3	3	75	-	75	3
315NCM	Non Major Elective Course I – Consumerism	2	2	50	-	50	2
	Semester IV						
415TA4/ 415MY4/ 415HD4/ 415FR4 415EN4	Part I – Language III	6	3	25	75	100	4
	Part II – English III	6	3	25	75	100	4
	Part III						
415E07	Core VII – Urban Economics	4	3	25	75	100	4
415E08	Core VIII – Economic Doctrines	3	3	25	50	75	3
415AE4	Allied IV – Services Marketing	6	3	25	75	100	4
	Part IV						
415ES2	Skill Based Course II – Management Information System	3	3	75	-	75	3
415NGA	Non Major Elective Course II						

415GIS	General Awareness (Online)	-	1	50	-	50	2
415EX1/ 415EX2/ 414EX4/ 414EX5	Information Security	2	2	50	-	Grade	Grade
415ALE	Part V - Extension	-	-	50	-	50	2
	ALC I - Subject Viva Voce	-	-	-	100	100	4*
Semester V							
Part III							
515E09	Core IX –Macro Economics	6	3	25	75	100	4
515E10	Core X–Monetary Economics	6	3	25	75	100	4
515E11	Core XI – Entrepreneurship Development	5	3	25	75	100	4
515E12	Core XII – Economics of Tourism	5	3	25	75	100	4
515EE1	Elective I – Principles of Insurance	5	3	25	75	100	4
Part IV							
515ES3	Skill Based Course III – Computer Applications in Business - Practical	3	3	75	-	75	3
Semester VI							
Part III							
615E13	Core XIII–Fiscal Economics	6	3	25	75	100	4
615E14	Core XIV – International Economics	5	3	25	75	100	4
615E15	Core XV– Indian Economic Development	5	3	25	75	100	4
615EE2	Elective II – Banking Practices	5	3	25	75	100	4
615EE3	Elective III – Retail Business Management	6	3	25	75	100	4
Part IV							
615ES4	Skill Based Course IV – Tally Accounting Programme - Practical	3	3	75	-	75	3
615EX3	Part V - Extension	-	-	50	-	50	2
615ALE	ALC II - Subject Viva Voce	-	-	-	100	100	4*
TOTAL						3500	140

Starred Credits are treated as additional credits which are optional.

B.A. Economics

Semester I

Part III – Core I – Micro Economics I

115E01

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is to

- ❖ equip the students with the basic tools and methods of economic analysis.
- ❖ understand the behaviour of economic agents as a consumer and producer

Unit I: Nature, Scope and Methods of Economics

(13 Hours)

Introduction: Nature and Scope of Economics - Definitions of Economics - Wealth, Welfare, Scarcity and Growth-Principles of Economics- Distinction between Micro and Macro Economics - Inductive and Deductive methods - Static and Dynamic Analysis - Partial and General Equilibrium.

Unit II: Law of Demand and Elasticity of Demand

(13 Hours)

Theory of Demand - Cardinal approach to Consumption Analysis - Law of Diminishing Marginal Utility - Law of Equi- Marginal Utility - Law of Demand – Exceptional Curves - Determinants of Demand - Elasticity of Demand - Types and Degrees – Measurement-Factors influencing Elasticity of Demand.

Unit III: Indifference Curve Analysis and Consumer's Equilibrium

(13 Hours)

Theory of Consumption - Ordinal approach to Consumption Analysis - Indifference Curve Analysis - Scale of Preference - Indifference Curves- Properties - Marginal Rate of Substitution - Consumer's Equilibrium - Income, Price and Substitution effects - Consumer's Surplus.

Unit IV: Factors of Production and Supply

(13 Hours)

Factors of Production: Characteristics of Land- Characteristics of Labour - Efficiency of Labour - Division of Labour - Characteristics of Capital - Characteristics of Organization- Elasticity of Supply - Factors affecting Elasticity of Supply.

Unit V: Theory of Production

(13 Hours)

Theory of Production: Production Function - Laws of Returns - Law of Variable Proportions - Returns to Scale - Producer's Equilibrium using Isoquants - Economies of Scale- Internal and External - Diseconomies.

Books for Study:

3. S. Sankaran, Micro Economics, Margham Publications, Madras, 2012.
4. Cauvery & others, Micro Economic Theory, S. Chand & Co. (P) Ltd., Delhi 2012

Books for Reference:

2. H.L Ahuja, Principles of Economics, S. Chand & Co, (P) Ltd., Delhi, 2003
3. M.L Jhingan, Micro Economics, Economic Analysis, S. Chand & Co., Delhi, 2003.

B.A. Economics

Semester I

Part III – Core II – Agricultural Economics

115E02

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is to equip the students with the

- ❖ importance of agriculture in an economy
- ❖ issues related to agricultural sector

Unit I

(13 Hours)

Introduction: Agriculture- Meaning- Importance of Agriculture- Agricultural in Indian Economy- Causes for low productivity in agriculture.

Unit II

(13 Hours)

Land Utilization in India- Agricultural Holdings- Sub- division and Fragmentation of Holdings- Effects. Cropping Pattern – Factors influencing Cropping Pattern.

Unit III

(13 Hours)

Agricultural Inputs- Irrigation – Types. HYV Seeds, Fertilizers and Manures, implements and machinery. Sources of Agricultural Finance. New Agricultural Strategy and Green Revolution- Effects. A Brief Note on Need for Second Green Revolution.

Unit IV

(13 Hours)

Post Green Revolution Developments-Contract Farming-Organic Farming –Precision Farming-Sustainable Agriculture-Food Security in India.

Unit V

(13 Hours)

Agriculture Marketing and Price- Defects of Agricultural Marketing-Measures taken to improve Agricultural Marketing (in brief) - Fluctuations in Agricultural Prices- Reasons-- Agricultural Price Policy in India- Public Distribution System- Objectives- Defects

Book for Study:

2. S. Sankaran, Agricultural Economy of India, Margham Publications, Chennai, 2012

Books for Reference:

3. Ruddar Dutt & K.P.M. Sundaram, Indian Economy, S. Chand & Co Ltd, New Delhi, 2012
4. S.K.Misra & Puri.V. Indian Economy- Its Development Experience, Himalaya Publishing House, Mumbai, 2012.

B.A. Economics

Semester I

Part III – Allied I – Principles of Management

115AE1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

This course endeavours to impart the basic knowledge of organizing and managing a firm in an efficient manner.

Unit I: Management and Manager

(15 Hours)

Management: Definition – Features – Functions – Importance - Administration and Management - Manager: Functions – Role – Responsibilities - Entrepreneur and Manager.

Unit II: Planning and Decision Making

(15 Hours)

Planning: Definition – Characteristics – Objectives - Advantages and Limitations - Steps in Planning Process - Management by Objectives (MBO) - Decision Making - Decision Making Process

Unit III: Organisation and Directing

(15 Hours)

Organisation: Functions – Nature – Importance - Classification of Organisation: Formal and Informal Organisation - Difference between Formal and Informal Organisation - Directing: Meaning and Principles.

Unit IV: Delegation and Decentralisation

(15 Hours)

Delegation: Elements – Principles – Types – Advantages - Problems. Decentralization – Advantages – Disadvantages - Departmentation: Need – Factors - Basis.

Unit V: Controlling and Co-ordination

(15 Hours)

Controlling – Steps - Requirements of Effective Control System – Features - Need – Advantages – Limitations - Coordination - Features – Importance – Types - Problems- Steps for effective Co-ordination.

Book for Study:

2. T. Ramasamy, Principles of Management, Himalaya Publishing House, Mumbai, 2010

Books for Reference:

2. P.C Tripathi & P.N Reddy, Principles of Management, Tata McGraw Hill Ltd., New Delhi, 2008
3. Dinkar Pagare, Principles of Management, Sultan Chand & Sons, Delhi, 2003

B.A. Economics**Semester II****Part III – Core III – Micro Economics II****215E03****(For the students admitted from the academic year 2015-2016 onwards)****Credits: 4****Hours: 65****Preamble:**

The course aims at

- ❖ equipping the students with the tools of economic analysis to deal with different economic phenomena
- ❖ imparting knowledge about the behaviour of economic agents namely producer and factor owner as price fluctuates in the market

Unit I: Cost and Revenue

(13 Hours)

Cost and Revenue: Concepts of Cost and Revenue- Average, Marginal and Total cost- Nature of short and long run average cost curves. Revenue: Average Revenue, Marginal Revenue, Total Revenue- Importance of Revenue Curves- Equilibrium of the firm under marginal conditions.

Unit II: Product Pricing in Perfect Competition and Monopoly

(13 Hours)

Structure of Market- Perfect Competition: Meaning- Price and Output determination in the short run and long run. Time Element- Monopoly: Meaning- Features- Price and Output

Determination- Price Discrimination and its degrees – Price Determination under Discriminating Monopoly- Dumping- Difference between Perfect competition and Monopoly

Unit III: Product Pricing in Monopolistic Competition and Oligopoly (13 Hours)

Monopolistic Competition: Meaning and Features- Equilibrium of the Firm- Group Equilibrium- Selling Costs - Oligopoly: Features- Kinked Demand Curve Model- Duopoly and Monopsony (Meaning only).

Unit IV: Factor Pricing: Rent and Wages (13 Hours)

Factor Pricing- Difference between factor pricing and commodity pricing- Marginal Productivity Theory. Ricardian Theory of Rent- Quasi Rent and Transfer Earnings- Modern Theory of Rent. Wages- Types - Theories of Wages- Backward sloping supply curve of labour.

Unit V: Factor Pricing: Interest and Profit (13 Hours)

Interest- Gross Interest and Net Interest- Loanable Fund Theory of Interest- Liquidity Preference Theory of Interest. Profit: Gross and Net Profits- Innovation and Risk Bearing Theories of Profit.

Book for Study:

3. S. Sankaran, Micro Economics, Margham Publications, Madras, 2012.
4. Cauvery & others, Micro Economic Theory, S. Chand & Co. (P) Ltd., Delhi 2012

Book for Reference:

3. M.L Jhingan, Micro Economics, Economic Analysis, S. Chand & Co., Delhi, 2012.
4. Lokanathan V, Principles of Economic Analysis, S. Chand & Co, New Delhi, 2012

B.A. Economics

Semester II

Part III – Core IV – Demography

215E04

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The content of the course aims to

- ❖ help the students to understand the inter-relationship between economic development and population.

Unit I (13 Hours)

Demography: Meaning, Scope and importance, Sources of Demographic Data: Census-meaning and characteristics, Vital Registration, Sample Survey. Growth of Population – Causes and its effects on Economic Development.

Unit II (13 Hours)

Theories of Population: Malthusian Theory of Population - New Malthusianism – Optimum Theory of Population – Comparison of Malthusian Theory with the Optimum Theory- Theory of Demographic Transition.

Unit III (13Hours)

Population Structure and Characteristics: Birth Rate, its trends and causes – Death Rate, its trends and causes – Trends in sex ratio, age structure, literacy rate, density – Demographic Dividend- Migration: Types of Migration – Brain drain.

Unit IV (13 Hours)
Urbanization: Meaning– Causes and Consequences of Urbanization – Suggested Urban Policy – Labour Force, Meaning - Levels of Labour Force Participation.

Unit V (13 Hours)
Government Policy for Population Control: Objectives – Measures – Population Policy of India – National Population Policy 2000 – Family Planning Programme and Progress in India- Drawbacks of Family Planning Programme – Suggestions for Effective Implementation.

Books for Study:

3. M.L.Jhingan, Bhatt & J.N. Desai, Demography, Vrinda Publications (P) Ltd, Delhi, 2011.
4. Asha A. Bhende & Tara Kanitkar, Principles of Population Studies, Himalaya Publishing House, Bombay, 1994

Books for Reference:

4. Ruddar Datt & Sundaram, Indian Economy, S. Chand & Co Ltd., Delhi, 2012.
5. A.N. Agarwal, Indian Economy (Problems of Development and Planning) New Age International (P) Ltd., New Delhi, 2006.

B.A. Economics

Semester II

Part III – Allied II – Statistics

215AE2

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

This course aims at imparting

- ❖ the knowledge of the various statistical tools
- ❖ application of the statistical tools for solving economic problems.

Unit I (15 Hours)

Meaning and definition of Statistics- Functions and limitations, Statistical investigation and collection of Data- Statistical survey- Planning and executing the survey- Collection of data- Primary and secondary data- Sources of Secondary data- Method of collecting primary data.

Unit II (15 Hours)

Classification and tabulation of data: classification- Definition- objectives- types of classification- Frequency distribution – tabulation- Types of Tabulation- Diagrammatic and Graphical representation.

Unit III (15 Hours)

Measures of Central Tendency- Arithmetic mean- Median –Mode- Geometric mean. Measures of Dispersion- Range- Quartile Deviation- Mean Deviation- Standard Deviation.

Unit IV (15 Hours)

Simple Correlation- Meaning and types- Measurement of Correlation-Karl Pearson's Co-efficient of correlation- Spearman's Rank Correlation- Regression-Method of Least square with one independent variable.

Unit V (15 Hours)

Index numbers- Definition and classification- Methods of constructing index numbers- Laspeyre's, Paasche's, Fisher's Ideal index numbers- Time Reversal and Factor Reversal Test- Cost of Living index numbers- problems of constructing index numbers-uses.

Note: Theory carries 25 marks and Problems carry 50 marks.

Book for Study:

1. R.S.N Pillai and V. Bagavathi, Statistics, S. Chand & Co Ltd., New Delhi, 2013

Book for Reference:

S.P Gupta, Statistical Methods, Sultan Chand & Sons, New Delhi, 2007.

B.A. Economics

Semester III

Part III – Core V – Economics of Investment Management 315E05

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble:

The aim of the course is to

- ❖ equip the students with the knowledge of different investment opportunities available in the economy.
- ❖ helps in proper choice of investment mode.

Unit I (10 Hours)

Meaning – Importance of Investment - Principles of Investment – Factors Favourable for Investment – Investment and Speculation – Investment and Gambling – Investment Media – Features of an Investment Programme.

Unit II (11 Hours)

Insurance – Need for Life Insurance – UTI – Investment in Units- Schemes of UTI – Post Office Small Saving Scheme – Need for Small Savings - Public Provident Fund – Objectives- Eligibility Conditions – Tax Concessions. Investment in Land, Gold, Silver, Diamonds, Stamps, Antiques.

Unit III (10 Hours)

Investment in Fixed Deposits with Companies and Commercial Banks - Stock Exchange – Meaning – Functions - Organization – Mechanics of Security Trading in Stock Exchanges – Kinds of Trading Activity.

Unit IV (10 Hours)

Listing of Securities – Meaning – Objectives – Advantages - Disadvantages of Listing. Shares – Meaning – Kinds of Shares – Equity Shares – Features, Preference Shares – Features – Private Equities – Debentures- Kinds – Features

Unit V (11 Hours)

Mutual Funds – Kinds – Advantages and Disadvantages- Schemes of Mutual Fund – Investment and Tax Planning (a basic knowledge) - Role of Securities Exchange Board of India.

Book for Study:

2. Preeti Singh, Investment Management Security Analysis and Portfolio Management
Himalaya Publishing House, Mumbai, 2014

Books for Reference:

3. Radha Parameswaran and Nedunchenzhian, Investment Management, Prasanna Publishing House, New Delhi, 2012
4. Prasanna Chandra, The Investment Game - How to Win, Tata McGraw Hill, New Delhi, 2011

B.A. Economics**Semester III****Part III – Core VI – Economics of Marketing****315E06****(For the students admitted from the academic year 2015-2016 onwards)****Credits: 3****Hours: 38****Preamble:**

The aim of the course is

- ❖ to introduce the students to the area of marketing which is an important practical side to the economics.
- ❖ to equip the students with the knowledge regarding the concepts and techniques of marketing.
- ❖ to develop the self employment skill in the students.

Unit I**(7 Hours)**

Marketing – Definition - Importance of Marketing – Features of Marketing – Functions of Marketing-Role of Marketing.

Unit II**(8 Hours)**

Product Mix – Product Life Cycle – Meaning and Definition of Branding, Packaging and labelling (in brief) – New Product Development: Factors to be considered before introducing a new product – Product Elimination

Unit III**(7 Hours)**

Buyer Behaviour – Meaning – Factors influencing Buyer Behaviour – Market Segmentation– Basis for Market Segmentation.

Unit IV**(8 Hours)**

Pricing of Products – Meaning - Objectives – Factors influencing Pricing Decision –Sales Promotion: Consumer Sales Promotion – Dealer Sales Promotion, Sales Force Promotion.

Unit V**(8 Hours)**

Personal Selling–Essentials of Salesmanship –Advertising – Benefits of Advertising Direct Marketing –Types – Media Marketing

Books for Study

3. R.S.N. Pillai and Bagavathi, Marketing Management, Sultan Chand & Co, New Delhi, 2012
4. Rajan Nair, Marketing, Sultan Chand & Co, New Delhi, 2011.

Books for Reference

3. Philip Kotler & Gary Armstrong, Principles of Marketing, Prentice-Hall of India (P) Ltd, New Delhi, 2010.
4. M. Govindarajan, Marketing Management, Concepts, Cases, Challenges and Trends, Prentice – Hall of India Pvt., Ltd, New Delhi, 2009.

B.A. Economics

Semester III

Part III – Allied III – Mathematical Methods

315AE3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course helps the students

- ❖ to gain elementary mathematical knowledge and
- ❖ to know the application of mathematical techniques in economic theories

Unit I (15 Hours)

Mathematical Economics and Algebra: Nature and scope of mathematical economics- Mathematical operations with decimal and fractions- Ratios and Proportions- - Progression- Arithmetic Progression, Harmonic Progression and Geometric Progression.

Unit II (15 Hours)

Matrix Algebra: Matrix- Types- Addition – Subtraction- Multiplication. Determinants- Transpose of a matrix- Inverse of matrix – Solution of simultaneous equations- Cramer's rule- Matrix inversion method (3x3)

Unit III (15 Hours)

Differentiation: - Process of Differentiation- Rules of Differentiation- Exponential and Logarithmic- Derivatives of Higher order

Unit IV (15 Hours)

Application of Derivatives in Economics- Elasticity of Demand, Cost, Revenue function- Profit maximization and cost minimization. Partial Derivatives-Maxima and Minima of One Variable and Nature of Curves.

Unit V (15 Hours)

Mathematics of Finance: Simple interest, Compound interest- Discounting: Trade Discount- Quantity Discount–Cash Discount- Bankers Discount-True Discount and Bankers Gain.

Note: Theory carries 25 marks and Problems carry 50 marks.

Books for Study:

7. D. Bose, Mathematical Economics, Himalaya Publishing House, Delhi, 2007
8. B.C Mehta & B.C Madnani, Mathematics for Economists, Sultan Chand & Sons, New Delhi, 2013.
9. M. Wilson, Business Mathematics, Himalaya Publishing House, Delhi, 2007
10. P.A. Navinatham, Business Mathematics & Statistics, Jai Publishing House, Trichy, 2011
11. J .K.Sharma, Business Mathematics, Ane Books Pvt. Ltd., Delhi, 2014
12. R.S Bharawaj, Mathematics for Economics and Business, Excel books, Delhi, 2006.

B.A. Economics

Semester III

Part IV – Skill Based Course I – Communication Skills for Business 315ES1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The objective of the course is

- ❖ To develop self-confidence in managing the business
- ❖ To equip the students with correct and effective Communication Skills for successful entrepreneurship.

Unit I

(7 Hours)

Communication - Meaning – Importance - Objectives – Principles of Communication-
Media of Communication

Unit II

(7 Hours)

Oral Communication, Verbal, Non verbal and Audio-Visual Presentation, Telephone
Skills and Etiquettes

Unit III

(8 Hours)

Written Communication –Kinds of Business Letter – Essentials of a Business Letter –
Enquiries and replies - Orders and their execution- Sales letters - Application letters

Unit IV

(8 Hours)

Agency correspondence – Insurance - Bank Correspondence – Correspondence with
public authorities and other agencies- Letter to the editor of news papers.

Unit V

(8 Hours)

Report writing - Importance - Kinds – Characteristics of a good report - Report by
individuals and committees

Books for Study:

2. Reddy, Appannaiah & Nagaraj and Raja Rao, Essentials of Business Communication, Himalaya Publishing House, New Delhi, 2003

Books for Reference:

2. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication, Sultan Chand and Sons, New Delhi, 1997.
2. Krishna Mohan & Meera Banerji, Developing Communication Skills, Macmillan Indian Ltd., Chennai, 1987
3. M.S. Ramesh & C. Pattenshetti, Business Communication, S. Chand &Co, Delhi, 2000.
4. L.A. Woolcott & W.R. Unwin, Mastering Business Communication, Macmillan Education Ltd, Chennai.2002.

B.A. Economics
Semester IV
Part III - Core VII - Urban Economics **415E07**
(For the students admitted from the academic year 2015-2016 onwards)
Credits: 4 **Hours: 52**

Preamble:

The aim of the course is to

- ❖ create an awareness of the role of rapid economic growth on urbanization.
- ❖ understand the process of urbanization.
- ❖ study the issues of urbanization and its settlement.

Unit I (11 Hours)

Urban Economics:-Definition-Subject matter – concepts - Agglomeration effects-The Indifference Principle –The Monocentric city Model-The Axioms of Urban Economics

Unit II (10 Hours)

Urbanisation: meaning--Features-Trends- –Causes and Consequences of urbanization

Unit III (10 Hours)

Concepts of Urbanisation in India: –Urban Sprawl- Urban Agglomeration- -Pseudo-Urbanization.-Urban Morphology.

Unit IV (11 Hours)

Urban Infrastructure - Problems of Urbanization – Environment and Health - Solution to urban problems – Human Settlements- types of settlements - Settlement hierarchy-Central Place theory

Unit V (10 Hours)

Urban Planning in India - Features of Urban Planning. Principles of Urban Planning in India - Urban Policy in India

Books for Study:

5. M.L. Jhingan, Bhatt, Demography, Vrinda Publication (P) Ltd, Delhi, 2011(For Units II & IV)
6. Ashok Purohit, Urbanisation in India, Volume I, II, ABD Publishers, Delhi, 2012 (For Unit III)
7. Pulla Rao, Urbanisation in India, ABD Publishers, Delhi, 2012 (For Units IV & V)
8. Materials downloaded from the internet (For Units I to IV)

B.A. Economics
Semester IV
Part III - Allied IV – Services Marketing **415AE4**
(For the students admitted from the academic year 2015-2016 onwards)
Credits: 4 **Hours: 75**

Preamble:

The aim of the course is to

- ❖ learn the various marketing strategies for service firms
- ❖ understand the marketing approach of banking and insurance services

Unit I (15 Hours)

Services: Reasons for growth of service sector- Role of services in an economy- Definition- Types- Characteristics- Differences between Goods and Services- Services marketing – Need –Challenges to Service Managers-Classification of Services.

Unit II (15 Hours)

Services Marketing Mix - Elements. Pricing in Services-Role-Steps-Objectives-Factors affecting Pricing decisions- Methods of Pricing in Services-Pricing Strategies. Service promotion-Promotion Mix for Services (in brief) Advertising-Sales Promotion-Personal Selling –Public Relations and Publicity-Direct Marketing.

Unit III (15 Hours)

Place in services- Location- Channels-Designing a distribution System-Direct and Indirect Distribution-Franchising-Role of Customer in the Distribution System. People in services-Types of Service Personnel-Developing Customer Conscious Employees-Role of the Frontline Staff.

Unit IV (16 Hours)

Bank Marketing-Concept-Justification-Behavioural Profile of users- Factors influencing the Behavioural Profile-Marketing Information System for banks- Importance of MIS to the banking organization-Market Segmentation-Marketing Mix for the Banking Organisations.

Unit V (14 Hours)

Insurance Marketing-Concept-Users of Insurance Services - Behavioural Profile of Users-Marketing Segmentation-Marketing Information System-Marketing Mix.

Books for Study

3. Vasanti Venugopal & Raghu V.N, Services Marketing, Himalaya Publishing House, Mumbai, 2001 (For I, II, III Units)
4. S.M. Jha, Services Marketing, Himalaya Publishing House, Mumbai, 2008 (For IV & V Units)

Books for Reference

3. P.N. Reddy & Appannaiah, Services Marketing, Himalaya Publishing House, Mumbai, 2002
4. Anil Kumar & Nirmala B. Balaji, Services Marketing and Management, S. Chand & Co, New Delhi, 2006.

B.A. Economics

Semester IV

Part IV-Skill Based Course II-Management Information System 415ES2

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The aim of the course is to equip students with

- the knowledge of information systems adopted in office management
- to develop the skill in determining the information requirements and formulation of an information system plan.

Unit I (9 Hours)

Management Information System: Meaning-Definition-Computer Based- User - Machine System-Integrated system- Need for a data base- Utilisation of Database-MIS and Decision Support Systems.

Unit II (8 Hours)

Structure of MIS: Structure: Programmable decisions- Unstructured –Non-Programmable Decisions-Production Subsystem- Logistics Subsystem.

Unit III (7 Hours)

Information Based Support System: Transaction Processing Support System- Operational Control- Management Control- Strategic Planning Support System.

Unit IV (7 Hours)

Information System Requirements: Master Plan-Goals- Objectives- Architecture-Current Capabilities- Forecast of developments affecting the plan- Maintenance of the Master Plan.

Unit V (7 Hours)

Implementation of Management Information System: Meaning- Theories of Organisational change- The Change Agent- Mechanisms for Successful Implementation-Socio-Technical Approach to System Design and Implementation

Book for Study:

2. Gordon B. Davis & Margrethe H.Olson , Management Information Systems, Conceptual Foundations, Structure and Development, Tata Mc-Graw Hill Publishing Co., Delhi, 2007

Books for Reference:

2. Jawa Dekar (Wamans), Management Information Systems, I Edition, Tata Mc-Graw Hill Publishing Company, New Delhi, 2013.

2. Gagan Varshini & Others, Management Information System, Global Book Publishing Company, Coimbatore, 2011

B.A. Economics
Semester wise Distribution with Scheme of Examination
(For the candidates admitted during the academic year 2014-2015 & onwards)

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Part I – Language I	3	3	25	75	100
	Part II – English I	3	3	25	75	100
	Part III – Core I – Micro Economics I	4	3	25	75	100
	Core II – Demography	4	3	25	75	100
	Allied I – Principles of Management	5	3	25	75	100
	Part IV – Environmental Studies	2	3	-	50	50
II	Part I – Language II	3	3	25	75	100
	Part II – English II	3	3	25	75	100
	Part III – Core III – Micro Economics II	4	3	25	75	100
	Core IV – Agricultural Economics	4	3	25	75	100
	Allied II – Statistics	5	3	25	75	100
	Part IV – Value Education	2	3	-	50	50
	Advanced Learners Course I – Business Environment	3*	3	-	100	100
III	Part I – Language III	3	3	25	75	100
	Part II – English III	3	3	25	75	100
	Part III – Core V – Macro Economics	4	3	25	75	100
	Core VI – Economics of Marketing	4	3	25	75	100
	Allied III – Mathematical Methods	5	3	25	75	100
	Skill Based Course I – Introduction to Retailing	3	3	100	-	100
	Part IV – Non Major Elective Course I	2	3	75	-	75
IV	Part I – Language IV	3	3	25	75	100
	Part II – English IV	3	3	25	75	100
	Part III – Core VII – Monetary Economics	4	3	25	75	100
	Core VIII – Economic Doctrines	4	3	25	75	100
	Allied IV – Tally Accounting Programme	5	3	40	60	100
	Part IV – Skill Based Course II – Retail Merchandising Management & Retail Pricing	3	3	100	-	100
	Non Major Elective II – General Awareness	2	3	75	-	75
	Advanced Learners Course II – Quantitative Techniques	3*	3	-	100	100

V	Part III – Core IX – Fiscal Economics	4	3	25	75	100
	Core X – International Economics	4	3	25	75	100
	Core XI – Economics of Investment Management	4	3	25	75	100
	Core XII – Entrepreneurship Development	4	3	25	75	100
	Elective I – Principles of Insurance	5	3	25	75	100
	Skill Based Course III – Retail Business Management	3	3	100	-	100
VI	Part III – Core XIII – Indian Economic Development	4	3	25	75	100
	Core XIV – Economics of Tourism	4	3	25	75	100
	Core XV – Urban Economics	4	3	25	75	100
	Elective II – Computer Applications in Business – Practical	5	3	40	60	100
	Elective III – Banking Practices	5	3	25	75	100
	Part IV – Skill Based Course IV – Retail Store Planning & Design Layout	3	3	100	-	100
	Extension Activities	1	-	50	-	50
	Advanced Learners Course III – Economics of Infrastructure	3*	3	-	100	100

Single Starred Credits are treated as additional credits, which are optional.

Department offers the following:

❖ **Consumerism** as Non- Major Elective Course I

B.A. Economics Semester V

Part III – Core XI – Economics of Investment Management

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is to

- equip the students with the knowledge of different investment opportunities available in the economy.
- helps in proper choice of investment mode.

Module I:

Meaning – Importance of Investment *- Principles of Investment – Factors Favourable for Investment – Investment and Speculation – Investment and Gambling – Investment Media – Features of an Investment Programme. Financial Mathematics*: Compound Interest* - Annuity – Present Value *- Interest at Higher Frequencies*

(13 Hours)

Module II:

Insurance – Need for Life Insurance – UTI – Investment in Units- Schemes of UTI – Post Office Small Saving Scheme – Need for Small Savings* - Public Provident Fund – Objectives- Eligibility Conditions – Tax Concessions. Investment in Land, Gold, Silver, Diamonds, Stamps, Antiques.

(15 Hours)

Module III:

Investment in Fixed Deposits with Companies and Commercial Banks – Comparative Approach- Stock Exchange – Meaning – Organization – Mechanics of Security Trading in Stock Exchanges – Kinds of Trading Activity.

(12 Hours)

Module IV:

Listing of Securities – Meaning – Objectives – Advantages - Disadvantages of Listing. Shares – Meaning – Kinds of Shares – Equity Shares – Features, Preference Shares – Features – Private Equities – Debentures- Kinds – Features – Comparison between Debenture Holders and shareholders.

(13 Hours)

Module V:

Mutual Funds – Kinds – Advantages and Disadvantages- Schemes of Mutual Fund – Investment and Tax Planning (a basic knowledge)- Regulation of Stock Exchanges- Role of Securities Exchange Board of India

(12 Hours)

Books for Study:

Preeti Singh : Investment Management Security Analysis and Portfolio Management, Himalaya Publishing House, Mumbai, 2010.

Books for Reference:

Radha Parameswaran : Investment Management, Prasanna Publishing House, New
Nedunchenzhian Delhi, 2010
Prasanna Chandra :The Investment Game - How to Win, Tata Mc Graw Hill
Publishing Co., Ltd., New Delhi, 2011

Starred and underlined portions are for self-study.

B.A. Economics**Semester V****Part III – Core XII – Entrepreneurship Development**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is

- ❖ to acquire the knowledge regarding characteristics of an entrepreneur.
- ❖ to develop an interest in entrepreneurial activity and
- ❖ to equip them with entrepreneurial skills for self – employment.

Module I:

Entrepreneurship–Meaning and Definition–Importance–Factors affecting Entrepreneurial Growth – Social, Economic and Environmental Factors. Types and Functions of an Entrepreneur – Qualities of a Successful Entrepreneur. (11 Hours)

Module II:

Women Entrepreneurs: Concepts, Functions and Role of Women Entrepreneurs – Growth of Women Entrepreneurs, Problems of Women Entrepreneurs – Role of Women Entrepreneurs Associations – Selection of Industry by Women Entrepreneurs. Types of Industries / Business suitable for Women Entrepreneurs – Rural Women Entrepreneurs. (12 Hours)

Module III:

Search for a Business Idea – Sources – Processing and Selection – Selection of Types of Organization – Project Classification and Identification – Project Objectives – Internal and External Constraints – Format for a Report. (11 Hours)

Module IV:

Training and Finance Objectives of Training – Phases of EDP – Special Agencies for Training – Institutional Finance with special emphasis of Commercial Banks. IDBI, IFCI, ICICI, IRBI, SFCS, SIPCOT, Khadi and Village Industries Commission* - Types of Incentives and Subsidies (A Brief study) - Micro Finance. (11 Hours)

Module V:

Group Project (20 Hours)

Books for Reference:

- E.Gordon & K.Natarajan : Entrepreneurship Development, Himalaya Publishing House, New Delhi, 2005
- S.Mohan & R.Elangovan : Current Trends in Entrepreneurship, Deep & Deep Publications Pvt, Ltd., New Delhi, 2006.
- C.B. Gupta & N.P. Srinivasan : Entrepreneurial Development, S. Chand & Sons, Delhi, 2010
- S.S Khanka : Entrepreneurship Development, S. Chand & Sons, Delhi, 2012

Starred and underlined portions are for self-study.

B.A. Economics**Semester V****Part III - Elective I - Principles of Insurance**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 65

Preamble:

The course aims to

- ❖ provide knowledge to basic concepts and importance of Insurance
- ❖ impart knowledge on the various insurance legislations

Module I

Risk and Insurance: Risk –Meaning, Definition, and Classification of Risk. Insurance Meaning, Definition, Nature, Functions, Principles of Insurance, Importance of Insurance, Terms used in Insurance. (13 Hours)

Module II

Types of Insurance: Life Insurance: Kinds of Life Insurance-Non Life Insurance: Kinds of Non Life Insurance (13 Hours)

Module III

Insurance Document: Introduction –Proposal Form –Policy Form-Cover Note-Certificate of Insurance – Endorsement –Cancellation (13 Hours)

Module IV

Insurance Legislation in India: The Insurance Act 1938 – Life Insurance Act 1956 – General Insurance Corporation of India – Insurance Regulatory and Development Authority of India and its functions (13 Hours)

Module V

Insurance Intermediaries: Introduction- Insurance Broker- Functions of Broker-Insurance Agents- Duties of Agents– Surveyors and Loss Assessors– Functions –Third Party Administrator- Code of Conduct. (13 Hours)

Books for Study:

Karam Pal, B.S. Bodla : Insurance Management, Principles and Practices,
M.C. Garg Deep and Deep Publications Pvt Ltd., Delhi, 2007.

[For Module I, II, IV, V]

Insurance Institute of India. : Practice of General Insurance, 2004

[For Module III]

Book for Reference

P. Periasamy : Principles and Practice of Insurance, Himalaya
Publishing House, Mumbai, 2005.

B.A. Economics

Semester V

Skill Based Course III - Retail Business Management

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 3

Hours:38

Preamble:

The course would enable the students

- to know the essential spheres of management
- to understand the ethical aspects of management

Module I:

Human Resource Management – Identification of Various Roles in the Organisation – Recruitment and Selection – Training – Motivation – Evaluation of performance. (8 Hours)

Module II:

Retail Store Operations: Retail store – Meaning – Responsibilities of Store Managers – Elements/ Components of retail operations. (7 Hours)

Module III:

Financial aspects of retail- The concept of retail economics- Measures of Financial Performance – Evaluation of retail operations – Strategic Profit Model. (7 Hours)

Module IV:

Retail Management and Information System- Role and Importance of Information Technology in retail – factors affecting in the use of technology – Application of

technology in retail – e- commerce or e-tailing (The internet as a retail opportunity)
(8 Hours)

Module V:

Role of retail marketing- Retail Marketing mix – The STP Approach. Ethics in Retail Management: Ethical Values – Social Responsibility – Ethical values in relation to customers, community and general public, employees, business partners and share holders- Consumerism.
(8 Hours)

Books for Study:

Swapna Pradhan : Retail Management - (Text and Cases), Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2008.

Books for Reference:

Barry Berman and : Retail Management - A Strategic Approach, Prentice Hall
Joel R Evans of India (P) Ltd., New Delhi, 2007.
Chetan Bajaj, : Retail Management, Oxford University Press, 2005.
Rajnish Tuli,
Nidhi V.Srivastva : Retail Management, Functional Principles and Practices, Jaico
Gibson G Vedamani Publishing House, Delhi

**B.A. Economics
Semester VI**

Part III – Core XIII – Indian Economic Development

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The course enables the students

- ❖ To have an essential understanding of various issues of the Indian Economy
- ❖ To have the ability to comprehend & critically appraise the current Indian economic problems

Module I:

Characteristics of Indian Economy as a Developing Economy – Problems of Economic Development - Poverty – Causes, Measures to Eradicate Poverty, Poverty Alleviation Programmes- Unemployment – Types, Causes, Nature and Extent, Government Policy for removing Unemployment.
(13 Hours)

Module II:

Capital Formation, Meaning, Importance, Sources, Reasons for low Capital Formation, Measures for increasing Capital Formation – Human Capital Formation in India- Causes for rise in prices in India- Control of Inflation in India. (13 Hours)

Module III:

Role of Industrialization* – Industrial Policies of 1956, 1980 and 1991 –Role and Importance of Small Scale Industries* – Industrial Sickness in India – Causes, Consequences and Remedial Measures. (11 Hours)

Module IV:

Features of Indian Industrial Labour* - Industrial Disputes in India, Causes, Settlement of Industrial Disputes- Social security measures in India* - National wage Policy, Objectives, Principle Constituents of National Wage Policy. (13 Hours)

Module V:

Importance of Foreign Trade for a Developing Economy - India's Foreign Trade, Value, Composition and Direction – Foreign Capital, Need, Forms, Government's Policy towards Foreign Capital – The impact of Foreign Aid on India's Economic Development- Brief Study on the Policies of Liberalisation, Privatisation and Globalisation

(15 Hours)

Books for Study:

Ruddar Dutt & K.P.M Sundaram : Indian Economy, S.Chand & Co. Ltd., Delhi, 2012

Books for Reference:

S.K Misra & V.K. Puri : Indian Economy, Its Development Experience, Himalaya Publishing House, Mumbai, 2011

Ishwar D.Dhingra : Indian Economy, S. Chand & Co., Delhi, 2007

S. Sankaran : Indian Economy, Margham Publications, Chennai, 2012

Starred and underlined portions are for self-study

B.A. Economics**Semester VI****Part III – Core XIV – Economics of Tourism**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is

- To create an understanding of the growing importance of the tourism industry in an economy
- To enlighten the students on the various opportunities in the tourism sector for self employment

Module I:

Meaning and Nature of Tourism- Definition of Tourist and Tourism-Motivation of Tourism- Basic Components of Tourism- Tourism Demand- Factors influencing Tourism Demand*- Medical Tourism (13 Hours)

Module II:

Economic Benefits and Costs of Tourism- Impacts on Income, Employment and Output- Multiplier Effect- Trickle-down Effect- Infrastructure Development- Regional Development- Employment Generation – Balance of Payment- Role of Entrepreneurial activity. (13 Hours)

Module III:

The Role of State in Promoting Tourism- Role and Functions of a Travel Agency- Accommodation – Types- Definition of Hotel- Classifications- Supplementary Accommodation- Classifications. (13 Hours)

Module IV:

Environmental and Cultural Impacts of Tourism – Tourism and International understandings- Tourism Marketing: Definition- Tourism Product- Marketing Process and Functions- Peculiarities of Tourism Marketing. (13 Hours)

Module V:

“India as a Tourist Paradise”- Growth of Tourism in India*- Tourist Administration in India- Sargeant Committee Report- The Role of ITDC in Tourism Development- Future of Tourism – World Tourism Organisation. (13 Hours)

Books for Study:

A.K Bhatia : International Tourism- Fundamental and Practices, Sterling Publishers Pvt. Ltd. New Delhi, 2010
Sharma K.K : Tourism and Economic Development, Sarup & Sons, New Delhi, 2004

Books for Reference:

A.K Bhatia : Tourism Development – Principles and Practices, Sterling Publications Pvt, Ltd, New Delhi, 2010
Gulab Nabi : Socio Economic Impact of Tourism, Pioneer Publishers, Jaipur, 2000.
Badan B.S & : Tourism and Economic Development, Common Wealth Publishers, Harish Bhatt New Delhi, 2008.

Starred and underlined portions are for self-study

B.A. Economics**Semester VI****Core XV - Urban Economics**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

Rapid economic development leads to growth in urbanization. This trend results in increased demand for urban infrastructure development and provision of utility services. Process of urbanization, demand for infrastructure and public utility services and role of urban local bodies are issues that are discussed. Environmental issues, urban planning, urban modeling and financing of urban infrastructure are also dealt with in this paper.

Module I:

Urban Economics: Meaning.-Definition-Subject Matter- Importance. Concepts, Agglomeration Effects-The Indifference Principle –The Monocentric city Model-The Axioms of Urban Economics (13 Hours)

Module II:

Urbanization: Meaning-Methods of Measuring the Size of Urban Population-Features-Trends-Determinants –Causes and Consequences of Urbanization- Components of Urban Growth. (13 Hours)

Module III

Concepts of Urbanization in India: –Urban Sprawl-Degree of Urbanization-Pace of Urbanization - Tempo of Urbanization.-Urban Agglomeration-Million Plus Urban Agglomeration-Pseudo- Urbanization.-Urban Morphology. (13 Hours)

Module IV:

Problems of Urbanization-Solution to Urban Problems –Government Programmes-Human Settlements: Meaning, Types of Settlements - Settlement Hierarchy-Central Place Theory. (13Hours)

Module V:

Urban Planning in India- Features of Urban Planning. Principles of Urban Planning in India- Aspects of Urban Planning. Urban Policies and Practices in India. (13 Hours)

Books for Reference:

M.L.Jhingan, B.K.Bhatt : Demography, Virnda Publication (P) Ltd, Delhi, 2011
Ashok Purohit : Urbanisation in India, Volume I, II, ABD Publishers, Delhi 2012
Pulla Rao : Urbanisation in India, ABD Publishers, Delhi 2012

Materials Downloaded from Internet**B.A. Economics****Semester VI****Part III – Elective II – Computer Applications in Business – Practical
(For the candidates admitted during the academic year 2014-2015 and onwards)****Credits: 5****Hours: 75****Preamble:**

The course covers the essential skills for using all the programs separately and as a team

- It equips the students to develop their own application using Graphical user Interface.
- Knowledge of Microsoft Access as Database Management System to organize staggering information about personal and business life.
- To learn Power Point Presentation graphics program.

List of Practical**Ms Word**

11. Type a paragraph and perform the following changes:

Font Size

Font style

Line spacing

Page setup (margin)

Text color

Center heading

Under line a text

Bullets/numbering

12. Type a document and perform the following:

Insert header

Find and replace

Cut, copy and paste

Change case

13. Prepare an advertisement for a product

14. Send an application to many companies for suitable job using mail merge option

15. Resume wizard

16. Prepare a class timetable using a table menu

17. Design an invoice by using drawing tool bar, clip art, word art, symbols, borders and shading, charts.

18. Prepare an application with Bio Data using MS Word (like application for the post of Lecturer in college)

19. Prepare an information letter about the college reopening date to the student using Mail Merge

20. Send an invitation to colleges for the workshop using Mail Merge Design an advertisement copy in MS Word

Ms Excel

21. Prepare Students mark sheet using Excel
22. Prepare Payroll for employee using Excel
23. Draw a chart using Excel with the details : student name and marks of 5 subjects
24. Compute mathematics of finance- simple interest, compound interest, net present value ,annuity of a future value(sinking fund method)
25. Draw the different type of charts (Line, Pie, Bar) to illustrate year wise performance of sales, gross profit, net profit of a company by using chart wizard.

MS-Power point

26. Design a sports day invitation and prepare slides describing various events in Power point
27. Display various departments and courses offered in our college using Power point
28. Prepare the teaching slides using Power Point
29. Prepare a slideshow for organizing a seminar with animation effects.
30. Design presentation slide for a product of your choice. The slides must include name, type of product, characteristics, special features, price, special offer etc.,

MS Access

31. Create a database for employee details and generate a report for pay slip using MS Access
32. Create a database maintaining stock in a shop with fields : Serial number (Primary Key), Name of product, Product code, Quantity and Price
33. Create a database for customer information and generates a report with the customer name in ascending order.
34. Create a student mark database.
 - a) Retrieve the student's details according to the highest marks.
 - b) Display the query showing marks>75 and total>400
35. Design a mark sheet using forms and reports.

Books for Reference:

- Sanjay Saxena : "A First Course in Computers", Vikas Publishing House Pvt Ltd., Delhi, 2003.
- Ron Mansfield : Working in Microsoft Office, Tata Mc Graw Hill Publishing Company Ltd., Delhi, 2005.

B.A. Economics

Semester VI

Part III - Elective III – Banking Practices

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 65

Preamble:

This Course aims to

- provide basic knowledge about the importance and functions of commercial banks
- acquire practical knowledge and skills in banking transactions

Module I

Definition of a Banker and Customer – General Relationship – Special Relationship – Banking Services – Computerization in Banks. (15 Hours)

Module II

Deposit Accounts –Types: Saving Bank A/C, Current A/C, Fixed Deposit A/C, RD A/C , Non Resident A/C , Foreign Currency (non-resident) A/C – Opening and Operation of Deposit

Account. E-banking Services-Internet Banking – Phone Banking, Mobile Banking –ATM-Debit Card, Credit Card. (14 Hours)

Module III

Negotiable Instruments –Cheque - Bill of Exchange –Promissory Note-Crossing of Cheque –Endorsement. (15 Hours)

Module IV

Principles of Sound Lending – Loans and Advances –Modes of Creating Charge- Pledge - Hypothecation – Mortgages (16 Hours)

Module V

Banking Practical

1. Pay-in-slip
2. Application for term deposits
3. Cheque
4. Withdrawal form
5. Post office saving Bank A/C Application
6. Locker opening
7. Jewel loan application
8. Personal loan application
9. ATM-functioning in four different banks
10. Application form for educational loan
11. Bills discounting
12. Getting DD
13. Electronic Clearing System (ECS) (5 Hours)

Books for Reference:

- E.Gordon & : Banking Theory –Law & Practice, Himalaya Publishing K.Natarajan House, Bombay 2005
- Dr.S.Gurusamy : Banking Theory –Law & Practice, Tata Mc Graw Hill Publishing Company Ltd., Delhi, 2009.
- P.N.Varshney : Banking Law and Practice, Sultan Chand & Sons Delhi, 2002
- S.S.Gulsan & : Banking Law and Practice, Sultan Chand & Co Ltd., Delhi K.Kapoor 2010

B.A. Economics

Semester VI

Skill Based Course IV - Retail Store Planning and Design Layout
(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 3

Hours: 38

Preamble:

The course helps

- to learn location planning and types of location.
- to develop the skill of planning and designing a retail store.

Module I:

Store Planning – Location planning- Types of location – Site selection- Retail Location Theories – Location Assessment Procedures. (5 Hours)

Module II:

Store Design – Importance – Exterior store design – Interior store design (Space Planning) (5 Hours)

Module III:

Store Layouts – Types – Chief considerations in Layout Selection – The Planogram – Visual merchandising- Methods of Display. (5 Hours)

Module IV:

Store design and the retailing image mix- parameters to judge floor space management – Rules for successful space management – The Store Façade. (5 Hours)

Module V:

Practical- Field Visit, Report preparation. (18 Hours)

(Note: Questions must be taken from the First four modules only)

Books for Study:

Swapna Pradhan : Retail Management - (Text and Cases), Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2008.

Books for Reference:

Barry Berman and Joel R Evans : Retail Management - A Strategic Approach, Prentice Hall of India (P) Ltd., New Delhi, 2007.

Chetan Bajaj, : Retail Management, Oxford University Press ,2005.

Rajnish Tuli,

Nidhi V.Srivastva : Retail Management, Functional Principles and Practices, Jaico Gibson G Vedamani Publishing House, Delhi

Programme: M.A. Economics

(For the Students admitted from the academic year 2016-2017 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
15ME01	Core I – Advanced Micro Economics	6	3	25	75	100	4
15ME02	Core II – Mathematical Techniques for Economic Analysis	6	3	25	75	100	4
15ME03	Core III - Research Methodology in Economics	6	3	25	75	100	4
15ME04	Core IV - Human Resource Management	4	3	25	75	100	4
15ME05	Core V - Management of Small Business	4	-	25	75	100	4
15MEE1	Elective I- Soft Skills	4	3	25	75	100	4
	Semester II						
15ME06	Core VI- Advanced Macro Economics	6	3	25	75	100	4
15ME07	Core VII-Public Economics	6	3	25	75	100	4
15ME08	Core VIII- Economics of Human Resources	6	-	25	75	100	4
15ME09	Core IX- Econometrics	6	3	25	75	100	4
15MEE2	Elective II – Women in Development	6	3	25	75	100	4
15MEIS	Internship	-	-	50	-	50	2
15MGCS	Cyber Security - Level I	2	2	50	-	Grade	Grade
15MESVI	Advanced Learners Course I– Subject Viva Voce	-	-	100	-	100	4*
	Semester III						
15ME10	Core X- Economics of						

	Money and Financial Institutions	5	3	25	75	100	4
15ME11	Core XI-Operations Research	6	3	25	75	100	4
15ME12	Core XII-Industrial Economics	5	3	25	75	100	4
15ME13	Core XIII – Marketing Management	4	-	25	75	100	4
15MEE3	Elective III – Statistical Packages for Data Analysis - Practical	6	3	40	60	100	4
Semester IV							
15ME14	Core XIV - Export Procedures and Documentation	6	3	25	75	100	4
15ME15	Core XV- Environmental Economics	6	3	25	75	100	4
15ME16	Core XVI – Health Economics**	6	-	60	40	100	4
15MEE4	Elective IV- Computer Application Techniques- PageMaker & Corel Draw - Practical	6	3	40	60	100	4
15MEPV	Project and Viva Voce	6	-	100	100	200	8
15MESVII	Advanced Learners Course –II Subject Viva Voce	-	-	100	-	100	4*
TOTAL						2250	90

Single Starred credits are treated as additional credits which are optional.

Double Starred Papers are self learning papers.

M.A. Economics Semester I

Core II - Mathematical Techniques for Economic Analysis **15ME02**
(For the students admitted from the academic year 2016-17 & 2015-2016)

Credits: 4

Hours: 75

Preamble:

The content of the course is designed

- ❖ to acquaint the students with economic concepts in mathematical format.
- ❖ to train the students to use the techniques of mathematical analysis which are commonly applied to understand and analyse economic problems.

- ❖ to develop an aptitude towards quantitative analysis of economic phenomenon.

Unit I (15 Hours)

Derivatives and their interpretation – Rules of differentiation- Economic Applications- Elasticity of Demand, AR and MR – Profit maximization – Cost minimization

Unit II (15 Hours)

Maxima and Minima of a function of one variable and two variable – Optimal values and Extreme values- Lagrangian Multiplier–Homogeneous Function and their properties – Euler's Theorem.

Unit III (15 Hours)

Integration – Indefinite Integration – Definite Integrals – Economic applications of Integration – Total function from marginal function – Consumer's surplus – Producer's surplus.

Unit IV (15 Hours)

Matrix Algebra - Transpose of a Matrix - Determinants - Rank of a matrix – Inverse of a matrix (3 x 3) - Cramer's Rule.

Unit V (15 Hours)

Input and output analysis – Its assumptions and uses – Hawkins – Simon condition – Solution to open and closed Leontief models

Note: Theory carries 25 marks and problems carry 50 marks. Sums may be asked from first four Units only.

Books for Reference

3. Mehta & Madnani, Mathematics for Economists, Sultan Chand & Sons, New Delhi, 2013
4. D. Bose, Mathematical Economics, Himalaya Publishing House, Delhi, 2007
5. Srinath Baruah, Basic Mathematics & its Application in Economics, Macmillan Ltd., Chennai, 2001
6. M. Wilson, Business Mathematics, Himalaya Publishing House, Delhi, 2007

M.A. Economics

Semester I

Elective I - Soft Skills

15MEE1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble:

- ❖ To help the students to learn and improve the art of Group Discussion and preparatory steps for interview.
- ❖ To equip the students to face the competitive examinations and placements.
- ❖ To suggest good business meeting protocol.

Unit I: Effective Communication & Resume Writing (12 Hours)

Communication: Definition, Process, Barriers, Non-Verbal Communication, Johari Window, The Art of Listening, Production of Speech, Organisation of Speech, Modes of Delivery, Conversation Techniques, Dialogue, Good Manners and Etiquettes.

Resume: Types- Chronological, Functional and Hybrid- Contents of a Good Resume.

Unit II: Group Discussion, Interview Skills and Team Building (12 Hours)

Group Discussion: Process, Purpose, Aspects – Role of GD in Selection Procedure – Do's and Don'ts of GD - GD Topics for Practice.

Interview: Objectives, Importance, Types, Techniques, Appearing for an Interview-Mock Interviews.

Unit III: Personality Development, Attitude & Motivation (12 Hours)

Self-Awareness, Assertiveness, Goal Setting, Problem-solving, Conflict and Stress Management, Decision-Making Skills, Positive and Creative Thinking, Lateral Thinking, Time Management.

Attitude: Concept, Significance, Factors affecting attitudes, Positive Attitude-Advantages, Negative Attitude- Disadvantages.

Motivation: Concept, Significance, Internal and External Motives, Importance of Self-motivation, Factors leading to demotivation.

Unit IV: English for Competitive Examinations (8 Hours)

- Comprehending Passages
- Sentence Completion
- Voice
- Composition – Paragraph Writing only
- Precis Writing

Unit V: Test of Reasoning (8 Hours)

Verbal Reasoning

- Series Completion, Analogy
- Data sufficiency
- Logical Deduction – Logic and Theme Detection only

Non-Verbal Reasoning

- Series
- Mirror Images, Completion of Incomplete Pattern

Books for Reference:

1. Aggarwal, R.S. Quantitative Aptitude, S. Chand & Sons, 20
2. Aggarwal, R.S, A Modern Approach to Non-Verbal Reasoning, S.Chand & Co, Delhi, 2004
3. Hari M.Prasad& Rajnish M, How to prepare for Group Discussion and Interview, Tata McGraw Hill, Delhi, 2005
4. Mandal S.K, How to succeed in Group Discussions and personal Interviews, Jaico Publishing House, Mumbai, 2005
5. Kay DuPont, Business Etiquette and Professionalism, Viva Books Pvt. Ltd., Chennai, 2004
6. Parul Singh, Handbook of Writing Effective Resume for Job Applications, Excel Books, Delhi, 2007

M.A. Economics
Semester II
Core IX - Econometrics

15ME09

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course aims at

- ❖ developing understanding of economic relationships and statistical methods relevant for the analysis of this relationship.
- ❖ enhancing the skills of students for taking up research in economics.

Unit I (15 Hours)

Definition, Scope and Division of Econometrics- Methodology of Econometric research- Specification and estimation of the model- Evaluation of the parameter estimates-Desirable properties of an econometric model.

Unit II (15Hours)

The Simple Linear Regression Model – assumptions – Least Squares criterion and the normal equations of OLS – Properties of the least square estimates.

Unit III (15Hours)

Multiple Regression – Model with two explanatory variables – linear and non-linear relationship – Semilog, Double log, Inverse and Polynomial forms

Unit IV (15Hours)

Auto Correlation – Meaning - Causes – Consequences – Test for Auto Correlation. Multicollinearity – Meaning – Causes – Consequences – Test for Multicollinearity- Heteroscedasticity

Unit V (15Hours)

Lagged Variables and distributed lag models – Almon, Koyck, Nerlove and Cagan Models. Simultaneous equation models – Structural, Reduced and Recursive models

Note: Only theory questions to be asked from all the units

Books for Reference:-

4. Dhanasekaran. K, Econometrics, Vrinda Publications (P) Ltd, Delhi, 2008.
5. Koutsoyiannis. A, Econometrics, The Macmillan Press Ltd, London, 1997.
6. Damodar N. Gujarati, Basic Econometrics, McGraw-Hill Singapore, 1995
7. Mehta, B.C & Kranti Kapoor, Fundamentals of Econometrics, Himalaya Publishing House, Delhi, 2005.

M.A. Economics
Semester III
Core XI - Operations Research

15ME11

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course helps the student

- ❖ to gain knowledge of appropriate basic quantitative techniques
- ❖ to develop skills in economic management problems

Unit I (15 Hours)

Methodology and Linear Programming – Definition – Characteristics – Necessity – Methodology – Limitations of Operations Research. Linear Programming – Requirement of Linear Programming – Graphical Solution to two variables –simplex method – Advantages and Limitations of Linear Programming.

Unit II (15 Hours)

Transportation and Assignment – Transportation problem – Introduction to the model – Formulation and solutions – Transportation models – Assignment problems – Application of Assignment model – Formulation and solution of assignment model

Unit III (15 Hours)

Game Theory – Basic concepts of game theory – pay off matrix – Two persons zero sum game. Pure strategy – Minimax and Maximin – Saddle point – mixed strategy – odds method, dominance method, sub-games method and equal gain from all strategies method – Application of Game.

Unit IV (15 Hours)

Network Analysis- Network Techniques – Network Logic – Fulkerson's Rule – Slack- Critical Path – Probability of meeting the schedule dates – CPM and PERT – CPM models-floats – Project Network.

Unit V (15 Hours)

Inventory Control-type of Inventories-Variables-Inventory Cost-Classification of Inventory Models-Selective Inventory Control (ABC Analysis) -Economic Order Quantity Models: Instantaneous Replenishment without Shortages-Instantaneous Replenishment with Shortages (Problems only)

Books for Reference

2. Kantiswarup Gupta P.K, Operations Research, Sultan Chand & Sons, New Delhi, 2002
3. Gupta P.K. and Hira D.S, Problems in Operation Research, Sultan Chand & Company Ltd., New Delhi, 1995
4. V.K. Kapoor, Quantitative Techniques, Systems Analysis and Data Processing, Sultan Chand & Sons, New Delhi 2001
5. Mariappan, Operations Research, Methods & Applications, New Century Book House, Coimbatore, 2000
6. Naidu N.V. R. and others, Operations Research, International Publishing House Pvt. Ltd, New Delhi, 2011

M.A. Economics

Semester IV

**Elective IV – Computer Application Techniques - PageMaker and Corel Draw-
Practical 15MEE4**

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course helps

- ❖ to understand the fundamentals of PageMaker.
- ❖ to provide a conceptual understanding of the fundamentals of Corel Draw and can create business cards, pamphlets, banners, newspapers, books.

Unit I (15 Hours)
What's new in CorelDraw 12? – Interfacing with CorelDraw. Getting Started with CorelDraw12: Measuring and Drawing Helpers - Zooming and Viewing – Essential Objects Commands.

Unit II (15 Hours)
Working with object tools: Creating Basic Shapes – Drawing with Line Tools – Cutting, Shaping and Reshaping objects – Arranging and organizing objects.

Unit III (15 Hours)
PageMaker Basics – Working with Publications – Drawing tools – Text tools.

Unit IV (15 Hours)
Importing Graphics – Transformations - Master Pages – Utilities

Unit V (15 Hours)
Working with Text – The Story Editor -Working with Frames – Working with Layers.

Books for Study:

1. Steve Bain & Nick Wilkinson, CorelDraw 12, DreamTech Publications, 2004
2. Satish Jain , Training Guide – PageMaker 7, BPB, Publications, 2003

List of Programs:

Corel Draw:

1. Create a program using Drawing Tools(Scenery, Train, Car, Bus, House, Hut)
2. Create a logo using Corel Draw.
3. Create an invitation for college day/sports day.
4. Create a Greeting card (Birthday, Mother's day, Pongal, Diwali).
5. Create a Visiting Card.

PageMaker:

6. Create an advertisement to work with Layers.
7. Create a program using Drawing Tools (Train, Car, Computer, Doll)
8. Create a program Newsletter using Text tools.
9. Create a program to Import Images and align the images.
10. Create a program to work with Frames.(Advertisement, Banners, Flex)
11. Create a program for masking a picture.
12. Create a program for Transformation of an object.
13. Design a certificate. (Functions, state level, national level champions).
14. Create a front page design for books.
15. Create a pamphlet for college prospectus.

M.A. Economics

Semester III

Elective III – Statistical Packages for Data Analysis - Practical 15MEE3
(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course is designed to

- ❖ create the necessary ground for developing modern techniques in research.
- ❖ train the students to compute statistical parameters and data analysis through statistical packages.

Unit I (15 Hours)
An overview of SPSS – creating new data file – opening a data file - data entry – inset rows – insert columns – editing data – assigning variable names and value labels – Merging data files: adding cases – add variables.

Unit II (15 Hours)
Frequencies – Descriptive Statistics. Managing Data: Listing cases, replacing missing values, computing new variables, recording variables, exploring data, selecting cases, sorting cases, merging files.

Unit III (15 Hours)
Cross Tabulation and Chi-Square Analysis – Descriptive Statistics: Measures of Central Tendency - means - procedure – Data Transformations: Computing values – calculator- bad functions – conditional expressions. Recoding values – recode into same variable – recode into different variables. Charts – Bar, line and pie.

Unit IV (15 Hours)
Bivariate Correlation: Partial Correlations and the correlation matrix–t test procedure: Independent –samples, paired samples, and one sample tests.

Unit V (15 Hours)
One way ANOVA procedure: One way analysis of variance - Simple Linear Regression - Multiple Regression analysis.

Books for Reference:

5. Dhanasekaran. K, **Computer Applications in Economics –Vrinda Publications**
6. Rajathi A & Chandran, P, **SPSS for You, MJP, Publishers, Chennai,**
7. Cunningham J.B & James O. Aldrich, **Using SPSS – An Interactive hands-On Approach, Sage Publications, New Delhi, 2012**
8. Gupta & Hitesh Gupta, **SPSS 17.0 for Researchers, International Book House Pvt. Ltd., Mumbai, 2011**

M.A. Economics

Semester I

Core V– Management of Small Business

15ME05

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble:

The course would equip the students with

- ❖ organization skills in the setting up and managing of the various aspects of a small business unit.
- ❖ entrepreneurial skill and business communicative skills.

Unit I (12 Hours)

Definition and Legal frame work – classification – selection of a small scale industry – forms of organization – sole – proprietorship, partnership, joint – stock companies, The co–operatives – line organization & functional organization – old business – New Business – Franchise.

Unit II (10 Hours)

Procedural aspects – Rules and regulations governing a small scale industry – Taxation benefits and incentives for the promotion of small scale industries - Project classification & identification, Project objectives – Constraints – format for a report.

Unit III (10 Hours)

Institutional assistance to small scale industry – need for institutional support – Institutions supporting and assisting small scale industries - SIDCO, DIC, NSIC, SFC, SIDBI, IFCI, IIBI, EXIM - Women entrepreneurs - Type of Industries suitable for women entrepreneurs.

Unit IV (10 Hours)

Production Planning – Production Channel and Control – Methods of Marketing – Incentives and subsidies schemes available for export

Unit V (10 Hours)

Business Correspondence – Banking – Insurance – Agency – Drafting the structure of business letters – Sales & Trade letters – Electronic Communication methods.

Books for Reference:

4. Vasant Desai, Management of a Small Scale Industry, Himalaya Publishing House, Delhi, 2003.
5. G.K. Patia & Prakash, Institutional Financing for Small Scale Industries, Discovery Publishing House, Delhi, 2003
6. V.S Datey, Taxman's Practice Manual to Small Scale Industries, Taxman Allied Services (P) Ltd., New Delhi, 1999.
7. M.V. Sonalker & Kaveri, Financial Management for Small Enterprises, Authors Press, New Delhi, 2003.
8. Nirmal, K. Gupta, Small Industry –Challenges & Perspectives, Anmol Publications, Delhi, 1992.
9. Ruddar Datt & K. M. Sundaram, Indian Economy, S. Chand & Co., Ltd., Delhi, 2006
10. Philip Kotler, Marketing Management – Analysis, Planning Implementation and Control Practice Hall of India P. Ltd, Delhi 1998.

M.A. Economics

Semester IV

Core XIV - Export Procedures and Documentation 15ME14

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course is designed

- ❖ to familiarize the students with the procedures of export trade and
- ❖ to expose them with the procedures of export documentation.

Unit I (15 Hours)

Export – Types of exports – organizing exports – starting an export business – processing an export order – Labelling, Packaging, Packing and Marking of Export Consignments.

Unit II (15 Hours)

Indian Laws relating to Export Trade – Transportation and Shipment of goods for export – Quality Control and pre – shipment inspection – Central Excise Clearance of goods for export.

Unit III (15 Hours)

Export Documentation – Master Documents I and II – Marine and Air Cargo Insurance – Documents relating to payment, Letter of Credit, Bill of Exchange, Trust Receipt, Letter of Hypothecation and Bank's Certificate for Payment – Documentation practices in India – Need for preparing export documents in India.

Unit IV

(15 Hours)

Export Finance – importance – methods – pre shipment and post shipment – sources, short, medium and long term – methods of payment to exports – Role and functions of EXIM Bank of India and Export Credit Guarantee Corporation of India.

Unit V

(15 Hours)

Export Pricing– objectives – importance – price and non – price factors in pricing decisions - Methods of pricing. Export policy - the pre - reform period. – An overall view of export promotion policies – critical evaluation of export policy – New Trade policy, the reform period – critical evaluation of the New Trade Policy. Special Economic Zones – New Export – Import Policy 2010– 2011.

Books for Reference:

5. Paras Ram, Export What Where How, Anupam Publishers, Delhi, 2004 – 2005.
6. Kapoor. D.C, Export Management, Vikas Publishing House, New Delhi, 2002.
7. Kathiresan. S and Radha. V, Export Management, Prasanna Publishers, Chennai, 2002.
8. Balagopal T.A.S, Export Management, Himalaya Publishing House, Delhi, 2010.
9. Misra and Puri, Indian Economy, Himalaya Publishing House, New Delhi, 2012.
10. N. Kumar and R. Mittal, Export Management, Anmol Publication Pvt. Ltd., New Delhi, 2002.
11. Justin Paul and Aserkar, Export Import Management, Oxford University Press, Delhi, 2008.
12. Khurana P.K, Export Management, Galgotia Publishing Co, New Delhi, 2001.

Scheme of Examination – CBCS Pattern
Programme - B.A. Economics
(For the Students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
115TA1/ 115MY1/ 115HD1/ 115FR1/ 115EN1	Part I – Language I	6	3	25	75	100	4
	Part II – English I	6	3	25	75	100	4
	Part III						
115E01	Core I - Micro Economics I	5	3	25	75	100	4
115E02	Core II - Agricultural Economics	5	3	25	75	100	4
115AE1	Allied I - Principles of Management	6	3	25	75	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
	Semester II						
215TA2/ 215MY2/ 215HD2/ 215FR2/ 215EN2	Part I – Language II	6	3	25	75	100	4
	Part II – English II	6	3	25	75	100	4
	Part III						
215E03	Core III–Micro Economics II	5	3	25	75	100	4
215E04	Core IV – Demography	5	3	25	75	100	4
215AE2	Allied II – Statistics	6	3	25	75	100	4
215VEC	Part IV – Value Education	2	2	50	-	50	2
	Semester III						

315TA3/ 315MY3/ 315HD3/ 315FR3/ 315EN3	Part I – Language III	6	3	25	75	100	4
315E05	Part II – English III Part III Core V– Economics of Investment Management	6	3	25	75	100	4
315E06	Core VI – Economics of Marketing	4	3	25	75	100	4
315AE3	Allied III – Mathematical Methods	3	3	25	50	75	3
315ES1	Part IV Skill Based Course I – Communication Skills for Business	6	3	25	75	100	4
315NCM	Non Major Elective Course I – Consumerism	3	3	75	-	75	3
		2	2	50	-	50	2
Semester IV							
415TA4/ 415MY4/ 415HD4/ 415FR4 415EN4	Part I – Language III	6	3	25	75	100	4
415E07	Part II – English III Part III Core VII – Urban Economics	6	3	25	75	100	4
415E08	Core VIII – Economic Doctrines	4	3	25	75	100	4
415AE4	Allied IV – Services Marketing	3	3	25	50	75	3
415ES2	Part IV Skill Based Course II – Management Information System	6	3	25	75	100	4
415NGA	Non Major Elective Course II General Awareness (Online)	3	3	75	-	75	3
415GIS	Information Security	-	1	50	-	50	2
415EX1/ 415EX2/ 414EX4/ 414EX5	Part V - Extension	2	2	50	-	Grade	Grade
415ALE	ALC I - Subject Viva Voce	-	-	50	-	50	2
		-	-	-	100	100	4*

	Semester V						
	Part III						
515E09	Core IX –Macro Economics	6	3	25	75	100	4
515E10	Core X–Monetary Economics	6	3	25	75	100	4
515E11	Core XI – Entrepreneurship Development	5	3	25	75	100	4
515E12	Core XII – Economics of Tourism	5	3	25	75	100	4
515EE1	Elective I – Principles of Insurance	5	3	25	75	100	4
	Part IV						
515ES3	Skill Based Course III – Computer Applications in Business - Practical	3	3	75	-	75	3
	Semester VI						
	Part III						
615E13	Core XIII–Fiscal Economics	6	3	25	75	100	4
615E14	Core XIV – International Economics	5	3	25	75	100	4
615E15	Core XV– Indian Economic Development	5	3	25	75	100	4
615EE2	Elective II – Banking Practices	5	3	25	75	100	4
615EE3	Elective III – Retail Business Management	6	3	25	75	100	4
615ES4	Part IV						
	Skill Based Course IV – Tally Accounting Programme - Practical	3	3	75	-	75	3
615EX3	Part V - Extension	-	-	50	-	50	2
615ALE	ALC II- Subject Viva Voce	-	-	-	100	100	4*
TOTAL						3500	140

Starred Credits are treated as additional credits which are optional.

B.A. Economics

Semester I

Part III – Core II – Agricultural Economics

115E02

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is to equip the students with the

- ❖ importance of agriculture in an economy
- ❖ issues related to agricultural sector

Unit I

(13 Hours)

Introduction: Agriculture- Meaning- Importance of Agriculture- Agricultural in Indian Economy- Causes for low productivity in agriculture.

Unit II

(13 Hours)

Land Utilization in India- Agricultural Holdings- Sub- division and Fragmentation of Holdings- Effects. Cropping Pattern – Factors influencing Cropping Pattern.

Unit III

(13 Hours)

Agricultural Inputs- Irrigation – Types. HYV Seeds, Fertilizers and Manures, implements and machinery. Sources of Agricultural Finance. New Agricultural Strategy and Green Revolution- Effects. A Brief Note on Need for Second Green Revolution.

Unit IV

(13 Hours)

Post Green Revolution Developments-Contract Farming-Organic Farming –Precision Farming-Sustainable Agriculture-Food Security in India.

Unit V

(13 Hours)

Agriculture Marketing and Price- Defects of Agricultural Marketing-Measures taken to improve Agricultural Marketing (in brief) - Fluctuations in Agricultural Prices- Reasons-- Agricultural Price Policy in India- Public Distribution System- Objectives- Defects

Book for Study:

3. S. Sankaran, Agricultural Economy of India, Margham Publications, Chennai, 2012

Books for Reference:

5. Ruddar Dutt & K.P.M. Sundaram, Indian Economy, S. Chand & Co Ltd, New Delhi, 2012
6. S.K.Misra & Puri.V. Indian Economy- Its Development Experience, Himalaya Publishing House, Mumbai, 2012.

B.A. Economics

Semester I

Part III – Allied I – Principles of Management

115AE1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

This course endeavours to impart the basic knowledge of organizing and managing a firm in an efficient manner.

Unit I: Management and Manager

(15 Hours)

Management: Definition – Features – Functions – Importance - Administration and Management - Manager: Functions – Role – Responsibilities - Entrepreneur and Manager.

Unit II: Planning and Decision Making

(15 Hours)

Planning: Definition – Characteristics – Objectives - Advantages and Limitations - Steps in Planning Process - Management by Objectives (MBO) - Decision Making - Decision Making Process

Unit III: Organisation and Directing

(15 Hours)

Organisation: Functions – Nature – Importance - Classification of Organisation: Formal and Informal Organisation - Difference between Formal and Informal Organisation - Directing: Meaning and Principles.

Unit IV: Delegation and Decentralisation

(15 Hours)

Delegation: Elements – Principles – Types – Advantages - Problems. Decentralization – Advantages – Disadvantages - Departmentation: Need – Factors - Basis.

Unit V: Controlling and Co-ordination

(15 Hours)

Controlling – Steps - Requirements of Effective Control System – Features - Need – Advantages – Limitations - Coordination - Features – Importance – Types - Problems- Steps for effective Co-ordination.

Book for Study:

3. T. Ramasamy, Principles of Management, Himalaya Publishing House, Mumbai, 2010

Books for Reference:

4. P.C Tripathi & P.N Reddy, Principles of Management, Tata McGraw Hill Ltd., New Delhi, 2008
5. Dinkar Pagare, Principles of Management, Sultan Chand & Sons, Delhi, 2003

B.A. Economics**Semester II****Part III – Core IV – Demography****215E04****(For the students admitted from the academic year 2015-2016 onwards)****Credits: 4****Hours: 65****Preamble:**

The content of the course aims to

- ❖ help the students to understand the inter-relationship between economic development and population.

Unit I

(13 Hours)

Demography: Meaning, Scope and importance, Sources of Demographic Data: Census-meaning and characteristics, Vital Registration, Sample Survey. Growth of Population – Causes and its effects on Economic Development.

Unit II

(13 Hours)

Theories of Population: Malthusian Theory of Population - New Malthusianism – Optimum Theory of Population – Comparison of Malthusian Theory with the Optimum Theory-Theory of Demographic Transition.

Unit III

(13Hours)

Population Structure and Characteristics: Birth Rate, its trends and causes – Death Rate, its trends and causes – Trends in sex ratio, age structure, literacy rate, density – Demographic Dividend- Migration: Types of Migration – Brain drain.

Unit IV (13 Hours)
Urbanization: Meaning– Causes and Consequences of Urbanization – Suggested Urban Policy – Labour Force, Meaning - Levels of Labour Force Participation.

Unit V (13 Hours)
Government Policy for Population Control: Objectives – Measures – Population Policy of India – National Population Policy 2000 – Family Planning Programme and Progress in India- Drawbacks of Family Planning Programme – Suggestions for Effective Implementation.

Books for Study:

5. M.L.Jhingan, Bhatt & J.N. Desai, Demography, Vrinda Publications (P) Ltd, Delhi, 2011.
6. Asha A. Bhende & Tara Kanitkar, Principles of Population Studies, Himalaya Publishing House, Bombay, 1994

Books for Reference:

6. Ruddar Datt & Sundaram, Indian Economy, S. Chand & Co Ltd., Delhi, 2012.
7. A.N. Agarwal, Indian Economy (Problems of Development and Planning) New Age International (P) Ltd., New Delhi, 2006.

B.A. Economics

Semester II

Part III – Allied II – Statistics

215AE2

(For the students admitted from the academic year 2016-17 & 2015-2016)

Credits: 4

Hours: 75

Preamble:

This course aims at imparting

- ❖ the knowledge of the various statistical tools
- ❖ application of the statistical tools for solving economic problems.

Unit I (15 Hours)

Meaning and definition of Statistics- Functions and limitations, Statistical investigation and collection of Data- Statistical survey- Planning and executing the survey- Collection of data- Primary and secondary data- Sources of Secondary data- Method of collecting primary data.

Unit II (15 Hours)

Classification and tabulation of data: classification- Definition- objectives- types of classification- Frequency distribution – tabulation- Types of Tabulation- Diagrammatic and Graphical representation.

Unit III (15 Hours)

Measures of Central Tendency- Arithmetic mean- Median –Mode- Geometric mean. Measures of Dispersion- Range- Quartile Deviation- Mean Deviation- Standard Deviation.

Unit IV (15 Hours)

Simple Correlation- Meaning and types- Measurement of Correlation-Karl Pearson's Co-efficient of correlation- Spearman's Rank Correlation- Regression-Method of Least square with one independent variable.

Unit V

(15 Hours)

Index numbers- Definition and classification- Methods of constructing index numbers- Laspeyre's, Paasche's, Fisher's Ideal index numbers- Time Reversal and Factor Reversal Test- Cost of Living index numbers- problems of constructing index numbers-uses.

Note: Theory carries 25 marks and Problems carry 50 marks.

Book for Study:

1. R.S.N Pillai and V. Bagavathi, Statistics, S. Chand & Co Ltd., New Delhi, 2013

Book for Reference:

2. S.P Gupta, Statistical Methods, Sultan Chand & Sons, New Delhi, 2007.

B.A. Economics
Semester wise Distribution with Scheme of Examination
(For the candidates admitted during the academic year 2014-2015 & onwards)

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Part I – Language I	3	3	25	75	100
	Part II – English I	3	3	25	75	100
	Part III – Core I – Micro Economics I	4	3	25	75	100
	Core II – Demography	4	3	25	75	100
	Allied I – Principles of Management	5	3	25	75	100
	Part IV – Environmental Studies	2	3	-	50	50
II	Part I – Language II	3	3	25	75	100
	Part II – English II	3	3	25	75	100
	Part III – Core III – Micro Economics II	4	3	25	75	100
	Core IV – Agricultural Economics	4	3	25	75	100
	Allied II – Statistics	5	3	25	75	100
	Part IV – Value Education	2	3	-	50	50
	Advanced Learners Course I – Business Environment	3*	3	-	100	100
III	Part I – Language III	3	3	25	75	100
	Part II – English III	3	3	25	75	100
	Part III – Core V – Macro Economics	4	3	25	75	100
	Core VI – Economics of Marketing	4	3	25	75	100
	Allied III – Mathematical Methods	5	3	25	75	100
	Skill Based Course I – Introduction to Retailing	3	3	100	-	100
	Part IV – Non Major Elective Course I	2	3	75	-	75
IV	Part I – Language IV	3	3	25	75	100
	Part II – English IV	3	3	25	75	100
	Part III – Core VII – Monetary Economics	4	3	25	75	100
	Core VIII – Economic Doctrines	4	3	25	75	100
	Allied IV – Tally Accounting Programme	5	3	40	60	100
	Part IV – Skill Based Course II – Retail Merchandising Management & Retail Pricing	3	3	100	-	100
	Non Major Elective II – General Awareness	2	3	75	-	75
	Advanced Learners Course II – Quantitative Techniques	3*	3	-	100	100

V	Part III – Core IX – Fiscal Economics	4	3	25	75	100
	Core X – International Economics	4	3	25	75	100
	Core XI – Economics of Investment Management	4	3	25	75	100
	Core XII – Entrepreneurship Development	4	3	25	75	100
	Elective I – Principles of Insurance	5	3	25	75	100
	Skill Based Course III – Retail Business Management	3	3	100	-	100
VI	Part III – Core XIII – Indian Economic Development	4	3	25	75	100
	Core XIV – Economics of Tourism	4	3	25	75	100
	Core XV– Urban Economics	4	3	25	75	100
	Elective II – Computer Applications in Business – Practical	5	3	40	60	100
	Elective III – Banking Practices	5	3	25	75	100
	Part IV– Skill Based Course IV – Retail Store Planning & Design Layout	3	3	100	-	100
	Extension Activities	1	-	50	-	50
	Advanced Learners Course III – Economics of Infrastructure	3*	3	-	100	100

Single Starred Credits are treated as additional credits, which are optional.

Department offers the following:

❖ **Consumerism** as Non- Major Elective Course I

B.A. Economics

Semester III

Part III – Core V – Macro Economics

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The Course is designed to

- ❖ make the students aware of the basic theoretical framework underlying the field of macro economics
- ❖ expose the students to macroeconomic aspects in Keynesian and Post- Keynesian Economics

Module I:

Definition, Nature and Scope of Macro Economics- Circular Flow of Income, Closed Economy Model- Open Economy Model- Importance of Circular flow of income- National Income- Concepts, Measurement- Difficulties in Measurement of National Income*- Uses of National Income Analysis- Social Accounting- Various forms of Social Accounting and their uses.
(12 Hours)

Module II:

Classical Theory of Employment: Say's Law of Market- Pigou's wage cut policy- Keynesian Theory of Employment. Effective Demand- Under employment equilibrium. Difference between Classical Theory of Employment and Keynes Theory of Employment.

(12 Hours)

Module III

Consumption Function- Average and Marginal Propensity to Consume- Determinants of Consumption Function* - Keynes's Psychological Law of Consumption Function- Duesenberry's Relative Income Hypothesis- Don Patinkin's Real Balance Effect- Friedman's Permanent Income Hypothesis- Modigliani Life Cycle Hypothesis.

(13 Hours)

Module IV:

Savings- Determinants of Saving- Investment Function- Types of Investment- Determinants of Investment. Marginal Efficiency of Capital and Rate of Interest (only Liquidity Preference Theory of Interest)- Saving and Investment Equality- Classical Approach- Keynesian Approach – Multiplier- Working and Leakages- Principle of Acceleration.

(13 Hours)

Module V:

Post- Keynesian Macro Analysis- Contribution of Hicks and Hansen- IS-LM function- Primary and Secondary – Objectives of General Macroeconomic Policy- Supply – Side Economies.

(15 Hours)

Book for Study:

R. Cauvery & Others : Macro Economics, S. Chand & Company, Ltd. New Delhi, 2004

Books for Reference:

M.L. Jhingan : Macro Economic Theory, Vrinda Publications, (P) Ltd. New Delhi, 2011

Dr. S. Sankaran : Macro Economics, Margham Publications, Chennai, 2004.

Starred and underlined portions are for self-study

B.A. Economics**Semester III****Part III – Core VI – Economics of Marketing**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 52

Preamble:

The aim of the course is

- ❖ to introduce the students to the area of marketing which is an important practical side to the economics.
- ❖ to equip the students with the knowledge regarding the concepts and techniques of marketing.
- ❖ to develop the self employment skill in the students.

Module I:

Definition of Marketing –Objectives and Importance of Marketing – Features of Marketing – Functions of Marketing–Role of Marketing. (10 Hours)

Module II:

Product Mix – Produce Life Cycle – Branding , Packaging and Labelling (in brief) – New Product Development – Factors to be considered before introducing a new product – Product Elimination, Symptoms of a weak product – Guidelines for product elimination. (10 Hours)

Module III:

Buyer Behaviour – Buying motives – Factors influencing Buyer Behaviour – Market Segmentation – Need for Market Segmentation – Basis for Market Segmentation. (10 Hours)

Module IV:

Pricing of Products – Pricing Objectives – Factors influencing Pricing Decision – Elements of Promotion Mix – Sales Promotion – Consumer Sales Promotion – Dealer Sales Promotion, Sales Force Promotion. (10 Hours)

Module V:

Personal Selling– Objectives –Essentials of Salesmanship – Qualities of a Good Salesman– Advertising – Benefits of Advertising – Advertising Agencies – Direct Marketing –Types – Media Marketing. (12 Hours)

Books for Study

R.S.N. Pillai and Bagavathi : Marketing Management, Sultan Chand & Company, New Delhi, 2012.
Rajan Nair : Marketing, Sultan Chand & Co, New Delhi, 2011.

Books for Reference

Philip Kotler, : Principles of Marketing, Prentice-Hall of India Pvt. Ltd, New Delhi, 2010.
Gary Armstrong : Marketing Management, Concepts, Cases, Challenges and Trends, Prentice – Hall of India Pvt, Ltd, New Delhi, 2009

B.A. Economics**Semester III****Part III – Allied III – Mathematical Methods**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble:

The Course helps the students

- to gain elementary mathematical knowledge
- to know the application of mathematical techniques in economic theories

Module I:

Mathematical Economics, Nature and Scope of Mathematical Economics- Mathematical Operations with Decimal and Fractions- Ratios and Proportions - Progression- Arithmetic Progression and Geometric Progression. (16 Hours)

Module II:

Matrix Algebra: Matrix- Types- Addition – Subtraction- Multiplication. Determinants- Transpose of a Matrix- Inverse of Matrix – Solution of Simultaneous Equations- Cramer’s Rule- Matrix Inversion Method(3x3) (16 Hours)

Module III:

Differentiation: Process of Differentiation- Rules of Differentiation- Exponential and Logarithmic- Derivatives of Higher Order. (13 Hours)

Module IV:

Application of Derivatives in Economics - Elasticity of Demand, Cost, Revenue Function- Profit Maximization and Cost Minimization. Partial Derivatives- Maxima and Minima of One Variable and Nature of Curves. (15 Hours)

Module V:

Mathematics of Finance: Simple Interest, Compound Interest- Discounting: Trade Discount - Quantity Discount – Cash Discount – Bankers Discount – True Discount and Bankers Gain. (15 Hours)

Note: Theory carries 25 marks and Problems carry 50 marks.

Books for Study:

- D. Bose : Mathematical Economics, Himalaya Publishing House, Delhi, 2007
 B.C Mehta & : Mathematics for Economists, Sultan Chand & Sons, New Delhi,
 B.C Madnani 2013.
 M.Wilson : Business Mathematics, Himalaya Publishing House, Delhi, 2007
 P.A.Navintham :Business Mathematics & Statistics, Jai Publishing House, Trichy, 2011
 J .K.Sharma : Business Mathematics, Ane Books Pvt. Ltd., Delhi, 2014
 R.S Bharawaj : Mathematics for Economics and Business, Excel Books, Delhi, 2006.

B. A. Economics**Semester III**

Part IV-Skill Based Course I – Introduction to Retailing
(For the candidates admitted during 2014-2015 and onwards)

Credits: 3

Hours: 38

Preamble:

The Course

- aims to introduce the subject and pricing of retailing through its nature, scope and role in the economy.
- gives knowledge of career opportunities in retailing.

Module I:

Retailing - Meaning- Characteristics of retailing. (5 Hours)

Module II:

Functions of retailing - Classification of retail formats - Classification on the basis of ownership, the merchandise offered, Non - store retailing, other retail models- Airport retailing - Services retailing. (10 Hours)

Module III:

Theories of retail development - Concept of Life-Cycle in retail. (5 Hours)

Module IV:

Retail as a career- The rise of the retailer- motives that influence consumer behaviour (personal and social) – Factors affecting consumer decision making. (10 Hours)

Module V:

The Global retail market- a brief study of Wal-Mart, Tesco, McDonalds, Carrefour and Casino- challenges facing global retailers- retail industry in India- challenges- strategies to be adopted. (8 Hours)

Books for Study:

Swapna Pradhan : Retail Management - (Text and Cases), Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2008.

Books for Reference:

Barry Berman and : Retail Management - A Strategic Approach, Prentice Hall
 Joel R Evans of India (P) Ltd., New Delhi, 2007.
 Chetan Bajaj, : Retail Management, Oxford University Press, 2005.
 Rajnish Tuli,
 Nidhi V.Srivastva : Retail Management, Functional Principles and Practices, Jaico
 Gibson G Vedamani Publishing House, Delhi, 2005

B.A. Economics**Semester IV****Part III – Core VII – Monetary Economics**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The Course aims at

- understanding the role of money, theories of money and how money is managed in modern economy

Module I:

Money- Definition- Kinds- Functions- Merits and Demerits* - Monetary Standards- Monometallism and Bimetallism- Gold Standard- Causes for the breakdown of Gold Standard- Paper Standard- Principles and methods of Note Issue- Merits and Demerits- India's Present Currency System. (15 Hours)

Module II:

Theories of Money- Fisher Quantity Theory of Money- Cambridge Version of Quantity- Keynes Theory of Money and Prices- Reformulation – Friedman's Restatement of Quantity Theory of Money. (14 Hours)

Module III:

Inflation – Meaning-Definition-Causes-Types-Effects-Control. Deflation-Effects-Control- Stagflation- Business Cycles- Meaning- Phases- Types- Monetary Theories of Trade Cycles- Control of Trade Cycles. (12 Hours)

Module IV:

Role of Commercial Banks in Economic Development*-Credit Creation by Commercial Banks- Functions of Central Bank- Method of Credit Control- Money Market and Capital Market (a brief idea only). (12 Hours)

Module V:

Monetary Policy- Objectives and Tools- RBI and Monetary Policy-NBFI-Meaning-Types- Importance (12 Hours)

Book for Study:

S. Sankaran : Monetary Economics, Margham Publications, Chennai, 2005.

Books for Reference:

M.L Jhingan : Monetary Economics, Konark Publishers Pvt Ltd, New Delhi, 2007

T.T. Sethi : Monetary Economics, S. Chand & Co Ltd, New Delhi, 2004.

Starred and underlined portions are for self-study

B. A. Economics**Semester IV****Part III - Allied IV - Tally Accounting Programme**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble:

This course aims to

- Familiarize the students with financial accounting on computers.
- Provide skill for using Tally.

List of Practical:

1. Company Creation
2. Enabling Accounting Features
3. Pre-defined Groups
4. Creation & Alteration of New Groups (Single& Multiple)
5. Creation & Alteration of Ledger (Single& Multiple)
6. Creation & Alteration of Cost categories & Cost Centre
7. Accounting Vouchers (Payment, Receipt, Contra, Journal)
8. Display of Books, Trial Balance, Profit & Loss Account & Balance Sheet
9. Altering Inventory Features
10. Creation & Alteration of Stock Group (Single& Multiple)
11. Creation & Alteration of Stock Category (Single& Multiple)
12. Creation & Alteration of Units of Measure
13. Creation & Alteration of Stock Item (Single& Multiple)
14. Creation & Alteration of Godowns
15. Display of Stock summary
16. Accounting Voucher (Purchase, Sales)
17. Enabling VAT in Tally
18. VAT Ledger Creation
19. Accounting Voucher (Input VAT, Output VAT)
20. Display of Ratio

Reference Book:

Namrata Agarwal & Kumar : Financial Accounting on Computers using Tally, Dreamtech Sanjay Press, New Delhi, 2002

N. Satyapal : Using Tally, Khanna Publications, New Delhi, 2000

Implementary Tally : BPB Publication, 2001

B. A. Economics
Semester IV
Part IV Skill Based Course II – Retail Merchandising Management and Retail Pricing

(For the candidates admitted during 2014-2015 and onwards)

Credits: 3

Hours: 38

Preamble:

The Course helps

- To equip the students with the knowledge of merchandising and also to learn the role and responsibilities of merchandiser.
- To acquire the essential knowledge of pricing policies and strategies in the retailing of merchandise.

Module I:

Meaning of merchandising – factors affecting the merchandising function, role and responsibility of merchandiser. (7 Hours)

Module II:

Merchandise planning – Concept – Implications – Process – The Merchandise Hierarchy. (7 Hours)

Module III:

Supply Chain Management – concepts – need- objectives – Evolution- Supply Chain Integration. (10 Hours)

Module IV:

Retail pricing- concept of retail price- elements of retail price- objectives of retail pricing – determination of retail price. (8 Hours)

Module V:

Retail Pricing – Approaches and Strategies. (6 Hours)

Books for Study:

Swapna Pradhan : Retail Management - (Text and Cases), Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2008.

Books for Reference:

Barry Berman and Joel R Evans : Retail Management - A Strategic Approach, Prentice Hall of India (P) Ltd., New Delhi, 2007.

Chetan Bajaj, : Retail Management, Oxford University Press ,2005.

Rajnish Tuli,

Nidhi V.Srivastva : Retail Management, Functional Principles and Practices, Jaico Gibson G Vedamani Publishing House, Delhi,2005

B.A Economics
Semester wise Distribution with Scheme of Examination
(For the Candidates admitted During the Academic Year 2012-2013 & onwards)

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks CIA ESE		Total
I	Part I-Tamil Course I	3	3	25	75	100
	Part II-English Course I	3	3	25	75	100
	Part III – Core Course I- Micro Economics I	4	3	25	75	100
	Part III – Core Course II – Demography	4	3	25	75	100
	Part III-Allied Course I- Principles of Management	5	3	25	75	100
	Part IV- Environmental Studies	2	3	-	50	50
II	Part I-Tamil Course II	3	3	25	75	100
	Part II- English Course II	3	3	25	75	100
	Part III-Core Course III Micro Economics –II	4	3	25	75	100
	Part III- Core Course IV-Agricultural Economics	4	3	25	75	100
	Part III – Allied Course II Statistics	5	3	25	75	100
	Part IV- Value Education	2	3	-	50	50
	Advanced Learners Course I					
	Business Environment	3*	3	-	100	100
III	Part I – Tamil Course III	3	3	25	75	100
	Part II – English Course III	3	3	25	75	100
	Part III – Core Course V Macro Economics	4	3	25	75	100
	Core-VI-Economics of Marketing	4	3	25	75	100
	Allied Course III Mathematical Methods-I	5	3	25	75	100
	Skill Based Subject-I Introduction to Retailing	3	3	25	75	100
	Part III –Non-Major Elective Course -I Consumerism	2	3	-	75	75
IV	Part I- Tamil Course IV	3	3	25	75	100
	Part II-English Course IV	3	3	25	75	100
	Part III – Core Course VII Monetary Economics	4	3	25	75	100
	Part III – Core Course VIII Economic Doctrines	4	3	25	75	100
	Allied Course IV-					

	Tally Accounting Programme	5	3	40	60	100
	Part IV-Skill Based Course-II- Paper II-Retail Merchandising Management & Retail Pricing	3	3	25	75	100
	Non-Major Elective –II General Awareness	2	3	-	75	75
	Advanced Learners Course –II Quantitative Techniques	3*	3	-	-	100
V	Part III – Core Course IX Fiscal Economics	4	3	25	75	100
	Part III- Core Course X International Economics	4	3	25	75	100
	Part III- Core Course XI- Economics of Investment	4	3	25	75	100
	Part III – Core Course XII – Entrepreneurship Development	4	3	25	75	100
	Elective -I Principles of Insurance	5	3	25	75	100
	Skill Based Subject-III Paper III-Retail Business Management	3	3	25	75	100
VI	Part III- Core Course XIII Indian Economic Development	4	3	25	75	100
	Core Course XIV –Economics of Tourism	4	3	25	75	100
	Core Course-XV-Urban Economics	4	3	25	75	100
	Elective Course II Computer Applications in Business	5	3	25	75	100
	Elective Course III– Banking Practices	5	3	40	60	100
	Part IV-Skill Based Course IV Retail Store Planning & Design	3	3	25	75	100
	Extension Activities	1	-	50	-	50
	Advanced Learners Course-III Economics of Infrastructure	3*	3	-	-	100

Single Starred Credits are treated as additional credits, which are optional

Department offers the following:

- ❖ **Consumerism** as Non- Major Elective Course I

B.A. Economics
Semester V
Part III –Core Course X– International Economics
(For Student admitted from 2012-2013 and onwards)

Credits: 4

Hours: 75

Preamble:

The Course helps the students

- To familiarize with the theory, policy as well as the working of the international trade and payment system and
- To get knowledge about the present world economic order.

Module I:

International trade- meaning- merits and demerits- the basis of international trade- comparison between international trade and internal trade- Free trade Vs Protection- methods of protection and their effects. (15 Hours)

Module II:

Theories of International trade: Ricardo's theory of comparative cost, Heckscher- Ohlin theory- its superiority over classical theory- Factor Price Equalization Theorem.

(15 Hours) **Module III:**

Balance of Trade Vs Balance of Payments- meaning and significance- disequilibrium- causes- methods to correct adverse balance of payments- Terms of trade- kinds- factors affecting terms of trade(basic level). (17 Hours)

Module IV:

Exchange rate- meaning, determination of equilibrium exchange rate- Fixed Vs Flexible Exchange Rates-Spot and Forward Exchange Rates- The Purchasing Power Parity Theory- Exchange Control, meaning and methods of exchange control. (13 Hours)

Module V:

International Financial Institution IMF- IBRD- UNCTAD-WTO*- International Liquidity- New International Economic Order. (15 Hours)

Books for Study:

Jhingan M.L : International Economics, Konark Publishers, New Delhi, 2003
Desai, S.M : International Economics, Himalaya Publishing House, Mumbai, 1990

Books for Reference:

Sundaram. K.P.M : Money, Banking and International Trade, Sultan Chand & Co New Delhi, 1979
Mithani. D.M : International Economics, Himalaya Publishing House, Mumbai, 2003.
Mishra. M.N : Money, Banking and International Trade, S.Chand & Company New Delhi, 1982.

Starred and Underlined portions are for self-study

B.A. Economics
Semester V
Part III – Core Course XII– Entrepreneurship Development
(For Student admitted from 2012-2013 and onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is

- ❖ to acquire the knowledge regarding characteristics of an entrepreneur.
- ❖ to develop an interest in entrepreneurial activity and
- ❖ to equip them with entrepreneurial skills for self – employment.

Module I:

Entrepreneurship–Meaning and Definition–Importance–factors affecting entrepreneurial growth – Social, Economic and Environmental factors. Types and functions of an entrepreneur – Qualities of a successful entrepreneur. (14 Hours)

Module II:

Women Entrepreneurs: Concepts, functions and role of women entrepreneurs – Growth of women entrepreneurs, problems of women entrepreneurs – role of women entrepreneurs associations – Selection of Industry by women entrepreneurs. Types of Industries / Business suitable for women entrepreneurs – Rural women entrepreneurs. (13 Hours)

Module III:

Search for a business idea – Sources – Processing and selection – Selection of types of Organization – Project classification and identification – Project objectives – Internal and external constraints – Format for a report. (14 Hours)

Module IV:

Training and finance objectives of training – Phases of EDP – Special agencies for training – Institutional finance with special emphasis of commercial banks. IDBI, IFCI, ICICI, IRBI, SFCS, SIPCOT, Khadi and Village Industries Commission* - Types of incentives and subsidies (A Brief study)- Micro Finance. (14 Hours)

Module V:

Group Project (20 Hours)

Books for Reference:

E.Gordon & K.Natarajan :EntrepreneurshipDevelopment,HimalayaPublishing House, New Delhi, 2005

S.Mohan & R.Elangovan : Current Trends in Entrepreneurship, Deep & Deep Publications Pvt, Ltd., New Delhi, 2006.

R. Saravanakumar,
R. Parameswaran &
T.Jayalakshmi, } (V module) : A Text book of Information Technology,
S.Chand & Company Ltd., New Delhi, 2003

C.B.Gupta & N.P.Srinivasan :Entrepreneurial Development,Sultan Chand&Sons, New. Delhi, 2003

P.Saravanel :EntrepreneurialDevelopment,Principles,Policies& Programme,EssPeeKay Publishing House, Madras, 1997.

R.S.N. Pillai and Bagavathi :Commercial Correspondence & Office Management, S.Chand & Company, New Delhi, 1996.

Starred and underlined portions are for self-study.

B.A Economics
Semester V
Part III-Elective Course I-Principles of Insurance
(For Students admitted from 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

The course aims to

- ❖ provide knowledge to basic concepts and importance of Insurance
- ❖ impart knowledge on the various insurance legislations

Module I

Risk and insurance: Risk –Meaning, Definition, and Classification of Risk. Insurance Meaning, Definition, Nature, Functions, Principles of Insurance, Importance of Insurance, Terms used in Insurance. (15 Hours)

Module II

Types of Insurance: Life Insurance: Kinds of Life Insurance-Non Life Insurance: Kinds of Non Life Insurance (15 Hours)

Module III

Insurance Document: Introduction –Proposal form –Policy Form-Cover Note-Certificate of Insurance – Endorsement –Cancellation (15 Hours)

Module IV

Insurance Legislation in India: The Insurance Act 1938 – Life Insurance Act 1956 – General Insurance Corporation of India – Insurance Regulatory and Development Authority of India and its functions (15 Hours)

Module V

Insurance Intermediaries: Introduction-Insurance Broker-Functions of Broker-Insurance Agents-Duties of Agents –Surveyors and Loss Assessors –Functions –Third Party Administrator-Code of Conduct. (15 Hours)

Books for Study:

Karam Pal,B.S.Bodla :Insurance Management, Principles and Practices
M.C.Garg Deep and Deep Publications Pvt Ltd., Delhi,2007.
[For Module I,II,IV,V]
Insurance Institute of India. :Practice of General Insurance, 2004
[For Module III] :

Book for Reference

P.Periasamy : Principles and Practice of Insurance:Himalaya
Publishing House,Mumbai, 2005.

B.A. Economics
Semester VI
Part III – Core Course XIII – Indian Economic Development
(For students admitted from 2012-2013 and onwards)

Credits: 4

Hours: 75

Preamble:

The course enables the students

- ❖ To have an essential understanding of various issues of the Indian Economy and
- ❖ To have the ability to comprehend & critically appraise the current Indian economic problems

Module I:

Characteristics of Indian Economy as a Developing Economy – Problems of economic development - Poverty – Causes, measures to eradicate poverty, poverty alleviation programmes- Unemployment – Types, Causes, nature and extent, Government policy for removing Unemployment. (15 Hours)

Module II:

Capital formation, meaning, importance, sources, reasons for low capital formation, measures for increasing capital formation – human capital formation in India- causes for rise in prices in India- control of Inflation in India (15 Hours)

Module III:

Role of Industrialization* – Industrial Policies of 1956, 1980 and 1991 –Role and importance of Small Scale Industries* – Industrial Sickness In India – Causes, Consequences and Remedial Measures . (15 Hours)

Module IV:

Features of Indian Industrial Labour* - Industrial disputes in India, Causes, Settlement of Industrial disputes- Social security measures in India* - National wage Policy, objectives, principle constituents of national wage policy (15Hours).

Module V:

Importance of Foreign Trade for a developing economy - India's Foreign Trade, Value, Composition and Direction – Foreign capital, need, forms, Government's Policy towards Foreign Capital – The impact of foreign aid on India's Economic Development- brief study on the policies of Liberalisation, Privatisation and Globalisation (15Hours)

Books for Study:

Ruddar Dutt & K.P.M Sundaram : Indian Economy, S.Chand & Company Ltd., New Delhi, 2012

Books for Reference:

S.K Misra & V.K. Puri : Indian Economy, Its Development Experience, Himalaya Publishing House, Mumbai, 2011
Ishwar D.Dhingra : Indian Economy, S.Chand & Co., Delhi, 1997
Dr.S.Sankaran : Indian Economy, Margham Publications, Chennai, 2004
Alok Ghosh : Indian Economy, The World Press Pvt., Ltd., Calcutta, 1997.

Starred and Underlined portions are for self-study

B.A. Economics
Semester VI
Part III – Core Course XIV – Economics of Tourism
(For students admitted from 2012-2013 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is

- To create an understanding of the growing importance of the tourism industry in an economy
- To enlighten the students on the various opportunities in the tourism sector for self employment

Module I:

Meaning and nature of tourism- Definition of tourist and tourism-Motivation of tourism- Basic components of tourism- Tourism demand- Factors influencing tourism demand*- Medical tourism
(13 Hours)

Module II:

Economic benefits and costs of tourism- Impacts on income, employment and output- Multiplier effect- Trickle down effect- Infrastructure development- Regional development- Employment generation – Balance of payment- Role of entrepreneurial activity.
(13 Hours)

Module III:

The role of state in promoting tourism- role and functions of a travel agency- Accommodation – types- Definition of Hotel- Classifications- Supplementary accommodation- classifications.
(13 Hours)

Module IV:

Environmental and cultural impacts of tourism – Tourism and International understandings- Tourism marketing: Definition- Tourism product- Marketing process and functions- peculiarities of tourism marketing.
(13 Hours)

Module V:

“India as a tourist paradise”- Growth of tourism in India*- Tourist Administration in India- Sargeant Committee Report- The role of ITDC in tourism development- Future of tourism – World Tourism Organisation.
(13 Hours)

Books for Study:

- Virender Kaul :Tourism and the Economy, Har- Anand Publications, New Delhi 1994
- Alister Mathieson & : Tourism – Economy, Physical, Social Impacts, Longman Inc
Geoffery Wall New York, 1982.
- A.K Bhatia :International Tourism- Fundamental and Practices, Sterling
Publishers Pvt Ltd. New Delhi, 1994.
- Jagmohan Nagi :Travel agency and Tour operations, Concepts and Principles,
Konishka Publishers, New Delhi, 1997

Books for Reference:

- Pran Nath Seth & :An Introduction to Travel and Tourism, Sterling Publications
Sushma Seth Bhat Pvt. Ltd, New Delhi, 1997
- A.K Bhatia : Tourism Development – Principles and Practices, Sterling
Publications Pvt, Ltd, New Delhi, 1995

Gulab Nabi : Socio Economic Impact of Tourism, Pioneer Publishers, Jaipur, 2000.
Mukesh Ranga : Tourism Potential in India, Abhijeet Publications, New Delhi, 2003

Starred and Underlined portions are for self-study

B.A. Economics

Semester III

Core Course XV - Urban Economics

(For Students admitted from 2012-13 and onwards)

Credits:4

Hours:65

Preamble:

Rapid economic development leads to growth in urbanization. This trend results in increased demand for urban infrastructure development and provision of utility services. Process of urbanization, demand for infrastructure and public utility services and role of urban local bodies are issues that are discussed. Environmental issues, urban planning, urban modeling and financing of urban infrastructure are also dealt with in this paper.

Module I: Urbanisation: Concept and Characteristics

Urban Economics: Meaning. Subject matter, importance, limitations. Urbanisation: meaning, characteristics and concepts, factors affecting Urbanisation. Urbanisation and urban growth – components. Effects of Urbanisation. (13 Hours)

Module II: Urbanisation in India

Urbanisation in India – Factors and Trends of Urbanisation. Urban Morphology. Features and Pattern of Urbanisation. Problems of Urbanisation and Policies. (13 Hours)

Module III: Structure of Human Settlements

Meaning, types – Urban human settlements and Rural settlements. Settlement hierarchy. Central Place theory and Spatial Economic organization – recent developments in Central Place theory. Urban systems and functional dependencies between human settlements of different sizes. (13 Hours)

Module IV: Urban Problems

Immigration. Housing and Slums, drinking water and sewerage system. Crime, prostitution and slums. Environmental pollution and health, transport and communication. (13 Hours)

Module V: Urban Planning in India

Concept of town and urban planning. Principles of Urban Planning in India. Urban Policies and practices in India. Planning of Mega City. (13 Hours)

Books for Reference:

Edwin S. Mills & : Urban Economics, Harper Collins Publishers, USA, 2001
Bruce W. Hamilton

B.A. Economics

Semester VI

Part III – Elective Course II – Computer Applications in Business

(For students admitted from 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

The Paper covers the essential skills for using all the programs separately and as a team

- It equips the students to develop their own application using Graphical user Interface.
- Knowledge of Microsoft Access as Database Management System to organizing Staggering information about personal and business life.
- To learn Power point presentation graphics program.

Module I:

Windows 2000: Introduction to computers – Windows 2000 – Features of Windows 2000 – Date and Time, Time Zone, Display, Background, Screen saver, Fonts, Modems, Mouse, Mouse Pointers – Explorer. (15 Hours)

Module II:

MS Word: Word Basics – Starting word creating documents, parts of a word window, formatting features, menus, commands, toolbars and their icons – Mail Merge – Macros – Word Exercises. (15 Hours)

Module III:

MS Excel: Excel Basics – Introduction – Menus, Commands, Toolbars and their icons – Data sort – Functions – Excel Exercises. (15 Hours)

Module IV:

MS Power Point: Power Point Basics – Introduction – Toolbars their Icons and commands – Navigating in Power Point – working with PowerPoint (Animation effects, Hyperlink) (15 Hours)

Module V:

MS Access: Introduction – Parts of an Access window – (Toolbars and their Icons) – creating a simple database and tables – forms – entering and editing data – finding, sorting and displaying data – Printing reports, form, letters and labels. (15 Hours)

Books for Reference:

Sanjay Saxena	:“A First Course in Computers”, Vikas Publishing House Pvt Ltd., Delhi, 2003.
Ron Mansfield	:Working in Microsoft Office, Tata Mc Graw Hill Publishing Company Ltd., Delhi, 2005.

B.A Economics

Semester VI

Part III-Elective Course III–Banking Practices (For Student admitted from 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

This paper aims to

- provide basic knowledge about the importance and functions of commercial banks
- acquire practical knowledge and skills in banking transactions

Module I

Definition of a banker and Customer – General relationship – Special relationship – Banking services – Computerization in banks. (18 Hours)

Module II

Deposit accounts –Types: Saving Bank A/C, Current A/C, Fixed Deposit A/C, RD A/C , Non Resident A/C , Foreign Currency (non-resident) A/C – Opening and Operation of deposit

account. E-banking services-Internet Banking – Phone Banking, Mobile Banking –ATM-Debit Card, Credit Card.
(17 Hours)

Module III

Negotiable Instruments –Cheque - Bill of Exchange –Promissory Note-Crossing of Cheque –Endorsement.
(17 Hours)

Module IV

Principles of sound lending – loans and advances –Modes of creating charge-Pledge - Hypothecation – Mortgages
(18 Hours)

Module V

Banking Practicals

- 1.Pay-in-slip
- 2.Application for term deposits
- 3.Cheque
- 4.Withdrawal form
5. Post office saving Bank A/C Application
6. Locker opening
- 7.Jewel loan application
- 8.Personal loan application
9. ATM-functioning in four different banks
10. Application form for educational loan
11. Bills discounting
- 12.Getting DD
13. Electronic Clearing System (ECS)

(5 Hours)

Books for Reference:

- E.Gordon & K.Natarajan : Banking Theory –Law & Practice, Himalaya Publishing House, Bombay 2005
P.N.Varshney :Banking Law and Practice,Sultan Chand & Sons Delhi, 2002
M.L.Tannan Banking Law and Practice in India,India Law House,Delhi, 1997
S.S.Gulsan & : Banking Law and Practice, Sultan Chand & Co Ltd., Delhi, 1999
K.Kapoor

Programme: M.A. Economics

(For the Students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
15ME01	Core I – Advanced Micro Economics	6	3	25	75	100	4
15ME02	Core II – Mathematical Techniques for Economic Analysis	6	3	25	75	100	4
15ME03	Core III - Research Methodology in Economics	6	3	25	75	100	4
15ME04	Core IV - Human Resource Management	4	3	25	75	100	4
15ME05	Core V - Management of Small Business	4	-	25	75	100	4
15MEE1	Elective I- Soft Skills	4	3	25	75	100	4
	Semester II						
15ME06	Core VI- Advanced Macro Economics	6	3	25	75	100	4
15ME07	Core VII-Public Economics	6	3	25	75	100	4
15ME08	Core VIII- Economics of Human Resources	6	-	25	75	100	4
15ME09	Core IX- Econometrics	6	3	25	75	100	4
15MEE2	Elective II – Women in Development	6	3	25	75	100	4
15MEIS	Internship	-	-	50	-	50	2
15MGCS	Cyber Security - Level I	2	2	50	-	Grade	Grade
15MESVI	Advanced Learners Course I– Subject Viva Voce	-	-	100	-	100	4*
	Semester III						
15ME10	Core X- Economics of						

	Money and Financial Institutions	5	3	25	75	100	4
15ME11	Core XI-Operations Research	6	3	25	75	100	4
15ME12	Core XII-Industrial Economics	5	3	25	75	100	4
15ME13	Core XIII – Marketing Management	4	-	25	75	100	4
15MEE3	Elective III – Statistical Packages for Data Analysis - Practical	6	3	40	60	100	4
Semester IV							
15ME14	Core XIV - Export Procedures and Documentation	6	3	25	75	100	4
15ME15	Core XV- Environmental Economics	6	3	25	75	100	4
15ME16	Core XVI – Health Economics**	6	-	60	40	100	4
15MEE4	Elective IV- Computer Application Techniques- PageMaker & Corel Draw - Practical	6	3	40	60	100	4
15MEPV	Project and Viva Voce	6	-	100	100	200	8
15MES VII	Advanced Learners Course –II Subject Viva Voce	-	-	100	-	100	4*
TOTAL						2250	90

Single Starred credits are treated as additional credits which are optional.

Double Starred Papers are self learning papers.

M.A. Economics Semester I

Core II - Mathematical Techniques for Economic Analysis **15ME02**
(For the students admitted from the academic year 2016-17 & 2015-2016)

Credits: 4

Hours: 75

Preamble:

The content of the course is designed

❖ to acquaint the students with economic concepts in mathematical format.

- ❖ to train the students to use the techniques of mathematical analysis which are commonly applied to understand and analyse economic problems.
- ❖ to develop an aptitude towards quantitative analysis of economic phenomenon.

Unit I (15 Hours)

Derivatives and their interpretation – Rules of differentiation- Economic Applications- Elasticity of Demand, AR and MR – Profit maximization – Cost minimization

Unit II (15 Hours)

Maxima and Minima of a function of one variable and two variable – Optimal values and Extreme values- Lagrangian Multiplier–Homogeneous Function and their properties – Euler's Theorem.

Unit III (15 Hours)

Integration – Indefinite Integration – Definite Integrals – Economic applications of Integration – Total function from marginal function – Consumer's surplus – Producer's surplus.

Unit IV (15 Hours)

Matrix Algebra - Transpose of a Matrix - Determinants - Rank of a matrix – Inverse of a matrix (3 x 3) - Cramer's Rule.

Unit V (15 Hours)

Input and output analysis – Its assumptions and uses – Hawkins – Simon condition – Solution to open and closed Leontief models

Note: Theory carries 25 marks and problems carry 50 marks. Sums may be asked from first four Units only.

Books for Reference

7. Mehta & Madnani, Mathematics for Economists, Sultan Chand & Sons, New Delhi, 2013
8. D. Bose, Mathematical Economics, Himalaya Publishing House, Delhi, 2007
9. Srinath Barauh, Basic Mathematics & its Application in Economics, Macmillan Ltd., Chennai, 2001
10. M. Wilson, Business Mathematics, Himalaya Publishing House, Delhi, 2007

M.A. Economics

Semester I

Elective I - Soft Skills

15MEE1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble:

- ❖ To help the students to learn and improve the art of Group Discussion and preparatory steps for interview.
- ❖ To equip the students to face the competitive examinations and placements.
- ❖ To suggest good business meeting protocol.

Unit I: Effective Communication & Resume Writing (12 Hours)

Communication: Definition, Process, Barriers, Non-Verbal Communication, Johari Window, The Art of Listening, Production of Speech, Organisation of Speech, Modes of Delivery, Conversation Techniques, Dialogue, Good Manners and Etiquettes.

Resume: Types- Chronological, Functional and Hybrid- Contents of a Good Resume.

Unit II: Group Discussion, Interview Skills and Team Building (12 Hours)

Group Discussion: Process, Purpose, Aspects – Role of GD in Selection Procedure – Do's and Don'ts of GD - GD Topics for Practice.

Interview: Objectives, Importance, Types, Techniques, Appearing for an Interview- Mock Interviews.

Unit III: Personality Development, Attitude & Motivation (12 Hours)

Self-Awareness, Assertiveness, Goal Setting, Problem-solving, Conflict and Stress Management, Decision-Making Skills, Positive and Creative Thinking, Lateral Thinking, Time Management.

Attitude: Concept, Significance, Factors affecting attitudes, Positive Attitude- Advantages, Negative Attitude- Disadvantages.

Motivation: Concept, Significance, Internal and External Motives, Importance of Self-motivation, Factors leading to demotivation.

Unit IV: English for Competitive Examinations (8 Hours)

- Comprehending Passages
- Sentence Completion
- Voice
- Composition – Paragraph Writing only
- Precis Writing

Unit V: Test of Reasoning (8 Hours)

Verbal Reasoning

- Series Completion, Analogy
- Data sufficiency
- Logical Deduction – Logic and Theme Detection only

Non-Verbal Reasoning

- Series
- Mirror Images, Completion of Incomplete Pattern

Books for Reference:

7. Aggarwal, R.S. Quantitative Aptitude, S. Chand & Sons, 20
8. Aggarwal, R.S, A Modern Approach to Non-Verbal Reasoning, S.Chand & Co, Delhi, 2004
9. Hari M.Prasad& Rajnish M, How to prepare for Group Discussion and Interview, Tata McGraw Hill, Delhi, 2005
10. Mandal S.K, How to succeed in Group Discussions and personal Interviews, Jaico Publishing House, Mumbai, 2005
11. Kay DuPont, Business Etiquette and Professionalism, Viva Books Pvt. Ltd., Chennai, 2004
12. Parul Singh, Handbook of Writing Effective Resume for Job Applications, Excel Books, Delhi, 2007

M.A. Economics
Semester II
Core IX - Econometrics

15ME09

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course aims at

- ❖ developing understanding of economic relationships and statistical methods relevant for the analysis of this relationship.
- ❖ enhancing the skills of students for taking up research in economics.

Unit I (15 Hours)

Definition, Scope and Division of Econometrics- Methodology of Econometric research- Specification and estimation of the model- Evaluation of the parameter estimates-Desirable properties of an econometric model.

Unit II (15Hours)

The Simple Linear Regression Model – assumptions – Least Squares criterion and the normal equations of OLS – Properties of the least square estimates.

Unit III (15Hours)

Multiple Regression – Model with two explanatory variables – linear and non-linear relationship – Semilog, Double log, Inverse and Polynomial forms

Unit IV (15Hours)

Auto Correlation – Meaning - Causes – Consequences – Test for Auto Correlation. Multicollinearity – Meaning – Causes – Consequences – Test for Multicollinearity- Heteroscedasticity

Unit V (15Hours)

Lagged Variables and distributed lag models – Almon, Koyck, Nerlove and Cagan Models. Simultaneous equation models – Structural, Reduced and Recursive models

Note: Only theory questions to be asked from all the units

Books for Reference:-

8. Dhanasekaran. K, Econometrics, Vrinda Publications (P) Ltd, Delhi, 2008.
9. Koutsoyiannis. A, Econometrics, The Macmillan Press Ltd, London, 1997.
10. Damodar N. Gujarati, Basic Econometrics, McGraw-Hill Singapore, 1995
11. Mehta, B.C & Kranti Kapoor, Fundamentals of Econometrics, Himalaya Publishing House, Delhi, 2005.

M.A. Economics
Semester III
Core XI - Operations Research

15ME11

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course helps the student

- ❖ to gain knowledge of appropriate basic quantitative techniques
- ❖ to develop skills in economic management problems

Unit I (15 Hours)

Methodology and Linear Programming – Definition – Characteristics – Necessity – Methodology – Limitations of Operations Research. Linear Programming – Requirement of Linear Programming – Graphical Solution to two variables –simplex method – Advantages and Limitations of Linear Programming.

Unit II (15 Hours)

Transportation and Assignment – Transportation problem – Introduction to the model – Formulation and solutions – Transportation models – Assignment problems – Application of Assignment model – Formulation and solution of assignment model

Unit III (15 Hours)

Game Theory – Basic concepts of game theory – pay off matrix – Two persons zero sum game. Pure strategy – Minimax and Maximin – Saddle point – mixed strategy – odds method, dominance method, sub-games method and equal gain from all strategies method – Application of Game.

Unit IV (15 Hours)

Network Analysis- Network Techniques – Network Logic – Fulkerson's Rule – Slack- Critical Path – Probability of meeting the schedule dates – CPM and PERT – CPM models-floats – Project Network.

Unit V (15 Hours)

Inventory Control-type of Inventories-Variables-Inventory Cost-Classification of Inventory Models-Selective Inventory Control (ABC Analysis) -Economic Order Quantity Models: Instantaneous Replenishment without Shortages-Instantaneous Replenishment with Shortages (Problems only)

Books for Reference

7. Kantiswarup Gupta P.K, Operations Research, Sultan Chand & Sons, New Delhi, 2002
8. Gupta P.K. and Hira D.S, Problems in Operation Research, Sultan Chand & Company Ltd., New Delhi, 1995
9. V.K. Kapoor, Quantitative Techniques, Systems Analysis and Data Processing, Sultan Chand & Sons, New Delhi 2001
10. Mariappan, Operations Research, Methods & Applications, New Century Book House, Coimbatore, 2000
11. Naidu N.V. R. and others, Operations Research, International Publishing House Pvt. Ltd, New Delhi, 2011

M.A. Economics

Semester IV

**Elective IV – Computer Application Techniques - PageMaker and Corel Draw-
Practical 15MEE4**

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course helps

- ❖ to understand the fundamentals of PageMaker.
- ❖ to provide a conceptual understanding of the fundamentals of Corel Draw and can create business cards, pamphlets, banners, newspapers, books.

Unit I (15 Hours)
What's new in CorelDraw 12? – Interfacing with CorelDraw. Getting Started with CorelDraw12: Measuring and Drawing Helpers - Zooming and Viewing – Essential Objects Commands.

Unit II (15 Hours)
Working with object tools: Creating Basic Shapes – Drawing with Line Tools – Cutting, Shaping and Reshaping objects – Arranging and organizing objects.

Unit III (15 Hours)
PageMaker Basics – Working with Publications – Drawing tools – Text tools.

Unit IV (15 Hours)
Importing Graphics – Transformations - Master Pages – Utilities

Unit V (15 Hours)
Working with Text – The Story Editor -Working with Frames – Working with Layers.

Books for Study:

3. Steve Bain & Nick Wilkinson, CorelDraw 12, DreamTech Publications, 2004
4. Satish Jain , Training Guide – PageMaker 7, BPB, Publications, 2003

List of Programs:

Corel Draw:

16. Create a program using Drawing Tools(Scenery, Train, Car, Bus, House, Hut)
17. Create a logo using Corel Draw.
18. Create an invitation for college day/sports day.
19. Create a Greeting card (Birthday, Mother's day, Pongal, Diwali).
20. Create a Visiting Card.

PageMaker:

21. Create an advertisement to work with Layers.
22. Create a program using Drawing Tools (Train, Car, Computer, Doll)
23. Create a program Newsletter using Text tools.
24. Create a program to Import Images and align the images.
25. Create a program to work with Frames.(Advertisement, Banners, Flex)
26. Create a program for masking a picture.
27. Create a program for Transformation of an object.
28. Design a certificate. (Functions, state level, national level champions).
29. Create a front page design for books.
30. Create a pamphlet for college prospectus.

M.A. Economics

Semester III

Elective III – Statistical Packages for Data Analysis - Practical 15MEE3
(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course is designed to

- ❖ create the necessary ground for developing modern techniques in research.
- ❖ train the students to compute statistical parameters and data analysis through statistical packages.

- Unit I** (15 Hours)
An overview of SPSS – creating new data file – opening a data file - data entry – inset rows – insert columns – editing data – assigning variable names and value labels – Merging data files: adding cases – add variables.
- Unit II** (15 Hours)
Frequencies – Descriptive Statistics. Managing Data: Listing cases, replacing missing values, computing new variables, recording variables, exploring data, selecting cases, sorting cases, merging files.
- Unit III** (15 Hours)
Cross Tabulation and Chi-Square Analysis – Descriptive Statistics: Measures of Central Tendency - means - procedure – Data Transformations: Computing values – calculator- bad functions – conditional expressions. Recoding values – recode into same variable – recode into different variables. Charts – Bar, line and pie.
- Unit IV** (15 Hours)
Bivariate Correlation: Partial Correlations and the correlation matrix–t test procedure: Independent –samples, paired samples, and one sample tests.
- Unit V** (15 Hours)
One way ANOVA procedure: One way analysis of variance - Simple Linear Regression - Multiple Regression analysis.

Books for Reference:

9. Dhanasekaran. K, **Computer Applications in Economics –Vrinda Publications**
10. Rajathi A & Chandran, P, **SPSS for You, MJP, Publishers, Chennai,**
11. Cunningham J.B & James O. Aldrich, **Using SPSS – An Interactive hands-On Approach,** Sage Publications, New Delhi, 2012
12. Gupta & Hitesh Gupta, **SPSS 17.0 for Researchers, International Book House Pvt. Ltd., Mumbai, 2011**

M.A. Economics

Semester I

Core V– Management of Small Business

15ME05

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble:

The course would equip the students with

- ❖ organization skills in the setting up and managing of the various aspects of a small business unit.
- ❖ entrepreneurial skill and business communicative skills.

Unit I (12 Hours)

Definition and Legal frame work – classification – selection of a small scale industry – forms of organization – sole – proprietorship, partnership, joint – stock companies, The co-operatives – line organization & functional organization – old business – New Business – Franchise.

Unit II (10 Hours)

Procedural aspects – Rules and regulations governing a small scale industry – Taxation benefits and incentives for the promotion of small scale industries - Project classification & identification, Project objectives – Constraints – format for a report.

Unit III (10 Hours)

Institutional assistance to small scale industry – need for institutional support – Institutions supporting and assisting small scale industries - SIDCO, DIC, NSIC, SFC, SIDBI, IFCI, IIBI, EXIM - Women entrepreneurs - Type of Industries suitable for women entrepreneurs.

Unit IV (10 Hours)

Production Planning – Production Channel and Control – Methods of Marketing – Incentives and subsidies schemes available for export

Unit V (10 Hours)

Business Correspondence – Banking – Insurance – Agency – Drafting the structure of business letters – Sales & Trade letters – Electronic Communication methods.

Books for Reference:

11. Vasant Desai, Management of a Small Scale Industry, Himalaya Publishing House, Delhi, 2003.
12. G.K. Patia & Prakash, Institutional Financing for Small Scale Industries, Discovery Publishing House, Delhi, 2003
13. V.S Datey, Taxman's Practice Manual to Small Scale Industries, Taxman Allied Services (P) Ltd., New Delhi, 1999.
14. M.V. Sonalker & Kaveri, Financial Management for Small Enterprises, Authors Press, New Delhi, 2003.
15. Nirmal, K. Gupta, Small Industry –Challenges & Perspectives, Anmol Publications, Delhi, 1992.
16. Ruddar Datt & K. M. Sundaram, Indian Economy, S. Chand & Co., Ltd., Delhi, 2006
17. Philip Kotler, Marketing Management – Analysis, Planning Implementation and Control Practice Hall of India P. Ltd, Delhi 1998.

M.A. Economics

Semester IV

Core XIV - Export Procedures and Documentation 15ME14

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course is designed

- ❖ to familiarize the students with the procedures of export trade and
- ❖ to expose them with the procedures of export documentation.

Unit I (15 Hours)

Export – Types of exports – organizing exports – starting an export business – processing an export order – Labelling, Packaging, Packing and Marking of Export Consignments.

Unit II (15 Hours)

Indian Laws relating to Export Trade – Transportation and Shipment of goods for export – Quality Control and pre – shipment inspection – Central Excise Clearance of goods for export.

Unit III (15 Hours)

Export Documentation – Master Documents I and II – Marine and Air Cargo Insurance – Documents relating to payment, Letter of Credit, Bill of Exchange, Trust Receipt, Letter of Hypothecation and Bank's Certificate for Payment – Documentation practices in India – Need for preparing export documents in India.

Unit IV

(15 Hours)

Export Finance – importance – methods – pre shipment and post shipment – sources, short, medium and long term – methods of payment to exports – Role and functions of EXIM Bank of India and Export Credit Guarantee Corporation of India.

Unit V

(15 Hours)

Export Pricing– objectives – importance – price and non – price factors in pricing decisions - Methods of pricing. Export policy - the pre - reform period. – An overall view of export promotion policies – critical evaluation of export policy – New Trade policy, the reform period – critical evaluation of the New Trade Policy. Special Economic Zones – New Export – Import Policy 2010– 2011.

Books for Reference:

13. Paras Ram, Export What Where How, Anupam Publishers, Delhi, 2004 – 2005.
14. Kapoor. D.C, Export Management, Vikas Publishing House, New Delhi, 2002.
15. Kathiresan. S and Radha. V, Export Management, Prasanna Publishers, Chennai, 2002.
16. Balagopal T.A.S, Export Management, Himalaya Publishing House, Delhi, 2010.
17. Misra and Puri, Indian Economy, Himalaya Publishing House, New Delhi, 2012.
18. N. Kumar and R. Mittal, Export Management, Anmol Publication Pvt. Ltd., New Delhi, 2002.
19. Justin Paul and Aserkar, Export Import Management, Oxford University Press, Delhi, 2008.
20. Khurana P.K, Export Management, Galgotia Publishing Co, New Delhi, 2001.

B.A. Economics
Semester wise Distribution with Scheme of Examination
(For the candidates admitted during the academic year 2014-2015 & onwards)

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Part I – Language I	3	3	25	75	100
	Part II – English I	3	3	25	75	100
	Part III – Core I – Micro Economics I	4	3	25	75	100
	Core II – Demography	4	3	25	75	100
	Allied I – Principles of Management	5	3	25	75	100
	Part IV – Environmental Studies	2	3	-	50	50
II	Part I – Language II	3	3	25	75	100
	Part II – English II	3	3	25	75	100
	Part III – Core III – Micro Economics II	4	3	25	75	100
	Core IV – Agricultural Economics	4	3	25	75	100
	Allied II – Statistics	5	3	25	75	100
	Part IV – Value Education	2	3	-	50	50
	Advanced Learners Course I – Business Environment	3*	3	-	100	100
III	Part I – Language III	3	3	25	75	100
	Part II – English III	3	3	25	75	100
	Part III – Core V – Macro Economics	4	3	25	75	100
	Core VI – Economics of Marketing	4	3	25	75	100
	Allied III – Mathematical Methods	5	3	25	75	100
	Skill Based Course I – Introduction to Retailing	3	3	100	-	100
	Part IV – Non Major Elective Course I	2	3	75	-	75
IV	Part I – Language IV	3	3	25	75	100
	Part II – English IV	3	3	25	75	100
	Part III – Core VII – Monetary Economics					
	Core VIII – Economic Doctrines	4	3	25	75	100
	Allied IV – Tally Accounting Programme	4	3	25	75	100
	Part IV – Skill Based Course II – Retail Merchandising Management & Retail Pricing	5	3	40	60	100
	Non Major Elective II – General Awareness	3	3	100	-	100
	Advanced Learners Course II – Quantitative Techniques	2	3	75	-	75
		3*	3	-	100	100

V	Part III – Core IX – Fiscal Economics	4	3	25	75	100
	Core X – International Economics	4	3	25	75	100
	Core XI – Economics of Investment Management	4	3	25	75	100
	Core XII – Entrepreneurship Development	4	3	25	75	100
	Elective I – Principles of Insurance	5	3	25	75	100
	Skill Based Course III – Retail Business Management	3	3	100	-	100
VI	Part III – Core XIII – Indian Economic Development	4	3	25	75	100
	Core XIV – Economics of Tourism	4	3	25	75	100
	Core XV – Urban Economics	4	3	25	75	100
	Elective II – Computer Applications in Business – Practical	5	3	40	60	100
	Elective III – Banking Practices	5	3	25	75	100
	Part IV – Skill Based Course IV – Retail Store Planning & Design Layout	3	3	100	-	100
	Extension Activities	1	-	50	-	50
	Advanced Learners Course III – Economics of Infrastructure	3*	3	-	100	100

Single Starred Credits are treated as additional credits, which are optional.

B.A. Economics Semester I

Part III – Core I – Micro Economics I

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is to

- Equip the students with the basic tools and methods of economic analysis.
- Understand the behavior of economic agents as a consumer and producer

Module I: Nature, Scope and Methods of Economics

Introduction: Nature and scope of Economics- Definitions of Economics-Wealth, Welfare, Scarcity and Growth- Distinction between Micro and Macro Economics- Inductive and Deductive methods- Static and Dynamic Analysis - Partial and General Equilibrium.

(13 Hours)

Module II: Law of Demand and Elasticity of Demand

Theory of Demand-Cardinal approach to consumption analysis- Law of Diminishing Marginal Utility- Law of Equi- Marginal Utility- Law of Demand- Exceptional demand curves- Determinants of Demand- Elasticity of Demand- Types and Degrees – Measurement-Factors influencing Elasticity of Demand*. (13 Hours)

Module III: Indifference Curve Analysis and Consumer's Equilibrium

Theory of Consumption – Ordinal approach to consumption analysis- Indifference curve analysis- Scale of preference- Indifference Curves- Properties- Marginal Rate of Substitution- Consumer's Equilibrium- Income, Price and Substitution effects- Consumer's Surplus (13Hours)

Module IV: Factors of Production and Supply

Factors of Production: Characteristics of Land- Characteristics of Labour- Efficiency of Labour- Division of Labour- Characteristics of Capital- Characteristics of Organisation- Characteristics of an Entrepreneur- Elasticity of Supply- Factors affecting Elasticity of Supply. (13 Hours)

Module V: Theory of Production

Theory of Production: Production Function- Laws of Returns- Law of Variable Proportions- Returns to Scale- Producer's Equilibrium using isoquants- Economies of Scale- Internal and External – Diseconomies (13 Hours)

Book for Study:

S. Sankaran : Micro Economics, Margham Publications, Madras, 2012.

Books for Reference:

H.L Ahuja : Principles of Economics, S. Chand & Co,(P) Ltd., Delhi, 2003

M.L Jhingan : Micro Economics, Economic Analysis, S.Chand & Co., Delhi, 2012.

Cauvery & : Micro Economic Theory, S. Chand & Co,(P) Ltd., Delhi, 2012

Others

Starred and underlined portions are for self-study

B.A. Economics

Semester I

Part III – Core II – Demography

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The content of the course aims to

- educate the students about the inter-relationship between economic development and population.
- expose the students to the established theories of population.
- enlighten the students about the characteristics of India's population as well as population policies followed.

Module I:

Demography: Meaning, Scope and importance, Sources of Demographic Data: Census-meaning and characteristics, Vital Registration, Sample Survey. Growth of Population – Causes and its effects on Economic Development.* (13Hours)

Module II:

Theories of Population: Malthusian Theory of Population* - New Malthusianism – Optimum Theory of Population – Comparison of Malthusian Theory with the Optimum Theory- Theory of Demographic Transition. (13 Hours)

Module III:

Population Structure and Characteristics: Birth Rate, its trends and causes – Death Rate, its trends and causes – Trends in Sex Ratio, Age Structure, Literacy Rate, Density* - Migration: Types of Migration – Socio economic factors affecting migration. (13 Hours)

Module IV:

Rate and Pattern of Urbanization – Causes and Consequences of Urbanization.
Suggested Urban Policy – Population and Labour Force, Levels of Labour Force Participation. (13 Hours)

Module V:

Government Policy for Population Control: Objectives – Measures – Population Policy of India – National Population Policy 2000 – Family Planning Programme and Progress in India: Drawbacks of Family Planning Programme – Suggestions for Effective Implementation. (13Hours)

Books for Study:

Ruddar Datt & : Indian Economy, S.Chand & Company Ltd., New Delhi, 2012
K.P.M. Sundaram .

Asha A. Bhende & : Principles of Population Studies, Himalaya Publishing House
Tara Kanitkar Bombay, 2006

Books for Reference:

M.L. Jhingan & : Demography, Vrinda Publications (P) Ltd, New Delhi, 2011.
B.K. Bhatt
A.N. Agarwal : Indian Economy (Problems of Development and Planning) New Age International (P) Ltd., Publishers, New Delhi, 2000.

Starred and underlined portions are for self-study

B.A. Economics**Semester I****Part III – Allied I – Principles of Management**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble:

This course endeavors to impart the basic knowledge of organizing and managing a firm in an efficient manner.

Module I: Management and Manager

Management: Definition – Features- Functions- Importance- Administration and Management- Manager: Functions- Role- Responsibilities- Entrepreneur and Manager. (15 Hours)

Module II: Planning and Decision Making

Planning: Definition- Characteristics- Objectives- Advantages and Limitations - Steps in Planning Process- Management by Objectives (MBO) - Decision Making- Decision Making Process. (15 Hours)

Module III: Organisation and Directing

Organisation: Functions- Nature- Importance- Classification of Organisation: Formal and Informal Organisation- Difference between Formal and Informal Organisation- Directing: Meaning and Principles. (15 Hours)

Module IV: Delegation and Decentralisation

Delegation: Elements- Principles- Types- Advantages- Problems- Effective Delegation. Decentralization-Advantages- Disadvantages- Departmentation: Need- Factors- Basis.
(15 Hours)

Module V: Controlling and Co-ordination

Controlling- Scope- Steps- Requirements of Effective Control System- Features- Need – Advantages- Limitations- Coordination - Features – Importance- Principles- Types- Problems- Steps for effective Co-ordination.
(15 Hours)

Book for Study:

T. Ramasamy : Principles of Management, Himalaya Publishing House, Mumbai, 2010

Books for Reference:

P.C Tripathi & : Principles of Management, Tata Mc-Graw-Hill Publishing Co.

P.N Reddy Ltd, New Delhi, 2008

Dinkar Pagare : Principles of Management, Sultan Chand & Sons, Delhi, 2003

Starred and underlined portions are for self-study

B.A. Economics**Semester II****Part III – Core III – Micro Economics II**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 75

Preamble:

The course aims at

- ✚ Equipping the students with the tools of economic analysis to deal with different economic phenomenon
- ✚ Imparting knowledge about the behaviour of economic agents namely producer and factor owner as price fluctuates in the market

Module I: Cost and Revenue

Cost and Revenue- Concepts of Cost and Revenue- Average, Marginal and Total Cost- Nature of short and long run average cost curves. Revenue: Average Revenue, Marginal Revenue, Total Revenue- Importance of revenue curves- Equilibrium of the firm under marginal conditions.
(15 Hours)

Module II: Product Pricing in Perfect Competition and Monopoly

Structure of Market- Perfect Competition: Meaning- Price and Output Determination in the short run and long run. Time Element- Monopoly: Meaning- Features- Price and Output Determination- Price Discrimination and its degrees – Price Determination under Discriminating Monopoly- Dumping- Difference between Perfect Competition and Monopoly.
(15 Hours)

Module III: Product Pricing in Monopolistic Competition and Oligopoly

Monopolistic Competition: Meaning and Features- Equilibrium of the firm- Group Equilibrium- Selling Costs- Wastes of Imperfect Competition. Oligopoly: Features- Kinked Demand Curve Model- Cournot model of Duopoly. (15 Hours)

Module IV: Factor Pricing: Rent and Wages

Factor Pricing- Difference between factor pricing and commodity pricing- Marginal Productivity Theory. Ricardian Theory of Rent- Quasi Rent and Transfer Earnings- Modern

Theory of Rent. Wages- Types - Theories of Wages- Backward sloping supply curve of labour- Collective Bargaining and Wages (15 Hours)

Module V: Factor Pricing: Interest and Profit

Interest- Gross Interest and Net Interest- Loanable Fund Theory of Interest- Liquidity Preference Theory of Interest. Profit: Gross and Net Profits- Innovation and Risk Bearing Theories of Profit. (15 Hours)

Book for Study:

S. Sankaran : Micro Economics, Margham Publications, Madras, 2012.

Books for Reference:

M.L. Jhingan : Micro Economics, Economic Analysis, S. Chand & Co., Delhi, 2012.

Lokanathan V : Economic Analysis, S. Chand & Co, New Delhi, 2010.

R. Cauvery & : Micro Economic Theory, S. Chand & Co, (P) Ltd., Delhi, 2012

Others

Starred and underlined portions are for self-study

B.A. Economics

Semester II

Part III – Core IV – Agricultural Economics

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is to equip the students with the

- ❖ Importance of agriculture in an economy
- ❖ Issues related to agricultural sector

Module I:

Introduction: Agriculture- Meaning- Importance of Agriculture*- Agricultural in an Indian Economy*- Present position of Indian agriculture- Causes for low productivity in agriculture. (13 Hours)

Module II:

Land Utilization in India- Agricultural Holdings- Sub- division and Fragmentation of Holdings- Effects. Cropping Pattern – Factors influencing Cropping Pattern. (13 Hours)

Module III:

Land Reforms- Objectives of Land Reforms, Measures- Abolition of Intermediaries – Tenancy Reforms- Ceiling on Land Holdings- Co-operative Farming. (12 Hours)

Module IV:

Agricultural Inputs- Irrigation – Types*. HYV Seeds, Fertilizers and Manures, implements and machinery. Sources of Agricultural Finance. New Agricultural Strategy and Green Revolution- Effects. A Brief Note on Need for Second Green Revolution. (13 Hours)

Module V:

Agriculture Marketing and Price- Defects of Agricultural Marketing-Measures taken to improve Agricultural Marketing (in brief) - Fluctuations in Agricultural Prices- Reasons- Commission for Agricultural Cost and Prices- Agricultural Price Policy in India- Public Distribution System- Objectives- Defects. (14 Hours)

Book for Study:

Dr. S. Sankaran : Agricultural Economy of India, Margham Publications, Chennai, 2006

Books for Reference:

Ruddar Dutt & : Indian Economy, S. Chand & Co Ltd, New Delhi, 2006

K.P.M. Sundaram

S.K.Misra & Puri.V. : Indian Economy- Its Development Experience, Himalaya Publishing House, Mumbai, 2010.

Starred and underlined portions are for self-study

B.A. Economics**Semester II****Part III – Allied II – Statistics**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble:

This course aims at imparting

- ❖ The knowledge of the various statistical tools
- ❖ Application of the statistical tools for solving economic problems.

Module I:

Meaning and definition of Statistics- Functions and limitations, Statistical investigation and collection of Data- Statistical survey- Planning and executing the survey- Collection of data- Primary and secondary data- Sources of Secondary data- Method of collecting primary data.

(15 Hours)

Module II:

Classification and Tabulation of Data: classification- Definition- Objectives- Types of Classification- Frequency Distribution – Tabulation- Types of Tabulation- Diagrammatic and Graphical representation.

(15 Hours)

Module III:

Measures of Central Tendency- Arithmetic Mean- Median –Mode- Geometric Mean. Measures of Dispersion- Range- Quartile Deviation- Mean Deviation- Standard Deviation.

(15 Hours)

Module IV:

Simple Correlation- Meaning and Types- Measurement of Correlation-Karl Pearson's Co-efficient of Correlation- Spearman's Rank Correlation- Regression-Method of Least Square with one independent variable.

(15 Hours)

Module V:

Index Numbers- Definition and Classification- Methods of Constructing Index Numbers- Laspeyre's, Paasche's, Fisher's Ideal Index Numbers- Time Reversal and Factor Reversal Test- Cost of Living Index Numbers- Problems of Constructing Index Numbers-Uses.

(15 Hours)

Note: Theory carries 25 marks and problems carry 50 marks.

Book for Study:

R.S.N Pillai and : Statistics, S. Chand & Co Ltd,. New Delhi, 2007

V. Bagavathi

Book for Reference:

S.P Gupta : Statistical Methods, Sultan Chand & Sons, New Delhi, 2007.

B.A Economics
Semester wise Distribution with Scheme of Examination
(For the Candidates admitted During the Academic Year 2012-2013 & onwards)

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks CIA ESE		Total
I	Part I-Tamil Course I	3	3	25	75	100
	Part II-English Course I	3	3	25	75	100
	Part III – Core Course I- Micro Economics I	4	3	25	75	100
	Part III – Core Course II – Demography	4	3	25	75	100
	Part III-Allied Course I- Principles of Management	5	3	25	75	100
	Part IV- Environmental Studies	2	3	-	50	50
II	Part I-Tamil Course II	3	3	25	75	100
	Part II- English Course II	3	3	25	75	100
	Part III-Core Course III Micro Economics –II	4	3	25	75	100
	Part III- Core Course IV-Agricultural Economics	4	3	25	75	100
	Part III – Allied Course II Statistics	5	3	25	75	100
	Part IV- Value Education	2	3	-	50	50
	Advanced Learners Course I	3*	3	-	100	100
	Business Environment					
III	Part I – Tamil Course III	3	3	25	75	100
	Part II – English Course III	3	3	25	75	100
	Part III – Core Course V Macro Economics	4	3	25	75	100
	Core-VI-Economics of Marketing	4	3	25	75	100
	Allied Course III Mathematical Methods-I	5	3	25	75	100
	Skill Based Subject-I Introduction to Retailing	3	3	25	75	100
	Part III –Non-Major Elective Course -I Consumerism	2	3	-	75	75
IV	Part I- Tamil Course IV	3	3	25	75	100
	Part II-English Course IV	3	3	25	75	100
	Part III – Core Course VII Monetary Economics	4	3	25	75	100
	Part III – Core Course VIII Economic Doctrines	4	3	25	75	100
	Allied Course IV-					

	Tally Accounting Programme	5	3	40	60	100
	Part IV-Skill Based Course-II- Paper II-Retail Merchandising Management & Retail Pricing	3	3	25	75	100
	Non-Major Elective –II General Awareness	2	3	-	75	75
	Advanced Learners Course –II Quantitative Techniques	3*	3	-	-	100
V	Part III – Core Course IX Fiscal Economics	4	3	25	75	100
	Part III- Core Course X International Economics	4	3	25	75	100
	Part III- Core Course XI- Economics of Investment	4	3	25	75	100
	Part III – Core Course XII – Entrepreneurship Development	4	3	25	75	100
	Elective -I Principles of Insurance	5	3	25	75	100
	Skill Based Subject-III Paper III-Retail Business Management	3	3	25	75	100
VI	Part III- Core Course XIII Indian Economic Development	4	3	25	75	100
	Core Course XIV –Economics of Tourism	4	3	25	75	100
	Core Course-XV-Urban Economics	4	3	25	75	100
	Elective Course II Computer Applications in Business	5	3	25	75	100
	Elective Course III– Banking Practices	5	3	40	60	100
	Part IV-Skill Based Course IV Retail Store Planning & Design	3	3	25	75	100
	Extension Activities	1	-	50	-	50
	Advanced Learners Course-III Economics of Infrastructure	3*	3	-	-	100

Single Starred Credits are treated as additional credits, which are optional

Department offers the following:

- ❖ **Consumerism** as Non- Major Elective Course I

B.A. Economics
Semester II
Part III – Core Course V–Macro Economics
(For Student admitted from 2012-2013 and onwards)

Credits: 5

Hours: 65

Preamble:

The Course is designed to

- ❖ make the students aware of the basic theoretical framework underlying the field of macro economics
- ❖ expose the students to macro economic aspects in Keynesian and Post- Keynesian Economics

Module I:

Definition, nature and scope of Macro Economics- Circular flow of Income, Closed Economy Model- Open Economy Model- Importance of Circular flow of income- National Income- Concepts, Measurement- Difficulties in measurement of national income*- Uses of National Income analysis- Social Accounting- Various forms of Social Accounting and their uses.
(12 Hours)

Module II:

Classical Theory of Employment: Say's Law of Market-Pigou's wage cut policy- Keynesian Theory of Employment. Effective Demand- Under employment equilibrium. Difference between Classical Theory of Employment and Keynes Theory of Employment.
(12 Hours)

Module III

Consumption Function- Average and Marginal Propensity to consume- Determinants of Consumption Function* - Keynes's Psychological Law of Consumption function- Duesenberry's Relative Income Hypothesis- Don Patinkin's Real Balance Effect- Friedman's Permanent Income Hypothesis- Modigliani Life Cycle Hypothesis.
(13 Hours)

Module IV:

Savings- Determinants of saving- Investment function- Types of Investment- Determinants of Investment. Marginal Efficiency of Capital and Rate of Interest (only Liquidity Preference Theory of Interest)- Saving and Investment equality- Classical Approach- Keynesian Approach – Multiplier- Working and Leakages- Principle of Acceleration.
(13 Hours)

Module V:

Post- Keynesian Macro Analysis- Contribution of Hicks and Hansen- IS LM function- Primary and Secondary – Objectives of general macro economic policy- Supply – side economies.
(15 Hours)

Book for Study:

R.Cauvery & Others : Macro Economics, S.Chand & Company Ltd. New Delhi, 2004

Books for Reference:

M.L.Jhingan : Macro Economics, Konark Publishers Pvt Ltd. New Delhi, 1987

Dr.S.Sankaran : Macro Economics, Margham Publications, Chennai, 2004.

Starred and Underlined portions are for self-study

B.A. Economics
Semester III
Part III –Core Course VI– Economics of Marketing
(For Student admitted from 2012-2013 and onwards)

Credits: 3

Hours: 52

Preamble:

The aim of the course is

- ❖ to introduce the students to the area of marketing which is an important practical side to the economics.
- ❖ to equip the students with the knowledge regarding the concepts and techniques of marketing.
- ❖ to develop the self employment skill in the students.

Module I:

Definition of Marketing – Evolution of Marketing – Objectives and Importance of Marketing – Features of Modern Marketing – Functions of Marketing-Role of Marketing.
(10 Hours)

Module II:

Product Policies – Product Mix – Product Life Cycle – Branding , Packaging and Labelling– New product development – Factors to be considered before introducing a new product – Product elimination, symptoms of a weak product – Guidelines for product elimination.
(10 Hours)

Module III:

Buyer behaviour – Buying motives – Factors influencing buyer behaviour – Market segmentation – Need for market segmentation – Basis for market segmentation. (10 Hours)

Module IV:

Pricing of Products – Pricing objectives – Factors influencing pricing decision – Elements of promotion mix – Sales promotion – Consumer sales promotion – Dealer sales promotion, Sales Force Promotion. (10 Hours)

Module V:

Personal selling – Qualities – Objectives – Salesmanship – Essentials of Salesmanship – uses of Salesmanship – Advertising – Benefits of advertising – Advertising agencies – Direct Marketing – Benefits – Types – Media Marketing. (12 Hours)

Books for Study

R.S.N. Pillai and Bagavathi :Marketing,SultanChand&Company,NewDelhi, 1990.

Rajan Nair :Marketing,SultanChand&Co,NewDelhi, 2000.

Books for Reference

D.Amarchand and B.Varadarajan: An Introduction to Marketing, Vikas Publishing House, 1983.

Richard J. Watson : Marketing, Galgotia Publications Pvt Ltd, New Delhi, 1998.

Philip Kotler :MarketingManagement,PrenticeHall of India Pvt Ltd, New Delhi, 1991.

Philip Kotler,Gary Armstrong: Principles of Marketing,Prentice-Hall of India Pvt Ltd, New Delhi, 1999

William M.Price :Marketing Concepts and Strategies,Biztantra,NewDelhi,2006.
O.C.Ferrell.
M.Govindarajan :Marketing Management, Concepts,Cases,Challenges and Trends
Prentice – Hall of India Pvt, Ltd, New Delhi, 2007

B.A. Economics
Semester III
Part III –Allied III – Mathematical Methods
(For Student admitted from 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

The Course helps the students

- to gain elementary mathematical knowledge
- to know the application of mathematical techniques in economic theories

Module I:

Mathematical Economics and Algebra: Nature and scope of mathematical economics- Mathematical operations with decimal and fractions- Ratios and Proportions- Variation- Progression- Arithmetic Progression, Harmonic Progression and Geometric Progression.
(15 Hours)

Module II:

Number System& Equation: Number System – Prime numbers- Integers- Rational Numbers – Operations with fractions- Real number System- Properties of real number system- Equation- Linear and Quadratic equations.
(15 Hours)

Module III:

Matrix Algebra: Matrix- Types- Addition – Subtraction- Multiplication. Determinants- Transpose of a matrix- Inverse of matrix – Solution of simultaneous equations- Cramer’s rule- Matrix inversion method(3x3)
(15 Hours)

Module IV:

Differentiation: Geometry of marginal analysis- Process of Differentiation- Rules of Differentiation- Exponential and Logarithmic- Derivatives of Higher order- Application of Derivatives in economics- Elasticity of Demand, Cost, Revenue function- Profit maximization and cost minimization.
(15 Hours)

Module V:

Mathematics of Finance: Simple interest, Compound interest- Discounting- Percentage- Cost, Sales, Profit- Purchase discount- Trade, Quantity and Cash- Commission.
(15 Hours)

Note:Theory carries 25 marks and Problems carry 50 marks.

Books for Study:

V.D Deshpande, Chandekar : Elementary Mathematical Techniques for Economics
& Dharmadhihari S.Chand & CompanyPvt Ltd, New Delhi,1998.
B.C Mehta & : Mathematics for Economists, Sultan Chand & Sons,
B.C Madnani New Delhi,2000.
P.Navaneetham& Others :BusinessMathematics,Anand Publications, Tiruchirapalli
1998.

Books for Reference:

- Srinath Baruah : Basic Mathematics and its Applications in Economics, Macmillan India Ltd, Chennai, 2001.
- Alpha C Chiang : Fundamental Methods of Mathematical Economics, Mc Graw Hill Book Company, New Delhi, 1984.

B.A. Economics**Semester IV**

Part III –Core Course VII– Monetary Economics
(For Student admitted from 2012-2013 and onwards)

Credits: 4**Hours: 65****Preamble:**

The Course aims at

- understanding the role of money, theories of money and how money is managed in modern economy

Module I:

Money- Definition- kinds- Functions- Merits and Demerits* - Monetary Standards- Monometallism and Bimetallism- Gold Standard- Causes for the break down of gold standard- Paper Standard- Principles and methods of Note Issue- Merits and Demerits- India's Present Currency System.
 (15 Hours)

Module II:

Theories of Money- Fisher Quantity theory of money- Cambridge version of Quantity- Keynes theory of money and prices- Reformulation – Friedman's Restatement of Quantity theory of money.
 (14 Hours)

Module III:

Inflation – meaning-definition-causes-types-effects-control. Deflation-effects- control- Stagflation- Business cycles- meaning- phases- types- Monetary theories of Trade cycles- control of trade cycles.
 (12 Hours)

Module IV:

Role of Commercial banks in economic development*-Credit creation by commercial banks- Functions of Central bank- Method of Credit control- Money market and Capital market(a brief idea only)
 (12 Hours)

Module V:

Monetary policy- objectives and tools- RBI and Monetary policy-NBFI-Meaning- Types- Importance
 (12 Hours)

Book for Study:

S.Sankaran : Monetary Economics, Margham Publications, Chennai, 2005.

Books for Reference:

- B.N Ghosh and Rama : Fundamentals of Monetary Economics, Himalaya Publishing House, Bombay, 1990.
- M.L Jhingan : Monetary Economics, Konark Publishers Pvt Ltd, New Delhi, 1997.
- T.T.Sethi : Monetary Economics, S.Chand & Co Ltd, New Delhi, 1996.

Starred and Underlined portions are for self-study

B. A. Economics
Semester IV
Allied Course IV - Tally Accounting Programme
(For Students admitted from 2011-12 and onwards)

Credits:5

Hours: 75

Preamble:

This course aims to

- Familiarize the students with financial accounting on computers.
- Provide skill for using Tally.

Module I

Tally's accounting features: Basics of Accounting – Accounting Principles – Concepts – Conventions – Double Entry system- Financial statements – Introduction to Tally ERP9 – Getting Functional with Tally ERP9 – Creating Company - Tally Fundamentals – Features of Tally – F11& F12 Features – Ledgers – Groups Common and Possible Errors in Grouping and Account Classification – Pre-defined Groups in Tally ERP9. (14 Hours)

Module II

Processing Accounting Transactions – Vouchers – Accounting Vouchers – Contra Voucher – Payment Voucher – Receipt Voucher – Journal Voucher – Sales Voucher. Financial Reports – Balance Sheet – Profit & Loss Account, Trial Balance – Cash Book, Bank Books, Ledgers, Group Summary, Group Vouchers, Journal Registers – Day Book. Purchase and Sales Invoices – Depreciation Entries - Adjustment Entries- Provision Entries. (16 Hours)

Module III

Trading organizations – Trade Discount – Cash Discount – Returns – Allowances – Tally's basic Inventory related features: Inventory Valuation – Inventory Costing Methods – Purchase and Sales – Cash and Credit Sales – Purchase Returns – Sales Returns - Bills Receivables and Bills Payable – Value Added Tax (VAT) – Sales Tax – Voucher Type creation. (15 Hours)

Module IV

Stock Group – Stock Item, Units of Measure. Cost Centers – Cost Category – Cheque printing – Interest calculation – Stock Summary – Inventory Books Stock Item - Bank Reconciliation Statement (BRS). (15 Hours)

Module V

Manufacturing organizations: Advanced inventory related Features: Transactions involve purchase of raw material, Manufacturing Journal – Multi Currency – TDS – TCS – Service Tax – Tally Audit – Reports - Out standings - Receivables and Payables – Age-wise analysis - CST Reports – TDS Reports. (15 Hours)

Books for Reference

Complete Self-Learning Manual on Tally ERP 9: BB Publications, Mysore

B.A Economics
Semester V
Part III –Core Course XI– Economics of Investment
(For students admitted from 2012 – 2013 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is to

- equip the students with the knowledge of different investment opportunities available in the economy.
- help in proper choice of investment mode.

Module I:

Meaning – Importance of Investment *- Principles of investment – factors favourable for investment – Investment and speculation – Investment and gambling – Investment media – Features of an investment programme. Financial mathematics*: Compound interest* - Annuity – Present value * - Interest at higher frequencies* (13 Hours)

Module II:

Insurance – Need for life insurance – UTI – Investment in Units- Schemes of UTI – Post Office Small Saving Scheme – Need for small savings* - Public Provident Fund – Objectives- eligibility conditions – Tax concessions. Investment in Land, Gold, Silver, Diamonds, Stamps, Antiques. (15 Hours)

Module III:

Investment in fixed deposits with companies and commercial banks – comparative approach- Stock Exchange – Meaning – Organization – Mechanics of security trading in stock exchanges – Kinds of trading activity. (12 Hours)

Module IV:

Listing of securities – Meaning – objectives – advantages - disadvantages of listing. Shares – Meaning – Kinds of shares – Equity shares – features, Preference shares – features – Private Equities – Debentures- kinds – features – comparison between Debenture holders and shareholders. (13 Hours)

Module V:

Mutual funds – Kinds – Advantages and disadvantages- Schemes of mutual fund – Investment and tax planning (a basic knowledge)- Regulation of Stock Exchanges- Role of Securities Exchange Board of India (12 Hours)

Books for Study:

Preeti Singh : Investment Management Security Analysis and Portfolio Management,
Himalaya Publishing House, Mumbai, 2004.

Books for Reference:

Dr. Radha Parameswaran : Investment Management , Prasanna Publishing House,
Dr. Nedunchenzhian New Delhi , 2006.

A.N.Shanbhag : In the Wonderland of Investment, Focus Popular Prakasham,
Mumbai, 1999.

V.K.Bhalla :Investment Management , Security Analysis and Portfolio
Management, S.Chand & Co Ltd., New Delhi , 1997.

Vasant Desai :The Indian Financial System, The System that Cares
Financial Markets, Institutions & Services, Himalaya
Publishing House, Mumbai 1997.

Prasanna Chandra :The Investment Game - How to Win, Tata Mc Graw Hill Publishing
Co., Ltd., New Delhi 1990.

Starred and underlined portions are for self-study.

B.A. Economics
Semester V
Part III – Core Course XII– Entrepreneurship Development
(For Student admitted from 2012-2013 and onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is

- ❖ to acquire the knowledge regarding characteristics of an entrepreneur.
- ❖ to develop an interest in entrepreneurial activity and
- ❖ to equip them with entrepreneurial skills for self – employment.

Module I:

Entrepreneurship–Meaning and Definition–Importance–factors affecting entrepreneurial growth – Social, Economic and Environmental factors. Types and functions of an entrepreneur – Qualities of a successful entrepreneur. (14 Hours)

Module II:

Women Entrepreneurs: Concepts, functions and role of women entrepreneurs – Growth of women entrepreneurs, problems of women entrepreneurs – role of women entrepreneurs associations – Selection of Industry by women entrepreneurs. Types of Industries / Business suitable for women entrepreneurs – Rural women entrepreneurs. (13 Hours)

Module III:

Search for a business idea – Sources – Processing and selection – Selection of types of Organization – Project classification and identification – Project objectives – Internal and external constraints – Format for a report. (14 Hours)

Module IV:

Training and finance objectives of training – Phases of EDP – Special agencies for training – Institutional finance with special emphasis of commercial banks. IDBI, IFCI, ICICI, IRBI, SFCS, SIPCOT, Khadi and Village Industries Commission* - Types of incentives and subsidies (A Brief study)- Micro Finance. (14 Hours)

Module V:

Group Project (20 Hours)

Books for Reference:

E.Gordon & K.Natarajan :EntrepreneurshipDevelopment,HimalayaPublishing House, New Delhi, 2005

S.Mohan & R.Elangovan : Current Trends in Entrepreneurship, Deep & Deep Publications Pvt, Ltd., New Delhi, 2006.

R. Saravanakumar,
R. Parameswaran &
T.Jayalakshmi, } (V module) : A Text book of Information Technology,
S.Chand & Company Ltd., New Delhi, 2003

C.B.Gupta & N.P.Srinivasan :Entrepreneurial Development,Sultan Chand&Sons, New. Delhi, 2003

P.Saravanel :EntrepreneurialDevelopment,Principles,Policies& Programme,EssPeeKay Publishing House, Madras, 1997.

R.S.N. Pillai and Bagavathi :Commercial Correspondence & Office Management, S.Chand & Company, New Delhi, 1996.

Starred and underlined portions are for self-study.

B.A Economics
Semester V
Part III-Elective Course I-Principles of Insurance
(For Students admitted from 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

The course aims to

- ❖ provide knowledge to basic concepts and importance of Insurance
- ❖ impart knowledge on the various insurance legislations

Module I

Risk and insurance: Risk –Meaning, Definition, and Classification of Risk. Insurance Meaning, Definition, Nature, Functions, Principles of Insurance, Importance of Insurance, Terms used in Insurance. (15 Hours)

Module II

Types of Insurance: Life Insurance: Kinds of Life Insurance-Non Life Insurance: Kinds of Non Life Insurance (15 Hours)

Module III

Insurance Document: Introduction –Proposal form –Policy Form-Cover Note-Certificate of Insurance – Endorsement –Cancellation (15 Hours)

Module IV

Insurance Legislation in India: The Insurance Act 1938 – Life Insurance Act 1956 – General Insurance Corporation of India – Insurance Regulatory and Development Authority of India and its functions (15 Hours)

Module V

Insurance Intermediaries: Introduction-Insurance Broker-Functions of Broker-Insurance Agents-Duties of Agents –Surveyors and Loss Assessors –Functions –Third Party Administrator-Code of Conduct. (15 Hours)

Books for Study:

Karam Pal,B.S.Bodla :Insurance Management, Principles and Practices
M.C.Garg Deep and Deep Publications Pvt Ltd., Delhi,2007.
[For Module I,II,IV,V]
Insurance Institute of India. :Practice of General Insurance, 2004
[For Module III] :

Book for Reference

P.Periasamy : Principles and Practice of Insurance:Himalaya
Publishing House,Mumbai, 2005.

B.A. Economics
Semester VI
Part III – Core Course XIII – Indian Economic Development
(For students admitted from 2012-2013 and onwards)

Credits: 4

Hours: 75

Preamble:

The course enables the students

- ❖ To have an essential understanding of various issues of the Indian Economy and

- ❖ To have the ability to comprehend & critically appraise the current Indian economic problems

Module I:

Characteristics of Indian Economy as a Developing Economy – Problems of economic development - Poverty – Causes, measures to eradicate poverty, poverty alleviation programmes- Unemployment – Types, Causes, nature and extent, Government policy for removing Unemployment. (15 Hours)

Module II:

Capital formation, meaning, importance, sources, reasons for low capital formation, measures for increasing capital formation – human capital formation in India- causes for rise in prices in India- control of Inflation in India (15 Hours)

Module III:

Role of Industrialization* – Industrial Policies of 1956, 1980 and 1991 –Role and importance of Small Scale Industries* – Industrial Sickness In India – Causes, Consequences and Remedial Measures . (15 Hours)

Module IV:

Features of Indian Industrial Labour* - Industrial disputes in India, Causes, Settlement of Industrial disputes- Social security measures in India* - National wage Policy, objectives, principle constituents of national wage policy (15Hours).

Module V:

Importance of Foreign Trade for a developing economy - India's Foreign Trade, Value, Composition and Direction – Foreign capital, need, forms, Government's Policy towards Foreign Capital – The impact of foreign aid on India's Economic Development- brief study on the policies of Liberalisation, Privatisation and Globalisation (15Hours)

Books for Study:

Ruddar Dutt & K.P.M Sundaram :Indian Economy, S.Chand & Company Ltd., New Delhi, 2012

Books for Reference:

S.K Misra & V.K. Puri :Indian Economy, Its Development Experience, Himalaya Publishing House, Mumbai, 2011
 Ishwar D.Dhingra :Indian Economy, S.Chand & Co., Delhi, 1997
 Dr.S.Sankaran :Indian Economy, Margham Publications, Chennai, 2004
 Alok Ghosh :Indian Economy, The World Press Pvt., Ltd., Calcutta, 1997.

Starred and Underlined portions are for self-study

B.A. Economics
Semester VI
Part III – Core Course XIV – Economics of Tourism
(For students admitted from 2012-2013 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is

- To create an understanding of the growing importance of the tourism industry in an economy
- To enlighten the students on the various opportunities in the tourism sector for self employment

Module I:

Meaning and nature of tourism- Definition of tourist and tourism-Motivation of tourism- Basic components of tourism- Tourism demand- Factors influencing tourism demand*- Medical tourism
(13 Hours)

Module II:

Economic benefits and costs of tourism- Impacts on income, employment and output- Multiplier effect- Trickle down effect- Infrastructure development- Regional development- Employment generation – Balance of payment- Role of entrepreneurial activity.
(13 Hours)

Module III:

The role of state in promoting tourism- role and functions of a travel agency- Accommodation – types- Definition of Hotel- Classifications- Supplementary accommodation- classifications.
(13 Hours)

Module IV:

Environmental and cultural impacts of tourism – Tourism and International understandings- Tourism marketing: Definition- Tourism product- Marketing process and functions- peculiarities of tourism marketing.
(13 Hours)

Module V:

“India as a tourist paradise”- Growth of tourism in India*- Tourist Administration in India- Sargeant Committee Report- The role of ITDC in tourism development- Future of tourism – World Tourism Organisation.
(13 Hours)

Books for Study:

- Virender Kaul :Tourism and the Economy, Har- Anand Publications, New Delhi 1994
- Alister Mathieson & : Tourism – Economy, Physical, Social Impacts, Longman Inc
Geoffery Wall New York, 1982.
- A.K Bhatia :International Tourism- Fundamental and Practices, Sterling
Publishers Pvt Ltd. New Delhi, 1994.
- Jagmohan Nagi :Travel agency and Tour operations, Concepts and Principles,
Konishka Publishers, New Delhi, 1997

Books for Reference:

- Pran Nath Seth & :An Introduction to Travel and Tourism, Sterling Publications
Sushma Seth Bhat Pvt. Ltd, New Delhi, 1997
- A.K Bhatia : Tourism Development – Principles and Practices, Sterling
Publications Pvt, Ltd, New Delhi, 1995

Gulab Nabi : Socio Economic Impact of Tourism, Pioneer Publishers, Jaipur, 2000.
Mukesh Ranga : Tourism Potential in India, Abhijeet Publications, New Delhi, 2003

Starred and Underlined portions are for self-study

B.A. Economics

Semester III

Core Course XV - Urban Economics

(For Students admitted from 2012-13 and onwards)

Credits:4

Hours:65

Preamble:

Rapid economic development leads to growth in urbanization. This trend results in increased demand for urban infrastructure development and provision of utility services. Process of urbanization, demand for infrastructure and public utility services and role of urban local bodies are issues that are discussed. Environmental issues, urban planning, urban modeling and financing of urban infrastructure are also dealt with in this paper.

Module I: Urbanisation: Concept and Characteristics

Urban Economics: Meaning. Subject matter, importance, limitations. Urbanisation: meaning, characteristics and concepts, factors affecting Urbanisation. Urbanisation and urban growth – components. Effects of Urbanisation. (13 Hours)

Module II: Urbanisation in India

Urbanisation in India – Factors and Trends of Urbanisation. Urban Morphology. Features and Pattern of Urbanisation. Problems of Urbanisation and Policies. (13 Hours)

Module III: Structure of Human Settlements

Meaning, types – Urban human settlements and Rural settlements. Settlement hierarchy. Central Place theory and Spatial Economic organization – recent developments in Central Place theory. Urban systems and functional dependencies between human settlements of different sizes. (13 Hours)

Module IV: Urban Problems

Immigration. Housing and Slums, drinking water and sewerage system. Crime, prostitution and slums. Environmental pollution and health, transport and communication. (13 Hours)

Module V: Urban Planning in India

Concept of town and urban planning. Principles of Urban Planning in India. Urban Policies and practices in India. Planning of Mega City. (13 Hours)

Books for Reference:

Edwin S. Mills & : Urban Economics, Harper Collins Publishers, USA, 2001
Bruce W. Hamilton

B.A. Economics

Semester VI

Part III – Elective Course II – Computer Applications in Business

(For students admitted from 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

The Paper covers the essential skills for using all the programs separately and as a team

- It equips the students to develop their own application using Graphical user Interface.

- Knowledge of Microsoft Access as Database Management System to organizing Staggering information about personal and business life.
- To learn Power point presentation graphics program.

Module I:

Windows 2000: Introduction to computers – Windows 2000 – Features of Windows 2000 – Date and Time, Time Zone, Display, Background, Screen saver, Fonts, Modems, Mouse, Mouse Pointers – Explorer. (15 Hours)

Module II:

MS Word: Word Basics – Starting word creating documents, parts of a word window, formatting features, menus, commands, toolbars and their icons – Mail Merge – Macros – Word Exercises. (15 Hours)

Module III:

MS Excel: Excel Basics – Introduction – Menus, Commands, Toolbars and their icons – Data sort – Functions – Excel Exercises. (15 Hours)

Module IV:

MS Power Point: Power Point Basics – Introduction – Toolbars their Icons and commands – Navigating in Power Point – working with PowerPoint (Animation effects, Hyperlink) (15 Hours)

Module V:

MS Access: Introduction – Parts of an Access window – (Toolbars and their Icons) – creating a simple database and tables – forms – entering and editing data – finding, sorting and displaying data – Printing reports, form, letters and labels. (15 Hours)

Books for Reference:

Sanjay Saxena	:“A First Course in Computers”, Vikas Publishing House Pvt Ltd., Delhi, 2003.
Ron Mansfield	:Working in Microsoft Office, Tata Mc Graw Hill Publishing Company Ltd., Delhi, 2005.

B.A Economics

Semester VI

Part III-Elective Course III–Banking Practices (For Student admitted from 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

This paper aims to

- provide basic knowledge about the importance and functions of commercial banks
- acquire practical knowledge and skills in banking transactions

Module I

Definition of a banker and Customer – General relationship – Special relationship – Banking services – Computerization in banks. (18 Hours)

Module II

Deposit accounts –Types: Saving Bank A/C, Current A/C, Fixed Deposit A/C, RD A/C , Non Resident A/C , Foreign Currency (non-resident) A/C – Opening and Operation of deposit account. E-banking services-Internet Banking – Phone Banking, Mobile Banking –ATM-Debit Card, Credit Card. (17 Hours)

Module III

Negotiable Instruments –Cheque - Bill of Exchange –Promissory Note-Crossing of Cheque –Endorsement. (17 Hours)

Module IV

Principles of sound lending – loans and advances –Modes of creating charge-Pledge - Hypothecation – Mortgages (18 Hours)

Module V

Banking Practicals

1. Pay-in-slip
2. Application for term deposits
3. Cheque
4. Withdrawal form
5. Post office saving Bank A/C Application
6. Locker opening
7. Jewel loan application
8. Personal loan application
9. ATM-functioning in four different banks
10. Application form for educational loan
11. Bills discounting
12. Getting DD
13. Electronic Clearing System (ECS)

(5 Hours)

Books for Reference:

- | | |
|----------------|---|
| E.Gordon & | : Banking Theory –Law & Practice, Himalaya Publishing House, |
| K.Natarajan | Bombay 2005 |
| P.N.Varshney | :Banking Law and Practice,Sultan Chand & Sons Delhi, 2002 |
| M.L.Tannan | Banking Law and Practice in India,India Law House,Delhi, 1997 |
| S.S.Gulsan & : | Banking Law and Practice, Sultan Chand & Co Ltd., Delhi, 1999 |
| K.Kapoor | |

M.A. Economics

Semester Wise Distribution with Scheme of Examination (For the candidates admitted during the academic year 2014-2015 and onwards)

Semester	Course	Credits	Duration of Exam Hrs(SEE)	Marks		Total
				CI A	SEE	
I	Core I – Advanced Micro Economics	6	3	25	75	100
	Core II – Mathematical Techniques for Economic Analysis	5	3	25	75	100
	Core III- Research Methodology in Economics	5	3	25	75	100
	Elective I - Management of Small Business	3	3	25	75	100
	Diploma I-Introduction to Gender Studies	2	3	25	75	100
II	Core IV - Advanced Macro Economics	5	3	25	75	100
	Core V - Econometrics	6	3	25	75	100
	Core VI - Statistical Techniques for Economic Analysis	4	3	25	75	100
	Statistical Techniques for Economic Analysis - Practical	2	3	40	60	100
		3	3	25	75	100
	Elective II – Industrial Economics	2	3	25	75	100
	Diploma II - Feminism					
	Advanced Learners Course I – Logistics Management	4*	3	-	-	100
	Core VII - Economics of Money and Financial Institutions	5	3	25	75	100
		5	3	25	75	100
	Core VIII - Public Economics					

III	Core IX - Economics of Growth and Development	5	3	25	75	100
		5	3	25	75	100
	Core X – Operations Research	3	3	25	75	100
	Elective III - Health Economics	3	3	25	75	100
	Diploma III - Women in Development					
IV	Core XI- Export Procedures and Documentation	5	3	25	75	100
	Core XII – Human Resource Management	5	3	25	75	100
	Core XIII- Environmental Economics	5	3	25	75	100
	Elective IV- Marketing Management	3	3	25	75	100
	Diploma IV- Project	3	-	50	50	100
	Advanced Learners Course II –	4*	3	-	-	100
	Communication Skills for Business Management					

Starred Credits are treated as additional Credits

M. A. Economics

Semester I

Core II - Mathematical Techniques for Economic Analysis

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble:

The Content of the Course is designed

- ❖ to acquaint the students with economic concepts in mathematical format.
- ❖ to train the students to use the techniques of mathematical analysis which are commonly applied to understand and analyse economic problems.
- ❖ to develop an aptitude towards quantitative analysis of economic phenomenon.

Module I:

Derivatives and their Interpretation – Rules of Differentiation- Economic Applications- Elasticity of Demand, AR and MR – Profit Maximization – Cost Minimization

(15 Hours)

Module II:

Maxima and Minima of a Function of One Variable and Two Variable – Optimal Values and Extreme Values- Lagrangian Multiplier–Homogeneous Function and their Properties – Euler’s Theorem. (15 Hours)

Module III:

Integration–Indefinite Integration – Definite Integrals – Economic Applications of Integration – Total Function from Marginal Function – Consumer’s Surplus – Producer’s Surplus. (15Hours)

Module IV:

Matrix Algebra - Transpose of a Matrix - Determinants - Rank of a Matrix – Inverse of a Matrix (3×3) - Cramer’s Rule. (15Hours)

Module V:

Input and Output Analysis – Its Assumptions and Uses – Hawkins – Simon Condition – Solution to Open and Closed Leontief Models (15 Hours)

Books for Reference

- Mehta & Madnani :Mathematics for Economists, S Chand & Sons, Delhi, 2013
 D.Bose :Mathematical Economics, Himalaya Publishing House, Delhi,2007
 Srinath Barauh :Basic Mathematics and its Application in Economics, Macmillan India Ltd., Chennai, 2001
 M.Wilson :Business Mathematics, Himalaya publishing House, Delhi, 2007

Note: Theory carries 25 marks and problems carry 50 marks.

M.A Economics**Semester II****Core V - Econometrics**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 6

Hours: 75

Preamble:

The Course aims at

- ❖ developing understanding of economic relationships and statistical methods relevant for the analysis of this relationship.
- ❖ to enhance the skills of students for taking up meaningful research in economics.

Module I:

Definition, Scope and Division of Econometrics- Methodology of Econometric Research- Specification and Estimation of the Model- Evaluation of the Parameter Estimates-Desirable Properties of an Econometric Model. (15 Hours)

Module II:

The Simple Linear Regression Model – Assumptions – Least Squares Criterion and the Normal Equations of OLS – Properties of the Least Square Estimates.

(15 Hours)

Module III:

Multiple Regression – Model with two Explanatory Variables – Linear and Non-Linear Relationship – Semi-log, Double log, Inverse and Polynomial forms.

(15 Hours)

Module IV:

Auto Correlation – Meaning - Causes – Consequences – Test for Auto Correlation. Multicollinearity – Meaning – Causes – Consequences – Test for Multicollinearity. Heteroscedasticity. – Meaning – Causes – Consequences. -Test for detecting Heteroscedasticity.

(15 Hours)

Module V:

Lagged Variables and Distributed Log Models – Almon, Koyck, Nerlove and Cagan Models. Simultaneous Equation Models – Structural, Reduced and Recursive Models

(15 Hours)

Books for Reference:-

Dhanasekaran. K : Econometrics, Vrinda Publications (P) Ltd, Delhi, 2008.

Koutsoyiannis. A : Econometrics, The Macmillan Press Ltd, London, 1997.

Mehta, B.C & : Fundamentals of Econometrics, Himalaya Publishing House, Kranti Kapoor New Delhi, 2005.

M.A. Economics**Semester II****Core VI – Statistical Techniques for Economic Analysis**

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 75

Preamble:

The Course is designed to

- ❖ create the necessary ground for developing modern techniques in research.
- ❖ train the students to compute statistical parameters and data analysis through statistical packages.

Module I:

Averages – Arithmetic Mean, Median, Mode, Standard Deviation – Coefficient of Variation – Graphs and Charts in Excel.

(15 Hours)

Module II:

Simple Correlation – Multiple Correlation – Simple Linear Regression Analysis – Multiple Linear Regression.

(15 Hours)

Module III:

Trend Analysis - Forecasting through Time Series Analysis- Analysis of Variance - One way and Two way Classification

(15 Hours)

Module IV:

Testing of Hypothesis – Student's 't' test-to test the significance of the mean of a random Sample- to test the difference between the means of the two samples (Independent samples) –

‘Z’ test – Standard Error of Mean only - ‘F’ test – Chi Square test for Goodness of fit.
(15 Hours)

Module V:

Excel : Building a Worksheet – Selecting Worksheet Items – Using Autofill – Adding and Removing Rows and Columns – Copying and Moving Information – Creating and Copying Formulas – Naming Ranges – Using functions – Improving the Appearance of Worksheet – Changing Columns Width – Formatting Text and Numbers – Using auto Format – Spell Checking – Using Chart Wizard – Creating, Enhancing and Printing a Chart.
(15 Hours)

Books for Reference

- Ron Mansfield : Working in Microsoft Office, Tata Mc Graw Hill Publishing Company, New Delhi, 2000.
Sanjay Saxena : A First Course in Computers, Vikas Publishing House Pvt. Ltd., New Delhi, 2003.
S.P Gupta : Statistical Methods, Sultan Chand & Sons, New Delhi, 2005.
B.M. Agarwal : Basic Mathematics and Statistics, S. Chand & Sons, Delhi, 2003
D.R. Agarwal : Mathematics and Statistics in Economics, Vrinda Publications (P) Ltd., New Delhi, 2006

Note: Theory carries 25 marks and problems carry 50 marks. Sums may be asked from first four modules only.

Practical - Statistical Techniques for Economic Analysis

Credits: 2

List of Practical

- ❖ Mean, Median, Mode.
- ❖ Standard Deviation, Co-efficient of Variation.
- ❖ Calculation of Simple Correlation Coefficient.
- ❖ Calculation of Linear Regression Analysis.
- ❖ One way and two way Analysis of Variance.
- ❖ Students ‘t’ test
- ❖ ‘Z’-test
- ❖ Chi – square test for goodness of fit.
- ❖ Simple and Compound Growth Rate.
- ❖ Graphical Representation of Data: Line Graph, Bar Diagram. Pie Chart.

M.A Economics

Semester III

Core X - Operations Research

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble:

The Course helps the student

- ❖ to gain knowledge of appropriate basic quantitative techniques
- ❖ to develop skills in economic management problems

Module I:

Methodology and Linear Programming – Definition – Characteristics – Necessity – Methodology – Limitations of Operations Research. Linear Programming – Requirement of Linear Programming –

Graphical Solution to two variables – simplex method – Degeneracy in simplex method – Advantages and Limitations of Linear Programming. (15 Hours)

Module II:

Transportation and Assignment – Transportation problem – Introduction to the model – Formulation and solutions – Transportation models – Assignment problems – Application of Assignment model – Formulation and solution of assignment model. (15 Hours)

Module III:

Game Theory – Basic concepts of Game theory – Pay off matrix – Two persons Zero Sum Game. Pure Strategy – Minimax and Maximin – Saddle point – Mixed Strategy – Odds Method, Dominance Method, Sub-Games Method and equal gain from all strategies method – Application of Game. (15 Hours)

Module IV:

Network Analysis- Network Techniques – Network Logic – Fulkerson's Rule – Slack- Critical path – Probability of meeting the Schedule Dates – CPM and PERT – CPM Models- Floats – Project Network. (15 Hours)

Module V:

Queuing and Cost-Benefit Analysis- Queuing theory – Characteristics of Queuing models- Waiting Time and Idle Time Cost- Single Channel Queuing Theory-Cost Benefit Analysis – Enumeration of Cost and Benefits- Investment Criterion. (15 Hours)

Note: Theory Carries 25 marks and problems carry 50 marks.

Books for Reference

- Kantiswarup Gupta P.K : Operations Research, Sultan Chand & Sons, New Delhi, 2002
Gupta P.K. and Hira D.S : Problems in Operation Research, Sultan Chand & Company Ltd., New Delhi, 1995.
V.K. Kapoor : Quantitative Techniques, Systems Analysis and Data Processing, Sultan Chand & Sons, New Delhi 2001
Mariappan : Operations Research, Methods & Applications, New Century Book House, Coimbatore, 2000.
Jerome D. Wiest : A Management Guide to PERT / CPM with GERT/ PDM/ DCPM and Other Networks, Prentice Hall of India Pvt Ltd, New Delhi, 2001

M.A. Economics

Semester I

Elective I – Management of Small Business

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 3

Hours: 75

Preamble:

The Course would equip the students with

- ❖ organization skills in the setting up and managing of the various aspects of a small business unit.
- ❖ entrepreneurial skill and business communicative skills.

Module I:

Definition and Legal Frame work – Classification – Selection of a Small Scale Industry – Forms of Organization – Sole-Proprietorship, Partnership, Joint – Stock Companies, The Co–

operatives – Line Organization & Functional Organization – Old Business – New Business – Franchise. (16 Hours)

Module II:

Procedural Aspects – Rules and Regulations Governing a Small Scale Industry – Taxation Benefits and Incentives for the Promotion of Small Scale Industries - Project Classification & Identification, Project Objectives – Constraints – Format for a Report.

(16 Hours)

Module III:

Institutional Assistance to Small Scale Industry – Need for Institutional Support – Institutions Supporting and Assisting Small Scale Industries - SIDCO, DIC, NSIC, SFC, IDBI, IFCI, IIBI, EXIM - Women Entrepreneurs - Type of Industries Suitable for Women Entrepreneurs.

(13 Hours)

Module IV:

Production Planning – Production Channel and Control – Methods of Marketing – Incentives and Subsidies Schemes Available for Export

(15 Hours)

Module V:

Business Correspondence – Banking – Insurance – Agency – Drafting the Structure of Business Letters – Sales & Trade Letters – Electronic Communication Methods.

(15 Hours)

Books for Reference:

Vasant Desai :Small Scale Industries & Entrepreneurship, Himalaya Publishing House, New Delhi, 1996.

Vasant Desai :Management of a Small Scale Industry, Himalaya Publishing House, New Delhi, 1996.

G.K. Patia & :Institutional Financing for Small Scale Industries, Discovery Prakash Misra Publishing House, New Delhi, 2003

M.V. Sonalker : Financial Management for Small Enterprises, Authors Press &V.S. Kaveri New Delhi, 2003.

Ruddar Datt & : Indian Economy, S. Chand & Co., Ltd., Delhi, 2011.

K. M. Sundaram

M.A. Economics

Semester IV

Core XI - Export Procedures and Documentation

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble:

The Course is designed

- ❖ to familiarize the students with the procedures of export trade and
- ❖ to expose them with the procedures of export documentation.

Module I:

Export – Types of exports – Organizing exports – Starting an export business – Processing an export order – Labelling, Packaging, Packing and Marking of Export Consignments. (15 Hours)

Module II:

Indian Laws relating to Export Trade – Transportation and Shipment of goods for export – Quality Control and pre – shipment inspection– Central Excise Clearance of goods for export.
(15 Hours)

Module III:

Export documentation – major documents – Marine and Air cargo insurance – Documents relating to payment, Letter of Credit, Bill of Exchange, Trust Receipt, Letter of Hypothecation and Bank's Certificate for Payment – Documentation practices in India – need for preparing export documents in India.
(15 Hours)

Module IV:

Export Finance – importance – methods – pre shipment and post shipment – sources, short, medium and long term – methods of payment to exports – Role and functions of EXIM Bank of India and Export Credit Guarantee Corporation of India.
(15 Hours)

Module V:

Export Pricing– objectives – importance – Price and non – price factors in pricing decisions - Methods of pricing. Export policy - the pre - reform period. – An overall view of export promotion policies – critical evaluation of export policy – New Trade policy, the reform period – critical evaluation of the New Trade Policy. Special Economic Zones – New Export – Import Policy 2010– 2011.
(15 Hours)

Books for Reference:

- Paras Ram : Export What Where How, Anupam Publishers, Delhi, 2004 – 2005.
Kapoor. D.C : Export Management, Vikas Publishing House, New Delhi, 2002.
Kathiresan.S and Radha.V : Export Management, Prasanna Publishers, Chennai, 2002.
Balagopal T.A.S : Export Management, Himalaya Publishing House, Delhi, 2010.
Misra and Puri : Indian Economy, Himalaya Publishing House, New Delhi, 2012.
N.Kumar and R. Mittal : Export Management, Anmol Publication Pvt Ltd., Delhi, 2002.
Justin Paul and Rajiv Aserkar : Export Import Management, Oxford University Press, Delhi, 2008.
Khurana P.K : Export Management, Galgotia Publishing Co, Delhi, 2001.

B.A Economics

Semester wise Distribution with Scheme of Examination

(For the Candidates admitted During the Academic Year 2012-2013 & onwards)

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Part I-Tamil Course I	3	3	25	75	100
	Part II-English Course I	3	3	25	75	100
	Part III – Core Course I- Micro Economics I	4	3	25	75	100
	Part III – Core Course II – Demography	4	3	25	75	100
	Part III-Allied Course I- Principles of Management	5	3	25	75	100
		2	3	-	50	50
	Part IV- Environmental Studies					
II	Part I-Tamil Course II	3	3	25	75	100
	Part II- English Course II	3	3	25	75	100
	Part III-Core Course III Micro Economics –II	4	3	25	75	100
	Part III- Core Course IV-Agricultural Economics	4	3	25	75	100
	Part III – Allied Course II Statistics					
	Part IV- Value Education	5	3	25	75	100
	Advanced Learners Course I	2	3	-	50	50
	Business Environment	3*	3	-	100	100
	Part I – Tamil Course III	3	3	25	75	100
	Part II – English Course III	3	3	25	75	100

III	Part III – Core Course V					
	Macro Economics	4	3	25	75	100
	Core-VI-Economics of Marketing	4	3	25	75	100
	Allied Course III Mathematical Methods-I	5	3	25	75	100
	Skill Based Subject-I Introduction to Retailing					
	Part III –Non-Major Elective Course -I	3	3	25	75	100
	Consumerism	2	3	-	75	75
IV	Part I- Tamil Course IV	3	3	25	75	100
	Part II-English Course IV	3	3	25	75	100
	Part III – Core Course VII					
	Monetary Economics	4	3	25	75	100
	Part III – Core Course VIII					
	Economic Doctrines	4	3	25	75	100
	Allied Course IV-					
	Tally Accounting Programme	5	3	40	60	100
	Part IV-Skill Based Course-II-					
	Paper II-Retail Merchandising Management &Retail Pricing	3	3	25	75	100
	Non-Major Elective –II					
	General Awareness	2	3	-	75	75
	Advanced Learners Course –II	3*	3	-	-	100
	Quantitative Techniques					
	Part III – Core Course IX Fiscal Economics	4	3	25	75	100
	Part III- Core Course X International	4	3	25	75	100

V	Economics					
	Part III- Core Course XI- Economics of Investment	4	3	25	75	100
		4	3	25	75	100
	Part III – Core Course XII – Entrepreneurship Development					
	Elective -I Principles of Insurance	5	3	25	75	100
	Skill Based Subject-III	3	3	25	75	100
	Paper III-Retail Business Management					
VI	Part III- Core Course XIII Indian Economic Development	4	3	25	75	100
	Core Course XIV –Economics of Tourism	4	3	25	75	100
	Core Course-XV-Urban Economics	4	3	25	75	100
	Elective Course II					
	Computer Applications in Business	5	3	25	75	100
	Elective Course III–					
	Banking Practices	5	3	40	60	100
	Part IV-Skill Based Course IV Retail Store Planning &Design	3	3	25	75	100
	Extension Activities	1	-	50	-	50
	Advanced Learners Course-III Economics of Infrastructure	3*	3	-	-	100

B.A. Economics

Semester I

Part III – Core Course I– Micro Economics I

(For Student admitted from 2012-2013 and onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is to

- Equip the students with the basic tools and methods of economic analysis.
- Understand the behaviour of economic agents as a consumer and producer

Module I: Nature, Scope and Methods of Economics

Introduction: Nature and scope of Economics- Definitions of Economics-Wealth, Welfare, Scarcity and Growth- Distinction between Micro and Macro Economics- Inductive and Deductive methods- Static and Dynamic Analysis- Economic Laws- Partial and General Equilibrium. (15 Hours)

Module II: Law of Demand and Elasticity of Demand

Theory of Demand-Cardinal approach to consumption analysis- Law of Diminishing Marginal Utility- Law of Equi- Marginal Utility- Law of Demand- Exceptional demand curves- Determinants of Demand- Elasticity of Demand- Types and Degrees – Measurement-Factors influencing elasticity of demand*- uses. (15 Hours)

Module III: Indifference Curve Analysis and Consumer's Equilibrium

Theory of Consumption – Ordinal approach to consumption analysis- Indifference curve analysis- Scale of preference- Indifference Curves- Properties- Marginal Rate of Substitution- Consumer's Equilibrium- Income, Price and Substitution effects- Consumer's Surplus including Hicksian treatment. (15 Hours)

Module IV: Factors of Production and Supply

Factors of Production: Characteristics of Land- Characteristics of Labour- Efficiency of Labour- Division of Labour- Characteristics of Capital- Characteristics of Organisation- Characteristics of an Entrepreneur- Elasticity of Supply- Factors affecting elasticity of Supply. (15 Hours)

Module V: Theory of Production

Theory of Production: Production Function- Laws of Returns- Law of Variable Proportions- Returns to Scale- Producer's Equilibrium using isoquants- Economies of Scale- Internal and External – Diseconomies. (15 Hours)

Book for Study:

S.Sankaran : Micro Economics, Margham Publications, Madras,2003.

Books for Reference:

H.L Ahuja : Principles of Economics, S.Chand & Co,(P) Ltd., Delhi,2003

Misra & Puri :Advanced Micro Economics, Himalaya Publishing House, Mumbai, 1996

M.L Jhingan : Micro Economics, Economic Analysis, S.Chand & Co., Delhi,2003.

Starred and Underlined portions are for self-study

B.A. Economics**Semester I****Part III – Core II – Demography**

(For the candidates admitted during the academic year 2012-2013 and onwards)

Credits: 4

Hours: 65

Preamble:

The content of the course aims to

- educate the students about the inter-relationship between economic development and population.
- expose the students to the established theories of population.

- enlighten the students about the characteristics of India's population as well as population policies followed.

Module I:

Demography: Meaning, Scope and importance, Sources of Demographic Data: Census-meaning and characteristics, Vital Registration, Sample Survey. Growth of Population – Causes and its effects on Economic Development.* (13Hours)

Module II:

Theories of Population: Malthusian Theory of Population* - New Malthusianism – Optimum Theory of Population – Comparison of Malthusian Theory with the Optimum Theory- Theory of Demographic Transition. (13 Hours)

Module III:

Population Structure and Characteristics: Birth Rate, its trends and causes – Death Rate, its trends and causes – Trends in Sex Ratio, Age Structure, Literacy Rate, Density* - Migration: Types of Migration – Socio economic factors affecting migration. (13 Hours)

Module IV:

Rate and Pattern of Urbanization – Causes and Consequences of Urbanization. Suggested Urban Policy – Population and Labour Force, Levels of Labour Force Participation. (13 Hours)

Module V:

Government Policy for Population Control: Objectives – Measures – Population Policy of India – National Population Policy 2000 – Family Planning Programme and Progress in India: Drawbacks of Family Planning Programme – Suggestions for Effective Implementation. (13Hours)

Books for Study:

Ruddar Datt & K.P.M. Sundaram : Indian Economy, S.Chand & Company Ltd., New Delhi, 2012

Asha A. Bhende & Tara Kanitkar : Principles of Population Studies, Himalaya Publishing House Bombay, 2006

Books for Reference:

M.L. Jhingan & B.K. Bhatt : Demography, Vrinda Publications (P) Ltd, New Delhi, 2011.

A.N. Agarwal : Indian Economy (Problems of Development and Planning) New Age International (P) Ltd., Publishers, New Delhi, 2000.

Starred and underlined portions are for self-study

B.A. Economics

Semester I

Part III – Allied I – Principles of Management

(For the candidates admitted during the academic year 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

This course endeavors to impart the basic knowledge of organizing and managing a firm in an efficient manner.

Module I: Management and Manager

Management: Definition – Features- Functions- Importance- Administration and Management- Manager: Functions- Role- Responsibilities- Entrepreneur and Manager.
(15 Hours)

Module II: Planning and Decision Making

Planning: Definition- Characteristics- Objectives- Advantages and Limitations - Steps in Planning Process- Management by Objectives (MBO) - Decision Making- Decision Making Process.
(15 Hours)

Module III: Organisation and Directing

Organisation: Functions- Nature- Importance- Classification of Organisation: Formal and Informal Organisation- Difference between Formal and Informal Organisation- Directing: Meaning and Principles.
(15 Hours)

Module IV: Delegation and Decentralisation

Delegation: Elements- Principles- Types- Advantages- Problems- Effective Delegation. Decentralization-Advantages- Disadvantages- Departmentation: Need- Factors- Basis.
(15 Hours)

Module V: Controlling and Co-ordination

Controlling- Scope- Steps- Requirements of Effective Control System- Features- Need – Advantages- Limitations- Coordination - Features – Importance- Principles- Types- Problems- Steps for effective Co-ordination.
(15 Hours)

Book for Study:

T. Ramasamy : Principles of Management, Himalaya Publishing House, Mumbai, 2010

Books for Reference:

P.C Tripathi & : Principles of Management, Tata Mc-Graw-Hill Publishing Co.

P.N Reddy Ltd, New Delhi, 2008

Dinkar Pagare : Principles of Management, Sultan Chand & Sons, Delhi, 2003

Starred and underlined portions are for self-study

B.A. Economics**Semester II****Part III – Core Course III– Micro Economics II**

(For Student admitted from 2012-2013 and onwards)

Credits: 4

Hours: 75

Preamble:

The paper aims at

- ✚ Equipping the students with the tools of economic analysis to deal with different economic phenomenon
- ✚ Imparting knowledge about the behaviour of economic agents namely producer and factor owner as price fluctuates in the market

ModuleI: Cost and Revenue

Cost and Revenue- Concepts of cost and revenue- Average, Marginal and Total cost- Nature of short and long run average cost curves. Revenue: Average revenue, Marginal revenue, Total Revenue- Importance of revenue Curves- Equilibrium of the firm under marginal conditions.
(15 Hours)

ModuleII:Product Pricing in Perfect Competition and Monopoly

Structure of Market- Perfect Competition: Meaning- Price and Output determination in the short run and long. Time Element- Monopoly: Meaning- Features- Price and Output

Determination- Price discrimination and its degrees – price determination under discriminating monopoly- Dumping- Difference between perfect competition and monopoly
(16 Hours)

ModuleIII: Product Pricing in Monopolistic Competition and Oligopoly

Monopolistic competition: Meaning and Features- Equilibrium of the firm- Group Equilibrium- Selling Costs- Wastes of imperfect competition. Oligopoly: Features- kinked demand curve model- Price leadership- price determination under low cost firm model and dominant firm- Cournot model of Duopoly. (16 Hours)

ModuleIV: Factor Pricing: Rent and Wages

Factor Pricing- Difference between factor pricing and commodity pricing- Marginal Productivity Theory. Ricardian theory of Rent- Quasi rent and Transfer earnings- Modern Theory of Rent. Wages- real wages- Theories of Wages- Backward sloping supply curve of labour- Collective Bargaining and Wages.

(16 Hours)

Module V: Factor Pricing: Interest and Profit

Interest- Gross Interest and Net Interest- Loanable Fund Theory of Interest- Liquidity Preference Theory of Interest. Profit: Gross and Net Profits- Innovation and Risk bearing Theories of Profit (12 Hours)

Book for Study:

S.Sankaran : Micro Economics, Margham Publications, Madras,2003.

Book for Reference:

M.L Jhingan :MicroEconomics,EconomicAnalysis,S.Chand&Co., Delhi,2003.

Misra & Puri : Advanced Micro Economics, Himalaya Publishing House, Mumbai,1996.

Lokanathan V. :PrinciplesofEconomic Analysis, S.Chand & Co,New Delhi,2003

B.A. Economics

Semester II

Part III – Core IV – Agricultural Economics

(For the candidates admitted during the academic year 2012-2013 and onwards)

Credits: 4

Hours: 65

Preamble:

The aim of the course is to equip the students with the

- ❖ Importance of agriculture in an economy
- ❖ Issues related to agricultural sector

Module I:

Introduction: Agriculture- Meaning- Importance of Agriculture*- Agricultural in an Indian Economy*- Present position of Indian agriculture- Causes for low productivity in agriculture. (13 Hours)

Module II:

Land Utilization in India- Agricultural Holdings- Sub- division and Fragmentation of Holdings- Effects. Cropping Pattern – Factors influencing Cropping Pattern.

(13 Hours)

Module III:

Land Reforms-Objectives of Land Reforms, Measures- Abolition of Intermediaries – Tenancy Reforms- Ceiling on Land Holdings- Co-operative Farming. (12 Hours)

Module IV:

Agricultural Inputs- Irrigation – Types*. HYV Seeds, Fertilizers and Manures, implements and machinery. Sources of Agricultural Finance. New Agricultural Strategy and Green Revolution- Effects. A Brief Note on Need for Second Green Revolution. (13 Hours)

Module V:

Agriculture Marketing and Price- Defects of Agricultural Marketing-Measures taken to improve Agricultural Marketing (in brief) - Fluctuations in Agricultural Prices- Reasons- Commission for Agricultural Cost and Prices- Agricultural Price Policy in India- Public Distribution System- Objectives- Defects. (14 Hours)

Book for Study:

Dr. S. Sankaran : Agricultural Economy of India, Margham Publications, Chennai, 2006

Books for Reference:

Ruddar Dutt & : Indian Economy, S. Chand & Co Ltd, New Delhi, 2006

K.P.M. Sundaram

S.K.Misra & Puri.V. : Indian Economy- Its Development Experience, Himalaya Publishing House, Mumbai, 2010.

Starred and underlined portions are for self-study

B.A. Economics**Semester II****Part III – Allied II – Statistics**

(For the candidates admitted during the academic year 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

This course aims at imparting

- ❖ The knowledge of the various statistical tools
- ❖ Application of the statistical tools for solving economic problems.

Module I:

Meaning and definition of Statistics- Functions and limitations, Statistical investigation and collection of Data- Statistical survey- Planning and executing the survey- Collection of data- Primary and secondary data- Sources of Secondary data- Method of collecting primary data. (15 Hours)

Module II:

Classification and Tabulation of Data: classification- Definition- Objectives- Types of Classification- Frequency Distribution – Tabulation- Types of Tabulation- Diagrammatic and Graphical representation. (15 Hours)

Module III:

Measures of Central Tendency- Arithmetic Mean- Median –Mode- Geometric Mean. Measures of Dispersion- Range- Quartile Deviation- Mean Deviation- Standard Deviation. (15 Hours)

Module IV:

Simple Correlation- Meaning and Types- Measurement of Correlation-Karl Pearson's Co-efficient of Correlation- Spearman's Rank Correlation- Regression-Method of Least Square with one independent variable. (15 Hours)

Module V:

Index Numbers- Definition and Classification- Methods of Constructing Index Numbers- Laspeyre's, Paasche's, Fisher's Ideal Index Numbers- Time Reversal and Factor Reversal Test- Cost of Living Index Numbers- Problems of Constructing Index Numbers-Uses. (15 Hours)

Note: Theory carries 25 marks and problems carry 50 marks.

Book for Study:

R.S.N Pillai and : Statistics, S. Chand & Co Ltd., New Delhi, 2007
V. Bagavathi

Book for Reference:

S.P Gupta : Statistical Methods, Sultan Chand & Sons, New Delhi, 2007.

B.A. Economics**Semester II****Part III – Core Course V–Macro Economics**

(For Student admitted from 2012-2013 and onwards)

Credits: 5

Hours: 65

Preamble:

The Course is designed to

- ❖ make the students aware of the basic theoretical framework underlying the field of macro economics
- ❖ expose the students to macro economic aspects in Keynesian and Post- Keynesian Economics

Module I:

Definition, nature and scope of Macro Economics- Circular flow of Income, Closed Economy Model- Open Economy Model- Importance of Circular flow of income- National Income- Concepts, Measurement- Difficulties in measurement of national income*- Uses of National Income analysis- Social Accounting- Various forms of Social Accounting and their uses. (12 Hours)

Module II:

Classical Theory of Employment: Say's Law of Market-Pigou's wage cut policy- Keynesian Theory of Employment. Effective Demand- Under employment equilibrium. Difference between Classical Theory of Employment and Keynes Theory of Employment.

(12 Hours) **Module III**

Consumption Function- Average and Marginal Propensity to consume- Determinants of Consumption Function* - Keynes's Psychological Law of Consumption function- Duesenberry's Relative Income Hypothesis- Don Patinkin's Real Balance Effect- Friedman's Permanent Income Hypothesis- Modigliani Life Cycle Hypothesis.

(13 Hours)

Module IV:

Savings- Determinants of saving- Investment function- Types of Investment- Determinants of Investment. Marginal Efficiency of Capital and Rate of Interest(only Liquidity Preference Theory of Interest)- Saving and Investment equality- Classical Approach- Keynesian Approach – Multiplier- Working and Leakages- Principle of Acceleration.

(13 Hours) **Module V:**

Post- Keynesian Macro Analysis- Contribution of Hicks and Hansen- IS LM function- Primary and Secondary – Objectives of general macro economic policy- Supply – side economies. (15 Hours)

Book for Study:

R.Cauvery & Others : Macro Economics, S.Chand & Company Ltd. New Delhi, 2004

Books for Reference:

M.L.Jhingan : Macro Economics, Konark Publishers Pvt Ltd. New Delhi, 1987

Dr.S.Sankaran : Macro Economics, Margham Publications, Chennai, 2004.

Starred and Underlined portions are for self-study

B.A. Economics**Semester III****Part III – Core VI – Economics of Marketing**

(For the candidates admitted during the academic year 2012-2013 and onwards)

Credits: 4

Hours: 52

Preamble:

The aim of the course is

- ❖ to introduce the students to the area of marketing which is an important practical side to the economics.
- ❖ to equip the students with the knowledge regarding the concepts and techniques of marketing.
- ❖ to develop the self employment skill in the students.

Module I:

Definition of Marketing – Objectives and Importance of Marketing – Features of Marketing – Functions of Marketing- Role of Marketing. (10 Hours)

Module II:

Product Mix – Product Life Cycle – Branding , Packaging and Labelling (in brief) – New Product Development – Factors to be considered before introducing a new product – Product Elimination, Symptoms of a weak product – Guidelines for product elimination.

(10 Hours)

Module III:

Buyer Behaviour – Buying motives – Factors influencing Buyer Behaviour – Market Segmentation – Need for Market Segmentation – Basis for Market Segmentation. (10 Hours)

Module IV:

Pricing of Products – Pricing Objectives – Factors influencing Pricing Decision – Elements of Promotion Mix – Sales Promotion – Consumer Sales Promotion – Dealer Sales Promotion, Sales Force Promotion. (10 Hours)

Module V:

Personal Selling– Objectives –Essentials of Salesmanship – Qualities of a Good Salesman– Advertising – Benefits of Advertising – Advertising Agencies – Direct Marketing –Types – Media Marketing. (12 Hours)

Books for Study

R.S.N. Pillai and : Marketing Management, Sultan Chand & Company,
Bagavathi New Delhi, 2012.
Rajan Nair : Marketing, Sultan Chand & Co, New Delhi, 2011.

Books for Reference

Philip Kotler, : Principles of Marketing, Prentice-Hall of India Pvt. Ltd,
Gary Armstrong New Delhi, 2010.
M.Govindarajan : Marketing Management, Concepts, Cases, Challenges and
Trends, Prentice – Hall of India Pvt, Ltd, New Delhi, 2009

B.A. Economics**Semester III****Part III – Allied III – Mathematical Methods**

(For the candidates admitted during the academic year 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

The Course helps the students

- to gain elementary mathematical knowledge
- to know the application of mathematical techniques in economic theories

Module I:

Mathematical Economics, Nature and Scope of Mathematical Economics- Mathematical Operations with Decimal and Fractions- Ratios and Proportions - Progression- Arithmetic Progression and Geometric Progression. (16 Hours)

Module II:

Matrix Algebra: Matrix- Types- Addition – Subtraction- Multiplication. Determinants- Transpose of a Matrix- Inverse of Matrix – Solution of Simultaneous Equations- Cramer's Rule- Matrix Inversion Method(3x3) (16 Hours)

Module III:

Differentiation: Process of Differentiation- Rules of Differentiation- Exponential and Logarithmic- Derivatives of Higher Order. (13 Hours)

Module IV:

Application of Derivatives in Economics - Elasticity of Demand, Cost, Revenue Function- Profit Maximization and Cost Minimization. Partial Derivatives- Maxima and Minima of One Variable and Nature of Curves. (15 Hours)

Module V:

Mathematics of Finance: Simple Interest, Compound Interest- Discounting: Trade Discount - Quantity Discount – Cash Discount – Bankers Discount – True Discount and Bankers Gain. (15 Hours)

Note: Theory carries 25 marks and Problems carry 50 marks.

Books for Study:

- D. Bose : Mathematical Economics, Himalaya Publishing House, Delhi, 2007
B.C Mehta & : Mathematics for Economists, Sultan Chand & Sons, New Delhi,
B.C Madnani 2013.
M.Wilson : Business Mathematics, Himalaya Publishing House, Delhi, 2007
P.A.Navintham :Business Mathematics & Statistics, Jai Publishing House, Trichy, 2011
J .K.Sharma : Business Mathematics, Ane Books Pvt. Ltd., Delhi, 2014
R.S Bharawaj : Mathematics for Economics and Business, Excel Books, Delhi, 2006.

B. A. Economics

Semester III

Part IV-Skill Based Course I – Introduction to Retailing

(For the candidates admitted during 2012-2013 and onwards)

Credits: 3

Hours: 38

Preamble:

The Course

- aims to introduce the subject and pricing of retailing through its nature, scope and role in the economy.
- gives knowledge of career opportunities in retailing.

Module I:

Retailing - Meaning- Characteristics of retailing.

(5 Hours)

Module II:

Functions of retailing - Classification of retail formats - Classification on the basis of ownership, the merchandise offered, Non - store retailing, other retail models- Airport retailing - Services retailing.

(10 Hours)

Module III:

Theories of retail development - Concept of Life-Cycle in retail.

(5 Hours)

Module IV:

Retail as a career- The rise of the retailer- motives that influence consumer behaviour (personal and social) – Factors affecting consumer decision making.

(10 Hours)

Module V:

The Global retail market- a brief study of Wal-Mart, Tesco, McDonalds, Carrefour and Casino- challenges facing global retailers- retail industry in India- challenges- strategies to be adopted.

(8 Hours)

Books for Study:

- Swapna Pradhan : Retail Management - (Text and Cases), Tata McGraw-Hill
Publishing Co. Ltd., New Delhi, 2008.

Books for Reference:

- Barry Berman and : Retail Management - A Strategic Approach, Prentice Hall

Joel R Evans of India (P) Ltd., New Delhi, 2007.
Chetan Bajaj, : Retail Management, Oxford University Press ,2005.
Rajnish Tuli,
Nidhi V.Srivastva : Retail Management, Functional Principles and Practices, Jaico
Gibson G Vedamani Publishing House, Delhi, 2005

B.A. Economics

Semester IV

Part III –Core Course VII– Monetary Economics
(For Student admitted from 2012-2013 and onwards)

Credits: 4

Hours: 65

Preamble:

The Course aims at

- understanding the role of money, theories of money and how money is managed in modern economy

Module I:

Money- Definition- kinds- Functions- Merits and Demerits* - Monetary Standards- Monometallism and Bimetallism- Gold Standard- Causes for the break down of gold standard- Paper Standard- Principles and methods of Note Issue- Merits and Demerits- India's Present Currency System.
(15 Hours)

Module II:

Theories of Money- Fisher Quantity theory of money- Cambridge version of Quantity- Keynes theory of money and prices- Reformulation – Friedman's Restatement of Quantity theory of money.
(14 Hours)

Module III:

Inflation – meaning-definition-causes-types-effects-control. Deflation-effects- control- Stagflation- Business cycles- meaning- phases- types- Monetary theories of Trade cycles- control of trade cycles.
(12 Hours)

Module IV:

Role of Commercial banks in economic development*-Credit creation by commercial banks- Functions of Central bank- Method of Credit control- Money market and Capital market(a brief idea only)
(12 Hours)

Module V:

Monetary policy- objectives and tools- RBI and Monetary policy-NBFI-Meaning- Types- Importance
(12 Hours)

Book for Study:

S.Sankaran : Monetary Economics, Margham Publications, Chennai,2005.

Books for Reference:

B.N Ghosh and Rama : Fundamentals of Monetary Economics, Himalaya
Ghosh Publishing House, Bombay,1990.

M.L Jhingan : Monetary Economics, Konark Publishers Pvt Ltd, New Delhi,
1997.

T.T.Sethi : Monetary Economics, S.Chand & Co Ltd,New Delhi,1996.

Starred and Underlined portions are for self-study

B. A. Economics

Semester IV

Part III - Allied IV - Tally Accounting Programme

(For the candidates admitted during the academic year 2012-2013 and onwards)

Credits: 5

Hours: 75

Preamble:

This course aims to

- Familiarize the students with financial accounting on computers.
- Provide skill for using Tally.

List of Practical:

1. Company Creation
2. Enabling Accounting Features
3. Pre-defined Groups
4. Creation & Alteration of New Groups (Single & Multiple)
5. Creation & Alteration of Ledger (Single & Multiple)
6. Creation & Alteration of Cost categories & Cost Centre
7. Accounting Vouchers (Payment, Receipt, Contra, Journal)
8. Display of Books, Trial Balance, Profit & Loss Account & Balance Sheet
9. Altering Inventory Features
10. Creation & Alteration of Stock Group (Single & Multiple)
11. Creation & Alteration of Stock Category (Single & Multiple)
12. Creation & Alteration of Units of Measure
13. Creation & Alteration of Stock Item (Single & Multiple)
14. Creation & Alteration of Godowns
15. Display of Stock summary
16. Accounting Voucher (Purchase, Sales)
17. Enabling VAT in Tally
18. VAT Ledger Creation
19. Accounting Voucher (Input VAT, Output VAT)
20. Display of Ratio

Reference Book:

- Namrata Agarwal & Kumar : Financial Accounting on Computers using Tally, Dreamtech Sanjay Press, New Delhi, 2002
- N. Satyapal : Using Tally, Khanna Publications, New Delhi, 2000
- Implementary Tally : BPB Publication, 2001

B. A. Economics

Semester IV

Part IV Skill Based Course II – Retail Merchandising Management and Retail Pricing

(For the candidates admitted during 2012-2013 and onwards)

Credits: 3

Hours: 38

Preamble:

The Course helps

- To equip the students with the knowledge of merchandising and also to learn the role and responsibilities of merchandiser.

- To acquire the essential knowledge of pricing policies and strategies in the retailing of merchandise.

Module I:

Meaning of merchandising – factors affecting the merchandising function, role and responsibility of merchandiser. (7 Hours)

Module II:

Merchandise planning – Concept – Implications – Process – The Merchandise Hierarchy. (7 Hours)

Module III:

Supply Chain Management – concepts – need- objectives – Evolution- Supply Chain Integration. (10 Hours)

Module IV:

Retail pricing- concept of retail price- elements of retail price- objectives of retail pricing – determination of retail price. (8 Hours)

Module V:

Retail Pricing – Approaches and Strategies. (6 Hours)

Books for Study:

Swapna Pradhan : Retail Management - (Text and Cases), Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2008.

Books for Reference:

Barry Berman and Joel R Evans : Retail Management - A Strategic Approach, Prentice Hall of India (P) Ltd., New Delhi, 2007.

Chetan Bajaj, : Retail Management, Oxford University Press ,2005.

Rajnish Tuli,

Nidhi V.Srivastva : Retail Management, Functional Principles and Practices, Jaico Publishing House, Delhi,2005

B.A Economics with Banking and Insurance
Semester wise Distribution with Scheme of Examination
(For the Candidates admitted During the Academic Year 2010-2011 & onwards)

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks CIA ESE		Total
I	Part I-Tamil Course I	3	3	25	75	100
	Part II-English Course I	3	3	25	75	100
	Part III – Core Course I- Micro Economics I	4	3	25	75	100
	Part III – Core Course II – Banking Dynamics	4	3	25	75	100
	Part III-Allied Course I- Principles of Management	5	3	25	75	100
	Part IV-Environmental Studies	2	3	25	75	100
II	Part I-Tamil Course II	3	3	25	75	100
	Part II- English Course II	3	3	25	75	100
	Part III-Core Course III Micro Economics –II	4	3	25	75	100
	Part III- Core Course IV- Principles of Insurance	4	3	25	75	100
	Part III – Allied Course II Statistics	5	3	25	75	100
	Part III- Value Education Course	2	3	25	75	100
	Advanced Learners Course I Business Environment	3**	3	25	75	100
	Internship I	1	-	-	-	-

III	Part I – Tamil Course III	3	3	25	75	100
	Part II – English Course III	3	3	25	75	100
	Part III – Core Course V					
	Macro Economics	4	3	25	75	100
	Allied Course III Mathematical Methods	5	3	25	75	100
	Part III –Non-Major Elective Course I	2	3	25	75	100
	Part IV – Skill Based Course III Inbuilt Diploma Course					
	Paper II- Retail Merchandising Management & Retail Pricing	2	3	25	75	100
	Environmental Studies	-	3	25	75	100
IV	Part I- Tamil Course IV	3	3	25	75	100
	Part II-English Course IV	3	3	25	75	100
	Part III – Core Course VI					
	Monetary Economics	4	3	25	75	100
	Part III – Core Course VII					
	Banking Practices	4	3	25	75	100
	Allied Course IV- Computerized Accounting – Tally	5	3	25	75	100
	Part III – Non-Major Elective Course II	2	3	25	75	100
	Part IV-Skill Based Course IV- Inbuilt Diploma Course	2	3	25	75	100
	Paper III-Retail Business Management	2	3	25	75	100
	Environmental Studies					
	Advanced Learners Course II	3**	3	-	-	100
	Quantitative Methods	1	-	100	-	100
	Part V – Extension Activity	1	-	-	-	-
	Internship II					
	Part III – Core Course VIII					
	Fiscal Economics	5	3	25	75	100
	Part III- Core Course IX					
	Economics of Investment	4	3	25	75	100

V	Part III- Core Course X- Life Insurance and Products	5	3	25	75	100
	Part III – Core Course XI – General Insurance Products	5	3	25	75	100
	Part III-Elective Course I Service Marketing	5	3	25	75	100
	Part IV-Skill Based Course V- Inbuilt Diploma Course					
	Paper IV-Retail Store Planning & Design	2	3	25	75	100
	Value Education Course	-	-	-	-	-
VI	Part III- Core Course XII Indian Economic Development	5	3	25	75	100
	Core Course XIII – Modern Banking Transactions	5	3	25	75	100
	Elective Course II Customer Relationship Management	5	3	25	75	100
	Elective Course III– M.S. Access	3	3	25	75	100
	Practical	2	3	40	60	100
	Part IV-Skill Based Course VI Communication English and Soft Skills	2	3	25	75	100
	Value Education Course	2	3	25	75	100
	Advanced Learners Course III Insurance and Risk Management	3**	3	-	-	100
	Group Project	1	-	-	-	-

Starred Credits are treated as additional Credits

B.A. Economics with Banking and Insurance
Semester V
Part III –Core Course IX– Economics of Investment
(For students admitted from 2009 – 2010 and onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is to

- equip the students with the knowledge of different investment opportunities available in the economy.
- help in proper choice of investment mode.

Module I:

Meaning – Importance of Investment *- Principles of investment – factors favourable for investment – Investment and speculation – Investment and gambling – Investment media – Features of an investment programme. Financial mathematics*: Compound interest* - Annuity – Present value * - Interest at higher frequencies* (15 Hours)

Module II:

Insurance – Need for life insurance – UTI – Investment in Units- Schemes of UTI – Post Office Small Saving Scheme – Need for small savings* - Public Provident Fund – Objectives- eligibility conditions – Tax concessions. Investment in Land, Gold, Silver, Diamonds, Stamps, Antiques. (16 Hours)

Module III:

Investment in fixed deposits with companies and commercial banks – comparative approach- Stock Exchange – Meaning – Organization – Mechanics of security trading in stock exchanges – Kinds of trading activity. (15 Hours)

Module IV:

Listing of securities – Meaning – objectives – advantages - disadvantages of listing. Shares – Meaning – Kinds of shares – Equity shares – features, Preference shares – features – Private Equities – Debentures- kinds – features – comparison between Debenture holders and shareholders. (15 Hours)

Module V:

Mutual funds – Kinds – Advantages and disadvantages- Schemes of mutual fund – Investment and tax planning (a basic knowledge)- Regulation of Stock Exchanges- Role of Securities Exchange Board of India (14 Hours)

Books for Study:

Preeti Singh : Investment Management Security Analysis and Portfolio Management,
Himalaya Publishing House, Mumbai, 2004.

Books for Reference:

Dr. Radha Parameswaran : Investment Management , Prasanna Publishing House,
Dr. Nedunchenzhian New Delhi , 2006.

A.N.Shanbhag : In the Wonderland of Investment, Focus Popular Prakasham,
Mumbai, 1999.

V.K.Bhalla :Investment Management , Security Analysis and Portfolio
Management, S.Chand & Co Ltd., New Delhi , 1997.

Vasant Desai :The Indian Financial System, The System that Cares
Financial Markets, Institutions & Services, Himalaya
Publishing House, Mumbai 1997.

Prasanna Chandra :The Investment Game - How to Win, Tata Mc Graw Hill Publishing
Co., Ltd., New Delhi 1990.

Starred and underlined portions are for self-study.

B.A. Economics with Banking and Insurance
Semester V
Part III-Core Course X-Life Insurance Products
(For students admitted from 2009 – 2010 and onwards)

Credits: 5

Hours: 90

Preamble:

The Course aims to provide

- knowledge about Life Insurance Corporation as a major player in Insurance sector and an indepth information on the various policies of it.

Unit :I

LIC of India: Origin-Meaning and Objectives-Need for Life Insurance –Benefits of Life Insurance –Procedure for taking a Policy – Kinds of Policies - Whole Life Policy- Endowment Policy- Term Policy- Life Insurance Plans- Plan for risk cover, Plans for savings and investment- Plan for women and children, plan or handicapped, options and policies- riders on policies- Role of Private players. (18 Hours)

Unit :II

Whole Life Policy –Whole Life Policy with Profits –Limited Payment Life Policy with Profit –Types of plans- Features-Tax Treatment-Merits and Demerits. (17 Hours)

Unit :III

Endowment Policy-Endowment with Profits-Convertible Whole Life, Limited Payment with Profits, Endowment plus whole life plans – Types of Plans-features –Tax treatment-merits and demerits. (18 Hours)

Unit :IV

Money Back Policy-Children Policies-Policies for handicapped –Policies high risk-low premium plans-Whole life and Money back plans –features –tax treatment-merits and demerits. (17 Hours)

Unit :V

Pension plans- pension- annuity plan- survival rate- single premium- pension plan-annual premium pension plan- pension options- option on mode of payment of pension- income tax treatment of premium and claim proceeds. Group Insurance –Group Gratuity Insurance – Group Super Annotation Insurance, Group Savings Linked Insurance, Unit Linked Insurance Plan, Senior Citizen Plan, Children Savings Plan. (20 Hours)

Books for Reference:

Mishra, M.N & S.B.Mishra	:Insurance: Principles and Practice, S.Chand & Co Ltd., New Delhi, 2005
Gupta, P.K	:Insurance Management, Himalaya Publishing House,Mumbai ,2004
Dr.P.Periyasamy	:Principles and Practice of Insurance, Himalaya Publishing House,Mumbai ,2011
Inderjit Singh,Rakesh Kartyal	:Insurance: Principles and Practice
Sanjay Arora	Kalyani Publishers,New Delhi-2003.
B.D.Bhargava	:Insurance Theory and Practice, Pearl Books, New Delhi-2008.

B.A. Economics with Banking and Insurance
Semester V
Part III-Core Course XI- General Insurance Products
(For students admitted from 2009 – 2010 and onwards)

Credits: 5

Hours: 90

Preamble:

The objectives of this course are

- to understand the basic concepts of General Insurance
- to learn the principles, practices, procedures and treatment of general insurance products

Module I

Introduction-basic concepts –Growth of General Insurance-Types of General Insurance-Principles of Insurance-Public and Private Players in General Insurance. (15 Hours)

Module II

Fire Insurance: Principles- contract- kinds and Policy Conditions- rate fixation in fire insurance -payment of Claims. (15 Hours)

Module III

Marine Insurance – Nature of contract- Kinds and Policy Conditions – Rate making in Marine Insurance- Marine Losses-Total and Partial Losses-Payment of Claims. (15 Hours)

Module IV

Miscellaneous Insurance I: Motor Insurance –Kinds of Policies-Procedures of Motor Insurance-Benefits –Motor Cycle Policy –Private Car Policy-Parking Insurance. Burglary Insurance-Personal Accident Insurance-Health Insurance-Meaning and Types-Fidelity Guarantee Insurance- Commercial Fidelity Guarantee Court Board - Insurance Claims. (15 Hours)

Module V

Miscellaneous Insurance II: Employer's liability insurance-Third Party Legal liability-Jeweller's Block Insurance-Aviation insurance-Engineering Insurance-Agriculture Insurance: Crop, Cattle - Group Insurance. (15 Hours)

Books for Reference:

Bodla, B.S.,
Garg M.C. & Singh

: Insurance, Fundamentals ,
Environmental Procedures,
Deep & Deep Publications,
New Delhi, 2003.

Gupta , P.K

: Insurance Management, Himalaya
Publishing House, Mumbai , 2004.

Mishra, M.N

: Insurance: Principles and Practice,
S.Chand & Co Ltd., New Delhi, 2005.

B.A. Economics with Banking and Insurance
Semester V
Part III – Elective Course I – Services Marketing
(For students admitted from 2009-2010 and onwards)

Credits: 5

Hours: 75

Preamble:

The objective of the course is

- to learn the various marketing strategies for service firms
- to understand the marketing approach of banking and insurance services

Module I:

Services: Reasons for growth of service sector- Role of services in an economy- Definition- Types- Characteristics- Differences between Goods and Services- Services marketing – Need –Challenges to Service Managers-Classification of Services. (15 Hours)

Module II:

Services Marketing Mix - Elements. Pricing in Services-Role-Steps-Objectives-Factors affecting Pricing decisions- Methods of Pricing in Services-Pricing Strategies. Service promotion-Promotion Mix for Services (in brief) Advertising-Sales Promotion-Personal Selling –Public Relations and Publicity-Direct Marketing. (15 Hours)

Module III

Place in services- Location- Channels-Designing a distribution System-Direct and Indirect Distribution-Franchising-Role of Customer in the Distribution System. People in services-Types of Service Personnel-Developing Customer Conscious Employees-Role of the Frontline Staff. (15 Hours)

Module IV

Bank Marketing-Concept-Justification-Behavioural Profile of users- Factors influencing the Behavioural Profile-Marketing Information System for banks- Importance of MIS to the banking organization-Market Segmentation-Marketing Mix for the Banking Organisations. (16 Hours)

Module V

Insurance Marketing-Concept-Users of Insurance Services - Behavioural Profile of Users-Marketing Segmentation-Marketing Information System-Marketing Mix. (14 Hours)

Books for Study

5. Vasanti Venugopal & Raghu V.N, Services Marketing, Himalaya Publishing House, Mumbai, 2001 (For I, II, III Units)
6. S.M. Jha, Services Marketing, Himalaya Publishing House, Mumbai, 2008 (For IV & V Units)

Books for Reference

5. P.N. Reddy & Appannaiah, Services Marketing, Himalaya Publishing House, Mumbai, 2002
6. Anil Kumar & Nirmala B. Balaji, Services Marketing and Management, S. Chand & Co, New Delhi, 2006.

B.A. Economics with Banking and Insurance
Semester VI
Part III – Core Course XII – Indian Economic Development
(For students admitted from 2009-2010 and onwards)

Credits: 5

Hours: 90

Preamble:

The course enables the students

- ❖ To have an essential understanding of various issues of the Indian Economy and
- ❖ To have the ability to comprehend & critically appraise the current Indian economic problems

Module I:

Characteristics of Indian Economy as a Developing Economy – Problems of economic development - Poverty – Causes, measures to eradicate poverty, poverty alleviation programmes- Unemployment – Types, Causes, nature and extent, Government policy for removing Unemployment. (18 Hours)

Module II:

Capital formation, meaning, importance, sources, reasons for low capital formation, measures for increasing capital formation – human capital formation in India- causes for rise in prices in India- control of Inflation in India (18 Hours)

Module III:

Role of Industrialization* – Industrial Policies of 1956, 1980 and 1991 –Role and importance of Small Scale Industries* – Industrial Sickness In India – Causes, Consequences and Remedial Measures . (18 Hours)

Module IV:

Features of Indian Industrial Labour* - Industrial disputes in India, Causes, Settlement of Industrial disputes- Social security measures in India* - National wage Policy, objectives, principle constituents of national wage policy-Inflation- causes- control in Indian Context. (18Hours).

Module V:

Importance of Foreign Trade for a developing economy - India's Foreign Trade, Value, Composition and Direction – Foreign capital, need and forms-FDI-FII- Government's Policy towards FDI –FII-Policy of Liberalisation, Privatisation and Globalisation. (18Hours)

Books for Study:

Ruddar Dutt & K.P.M Sundaram : Indian Economy, S.Chand & Company Ltd., New Delhi, 2012

Books for Reference:

S.K Misra & V.K. Puri : Indian Economy, Its Development Experience, Himalaya Publishing House, Mumbai, 2011

Ishwar D.Dhingra : Indian Economy, S.Chand & Co., Delhi, 1997

Dr.S.Sankaran : Indian Economy, Margham Publications, Chennai, 2004

Alok Ghosh : Indian Economy, The World Press Pvt., Ltd., Calcutta, 1997.

Starred and Underlined portions are for self-study

B.A. Economics with Banking and Insurance
Semester VI
Part III – Core Course XIII – Modern Banking Transactions
(For students admitted from 2009-2010 and onwards)

Credits: 5

Hours: 90

Preamble:

This course aims to help the students

- To study e-banking concept and it's latest products with a particular emphasis on paperless banking
- To have practical knowledge in modern banking transactions.

Module I:

E-Banking and i-banking: Electronic banking: Meaning-services- benefits - drawbacks*
-Risk management for e-banking: Types of risks- Management of risks. Internet banking:
Meaning- Mechanism of internet banking- services- benefits- drawbacks * Risk management-
Types of risks - Security controls. (12 hours)

Module II:

Tele- banking: Telephone banking: Meaning- features- telephone banking system-
Services offered- benefits- drawbacks* Call Centres: Meaning- elements and characteristics of a
call center - objectives- functions- benefits- limitation* . (12 hours)

Module III:

M-banking and ATM: Mobile banking- Meaning- features- services offered -
technologies enabling mobile banking- advantages- draw backs * ATM concept- features- types-
mechanism- functions- benefits- drawbacks * (12 hours)

Module IV:

E- money and EFT; Electronic money: definition- meaning- categories, e- purse, digital
cash- mode of issue and implications- benefits- drawbacks * - Plastic money- credit cards, debit
cards, smart cards, Electronic fund transfer system- meaning- steps involved- mechanism of
EFT- benefits * Electronic Data Interchange- Electronic Clearing Services- meaning- features-
benefits * Electronic Payment System- meaning- features- process- payment methods. (14 hours)

Module V:

Practicals

Each student is expected to undergo training in a Bank for a week to gain knowledge on
the following banking practices and she has to face a viva- voce based on the training report
submitted by her:

- Internet banking
- Telephone banking
- Mobile banking
- ATM
- Credit, Debit and Smart Cards
- Electronic Data Interchange
- Electronic Fund Transfer System
- Electronic Clearing Services (40 hours)

Note : Starred and underlined portions are meant for self- study.

Book for study:

Gurusamy S

: Banking Theory Law and Practice,
Vijay Nicole Imprints Pvt. Ltd., Chennai 2008.**Books for Reference:**

E.Gordon & K. Natarajan

: Banking Theory – Law & Practice,
Himalaya Publishing House,
New Delhi, 2006.

Subramani N

: E- Banking and E- Commerce- Emerging Issues in India,

Murugesan M

Abhijeet publications, New Delhi, 2008.

Anbalagan D

Ganesan V

B.A. Economics with Banking and Insurance**Semester VI****Elective Course II- Customer Relationship Management****For students admitted from 2009-2010 and onwards)****Credits: 5****Hours: 90****Preamble:**

This course aims

- ❖ to know a comprehensive approach for creating, maintaining and expanding customer relations.
- ❖ to understand the role of CRM in promoting the business of Banks and Insurance Companies.

Module I:

Introduction to Customer Relationship Management (CRM) – Definition of CRM – Features of a Good CRM Programme – Requirements of CRM – Role of CRM in improving customer relationship – Advantages of CRM – Steps for successful CRM – Components of CRM – Need for CRM.

(18 Hours)

Module II:

Customers & Customer Value: Types of customers – Types of relationship – Loyalty as a basis of segmentation – Linking Profitability and Loyalty. Customer Value: Concept and Characteristics – Types of customer value – Barnes's types of customer value.

(18 Hours)

Module III:

CRM in Marketing – A Marketing Retrospective – Target Marketing – Relationship marketing and one to one – CRM marketing initiatives – Marketing Automation.

(18 Hours)

Module IV:

CRM in the Banking Business – Delivering quality service – CRM banking benefits – Steps to be followed to implement CRM in banking – Responsibility of bank staff in the successful implementation of CRM – CRM with special reference to SBI, Co- Operative banks, Private Banks

(18 Hours)

Module V:

CRM in the Insurance Business – customer – centric process in the insurance industry – customer challenges in insurance business – insurance and spending on CRM – Business drivers for CRM – CRM in insurance with special reference to LIC of India. (18 Hours)

Books for Reference :

- S. Shanmugasundaram : Customer Relationship Management - Modern Trends and Perspectives (For Module I, IV, and V), Prentice Hall of India Pvt Ltd., NewDelhi, 2008
- Alok Kumar, Chhabi Sinha, Sharma : Customer Relationship Management - Concepts and Applications Biztantra Management for the Flat World, New Delhi, 2007.
- Jill Dyche : The CRM Handbook, Pearson Education, Singapore Pvt. Ltd., 2002.

Books for Reference:

- Lakshman Jha :Customer Relationship Management: A Strategic Approach, Global India Publications Pvt Ltd., New Delhi, 2008.
- V. Venkata Ramana : Customer Relationship Management, Excel Books
G.Somayajulu New Delhi, 2003.

M.A Economics
Semester Wise Distribution with Scheme of Examination
(For the Candidates admitted during the Academic Year 2013-2014 & onwards)

Semester	Course	Credits	Duration of Exam Hrs(ESE)	Marks		Total
				CIA	ESE	
I	Core Course I – Advanced Micro Economics	5	3	25	75	100
	Core Course II – Mathematical Techniques for Economic Analysis	5	3	25	75	100
	Core Course III- Advanced Macro Economics	4	3	25	75	100
	Elective Course I- Management of Small Business	4	3	25	75	100
	Diploma Course Paper I- Introduction to Gender Studies	2	3	25	75	100
II	Core Course IV- Economics of Money and Financial Institutions	5	3	25	75	100
	Core Course V - Public Economics	5	3	25	75	100
	Core Course VI- Econometrics	4	3	25	75	100
	Core Course VII- Economics of Growth and Development	5	3	25	75	100
	Elective Course II –Health Economics	4	3	25	75	100
		2	3	25	75	100
	Diploma Course Paper II-Feminism					
	Advanced Learners Course I – Logistics Management	4**	3	-	-	100
	Core Course VIII- Research Methodology in Economics	5	3	25	75	100
	Core Course IX- Statistical Techniques for Economic Analysis	4	3	25	75	100
	Statistical Techniques for Economic Analysis- Practical	2	3	40	60	100

III	Core Course X – Operations Research	5	3	25	75	100
	Elective Course III Industrial Economics	4	3	25	75	100
	Diploma Course Paper III- Women in development	3	3	25	75	100
IV	Core Course XI- Export Procedures and Documentation	5	3	25	75	100
	Core Course XII – Human Resource Management	5	3	25	75	100
	Core Course XIII- Environmental Economics	5	3	25	75	100
	Elective Course IV- Marketing Management	4	3	25	75	100
	Diploma Course Paper IV- Project					
	Advanced Learners Course II –	3	-	50	50	100
	Communication Skills for Business Management	4**	3	-	-	100

Starred Credits are treated as additional Credits

M. A. Economics

Semester I

Core Course II - Mathematical Techniques for Economic Analysis 12ME02

(For the Candidates admitted during the academic year 2012-2013 & onwards)

Credits: 5

Hours: 75

Preamble:

The content of the course is designed

- ❖ to acquaint the students with economic concepts in mathematical format.
- ❖ to train the students to use the techniques of mathematical analysis which are commonly applied to understand and analyse economic problems.
- ❖ to develop an aptitude towards quantitative analysis of economic phenomenon.

Module I:

Derivatives and their interpretation – Rules of differentiation- Economic Applications- Elasticity of Demand, AR and MR – Profit maximization – Cost minimization (15 Hours)

Module II:

Maxima and Minima of a function of one variable and two variable – Optimal values and Extreme values- Lagrangian Multiplier–Homogeneous Function and their properties – Euler's Theorem. (18 Hours)

Module III:

Integration – Indefinite Integration – Definite Integrals – Economic applications of Integration – Total function from marginal function – Consumer's surplus – Producer's surplus. (17 Hours)

Module IV:

Matrix Algebra* - Transpose of a Matrix * Determinants* - Rank of a matrix – Inverse of a matrix (3 x 3) * - Cramer's Rule* . (10 Hours)

Module V:

Input and output analysis – Its assumptions and uses – Hawkins – Simon condition – Solution to open and closed Leontief models (15 Hours)

Books for Reference

- Mehta & Madnani : Mathematics for Economists, Sultan Chand & Sons, New Delhi, 2000
 Adil H.Mohammed : Introductory Mathematical Economics, Prentice Hall of India Pvt Ltd., New Delhi, 2003
 Alpha C Chiang : Fundamental Methods of Mathematical Economics, McGraw-Hill Co, Singapore, 1984
 Edward T. Dowling : Introduction to Mathematical Economics, Schaum's Outline Series, McGraw-Hill Inc., New York, 1992.
 Srinath Barauh : Basic Mathematics and its Application in Economics, Macmillan India Ltd., Chennai, 2001

Note: Theory carries 25 marks and problems carry 50 marks. Sums may be asked from first four modules only.

M.A Economics**Semester II****Core Course VI - Econometrics 12ME06**

(For the Candidates admitted during the academic year 2012-2013 & onwards)

Credits: 4

Hours: 65

Preamble:

The course aims at

- ❖ developing understanding of economic relationships and statistical methods relevant for the analysis of this relationship.
- ❖ to enhance the skills of students for taking up meaningful research in economics.

Module I:

Definition, Scope and Division of Econometrics- Methodology of Econometric research- Specification and estimation of the model- evaluation of the parameter estimates-desirable properties of an econometric model. (13 Hours)

Module II:

The simple linear regression model – assumptions – Least Squares criterion and the normal equations of OLS – Properties of the least square estimates. (13 hours)

Module III:

Multiple Regression – Model with two explanatory variables – linear and non-linear relationship – Semilog, Double log, Inverse and Polynomial forms. (13hours)

Module IV:

Auto Correlation – meaning - causes – consequences – Test for auto correlation.
 Multicollinearity – meaning – causes – consequences – Test for Multicollinearity.
 Heteroscedasticity. (13 Hours)

Module V:

Lagged Variables and distributed log models – Almon, Koyck, Nerlove and Cagan Models.
 Simultaneous equation models – Structural, Reduced and Recursive models (13 Hours)

Books for Reference:-

Koutsoyiannis.A : Econometrics, The Macmillan Press Ltd, London, 1997.
 Damodar N. Gujarati : Basic Econometrics, McGraw-Hill International Edition, Singapore, 1995
 Mehta, B.C & : Fundamentals of Econometrics, Himalaya Publishing House, New Delhi
 Kranti Kapoor 2005.

Starred and underlined portions are for self study.

M.A. Economics**Semester IV****Core Course IX – Statistical Techniques for Economic Analysis**

(For the Candidates admitted during the academic year 2012-2013 & onwards)

Credits: 4

Hours: 75

Preamble:

The course is designed to

- ❖ create the necessary ground for developing modern techniques in research.
- ❖ train the students to compute statistical parameters and data analysis through statistical packages.

Module I:

Averages* – Arithmetic Mean, Median, Mode, Standard Deviation – Coefficient of Variation – Graphs and Charts in Excel. (15 hours)

Module II:

Simple Correlation* – Multiple Correlation – Simple Linear Regression Analysis – Multiple Linear Regression. (15 hours)

Module III:

Trend Analysis - Forecasting through time series analysis- Analysis of variance-one way and two way Classification (15 hours)

Module IV:

. Testing of Hypothesis – Students ‘t’ test-to test the significance of the mean of a random Sample- to test the difference between the means of the two samples (Independent samples) – ‘Z’ test – standard error of mean only – ‘F’ test – chi square test for goodness of fit. (15Hours)

Module V:

Excel : Building a Worksheet – Selecting Worksheet Items – Using Autofill – Adding and Removing Rows and Columns – Copying and Moving Information – Creating and Copying Formulas – Naming Ranges – Using functions – Improving the Appearance of Worksheet – Changing Columns Width – Formatting Text and Numbers – Using auto Format – Spell Checking – Using Chart Wizard – Creating, Enhancing and Printing a Chart. (15 hours)

Books for Reference

1. Ron Mansfield :Working in Microsoft Office, Tata Mc Graw Hill Publishing Company, New Delhi, 1999.
2. Sanjay Saxena : A First Course in Computers, Vikas Publishing House Pvt. Ltd., New Delhi, 2003.
3. S.P Gupta : Statistical Methods, Sultan Chand & Sons, New Delhi, 2005.
4. P.S. Grewal : Numerical Methods and Statistics, Sultan Chand & Sons, New Delhi, 1996.
5. B.M. Agarwal : Basic Mathematics and Statistics, Sultan Chand & Sons, New Delhi, 2003.
6. D.R. Agarwal : Mathematics and Statistics in Economics, Vrinda Publications (P) Ltd., New Delhi, 2006

Note: Theory carries 25 marks and problems carry 50 marks. Sums may be asked from first four modules only.

Starred and underlined portions are for self-study.

Practicals- Statistical Techniques for Economic Analysis

List of Practicals

- ❖ Mean, Median, Mode.
- ❖ Standard Deviation, Co-efficient of Variation.
- ❖ Calculation of Simple Correlation Coefficient.
- ❖ Calculation of Linear Regression Analysis.
- ❖ One way and two way Analysis of Variance.
- ❖ Students 't' test
- ❖ 'Z'-test
- ❖ Chi – square test for goodness of fit.
- ❖ Simple and Compound Growth Rate.
- ❖ Graphical Representation of Data: Line Graph, Bar diagram, Pie Chart.

M.A Economics

Semester III

Core Course XI - Operations Research 12ME10

(For the Candidates admitted during the academic year 2012-2013 & onwards)

Credits: 5

Hours: 65

Preamble:

The course helps the student

- ❖ to gain knowledge of appropriate basic quantitative techniques
- ❖ to develop skills in economic management problems

Module I:

Methodology and Linear Programming – Definition – Characteristics * – Necessity – Methodology – Limitations of Operations Research. Linear Programming – Requirement of Linear Programming – Graphical Solution to two variables – simplex method – Degeneracy in simplex method – Advantages and Limitations of Linear Programming. (13 Hours)

Module II:

Transportation and Assignment – Transportation problem – Introduction to the model – Formulation and solutions – Transportation models – Assignment problems – Application of Assignment model – Formulation and solution of assignment model. (13 Hours)

Module III:

Game Theory – Basic concepts of game theory – pay off matrix – Two persons zero sum game. Pure strategy – Minimax and Maximin – Saddle point – mixed strategy – odds method, dominance method, sub-games method and equal gain from all strategies method – Application of Game. (13 Hours)

Module IV:

Network analysis- network techniques – Network Logic – Fulkerson's Rule – slack-critical path – probability of meeting the schedule dates – CPM and PERT – CPM models-floats – Project Network. (13 Hours)

Module V:

Queuing and Cost-Benefit Analysis- Queuing theory – Characteristics of Queuing models- waiting time and idle time cost- single channel queuing theory-Cost Benefit Analysis – Enumeration of cost and benefits- Investment Criterion* (13 Hours)

Note: Theory Carries 25 marks and problems carry 50 marks.

Books for Reference

- Sharma :Quantitative Techniques and Operations Research Kalyani Publishers, New Delhi, 1994.
- Kantiswarup Gupta P.K :Operations Research, Sultan Chand & Sons, New Delhi,2002
- Gupta P.K. and Hira D.S :Problems in Operation Research, Sultan Chand & Company Ltd.,New Delhi, 1995.
- V.K.Kapoor :Quantitative Techniques, systems Analysis and Data Processing, Sultan Chand & Sons, New Delhi 2001
- Mariappan :Operations Research, Methods & Applications, New Century Book House, Coimbatore , 2000.
- Jerome D.Wiest:A Management Guide to PERT / CPM with GERT/PDM/DCPM and Other Networks, Prentice Hall of India Pvt Ltd, New Delhi, 2001
- Ferdinand.K.Levy :Operations Research, Principles & Problems,Keerthi Publishing House Pvt Ltd.,Cbe, 1996.

Starred and Underlined portions are for self-study

M.A. Economics

Semester -IV

Elective Course IV -Marketing Management

12MEE4

(For the Candidates admitted during the academic year 2012-2013 & onwards)

Credits : 4

Hours:75

Preamble :

The aim of the course is to equip students with

- ❖ intelligent marketing which is an essential and functional area of business management
- ❖ to develop self -employment skills in marketing

Module I :

Marketing : Meaning of market and marketing - goals of marketing marketing concepts, classifications of marketing -marketing functions -marketing management-marketing information system-kinds of marketing information system. (15 Hours)

Module II:

Marketing mix : concept, components product mix, price mix, promotion mix and place mix: product: meaning, product - planning, product positioning, new product development - product life cycle-Branding -packaging -Labelling : Pricing :Pricing objectives - factors methods and procedures- (15 Hours)

Module III:

Distribution : channels of distribution -evaluating the channel alternatives -physical distribution. objectives- order processing , Transport , storage and warehousing ,inventory control. promotion: meaning , advertising , sales promotion, personal selling and publicity . (15 Hours)

Module IV:

Marketing services : Kinds of services- character of service. marketing of securities :stock exchange -Functions of stock exchange, listing of securities -methods of trading -kind of dealers. (15 Hours)

Module V:

Competitive marketing strategies : Leaders -Challengers -followers -Nichers , Markting control : meaning, types, steps, essentials of effective marketing control. Marketing and society: consumer protection -needs -methods of consumer protection - consumer protection in India. (15 Hours)

Books for Reference

Rajan Nair N.	}	:Marketing, Sultan Chand & sons, New Delhi ,2002.
Sanjith R.Nair.		
Sonatakki. C.N		:Marketing Management ,Kalyani Publishers ,New Delhi 1998 .
Rajan Sakena		:Marketing Management, Tata Mc Graw -Hill Publishing Co. Ltd. New Delhi , 1998 .
Sontakki. C.N		:Advertising,KalyaniPublishers,New Delhi , 1997
Sherlekar. S.A.		: Marketing Management, Himalaya Publishing House , Mumbai ,1996 .
Rajan Nair,N		:Marketing Management, Himalaya Publishing House , Mumbai ,1996
Philip Kotler		:Marketing Management,Tata Mc Graw-Hill Publishing Co. Ltd. New Delhi.

M.A. Economics**Semester I****Elective Course I – Management of Small Business****12MEE1**

(For the Candidates admitted during the academic year 2012-2013 & onwards)

Credits: 4**Hours: 75****Preamble:**

The course would equip the students with

- ❖ organization skills in the setting up and managing of the various aspects of a small business unit.
- ❖ entrepreneurial skill and business communicative skills.

Module I:

Definition and Legal frame work – classification – selection of a small scale industry – forms of organization – sole – proprietorship, partnership, joint – stock companies, The co-operatives – line organization & functional organization – old business – New Business – Franchise. (16 Hours)

Module II:

Procedural aspects – Rules and regulations governing a small scale industry – Taxation benefits and incentives for the promotion of small scale industries * - Project classification & identification, Project objectives – Constraints – format for a report. (16 Hours)

Module III:

Institutional assistance to small scale industry – need for institutional support – Institutions supporting and assisting small scale industries - SIDCO, DIC, NSIC, SFC, IDBI, IFCL, IIBI, EXIM - Women entrepreneurs - Type of Industries suitable for women entrepreneurs.

(13 Hours)

Module IV:

Production Planning – Production Channel and Control – Methods of Marketing – Incentives and subsidies schemes available for export * (15 Hours)

Module V:

Business Correspondence – Banking – Insurance – Agency – Drafting the structure of business letters – Sales & Trade letters – Electronic Communication methods. (15 Hours)

Books for Reference:

Vasant Desai : Small Scale Industries & Entrepreneurship, Himalaya Publishing House, New Delhi, 1996.

Vasant Desai : Management of a Small Scale Industry, Himalaya Publishing House, New Delhi, 1996.

G.K. Patia & : Institutional Financing for Small Scale Industries, Discovery Publishing
Prakash ch. Mis House, New Delhi, 2003 .

V.S .Datey :Taxman's Practice Manual to Small Scale Industries, Taxman Allied Services (P) Ltd., New Delhi, 1999.

M.V. Sonalker & : Financial Management for Small Enterprises,
V.S. Kaveri Authors Press, New Delhi, 2003.

Nirmal, K. Gupta : Small Industry – Challenges & Perspectives,
Anmol Publications, New Delhi, 1992.

P. Subba Rao & V.S.P. Rao : Personnel/ Human Resources Management,
Konark Publishers Pvt., Ltd., New Delhi, 1990.

Gopal Swaroop : Advances to Small Industries & Small Borrowers
(A Practice Guide), Sultan Chand & Sons,
New Delhi, 1993.

G.D. Sharma : How to Start your Own Small Scale Industry,
Orient Paper backs, New Delhi, 1989.

Ruddar Datt & : Indian Economy, S. Chand & Co., Ltd., New
K. M. Sundaram Delhi, 2006.

Philip Kotler : Marketing Management – Analysis, Planning
Implementation and Control Practice – Hall of
India P. Ltd, New Delhi – 1998.

Starred and underlined portions are for self-study.

M.A. Economics
Semester IV

Core Course XII - Export Procedures and Documentation 12ME11

(For the Candidates admitted during the academic year 2012-2013 & onwards)

Credits: 5

Hours: 75

Preamble:

The course is designed

- ❖ to familiarize the students with the procedures of export trade and
- ❖ to expose them with the procedures of export documentation.

Module I:

Export – Types of exports – organizing exports – starting an export business – processing an export order – Labelling, Packaging, Packing and Marking of Export Consignments.

(15 Hours)

Module II:

Indian Laws relating to Export Trade – Transportation and Shipment of goods for export – Quality Control and pre – shipment inspection – Central Excise Clearance of goods for export.

(15 Hours)

Module III:

Export documentation – major documents – Marine and Air cargo insurance – Documents relating to payment, Letter of Credit, Bill of Exchange, Trust Receipt, Letter of Hypothecation and Bank's Certificate for Payment – Documentation practices in India – need for preparing export documents in India.

(15 Hours)

Module IV:

Export Finance – importance – methods – pre shipment and post shipment – sources, short, medium and long term – methods of payment to exports – Role and functions of EXIM Bank of India and Export Credit Guarantee Corporation of India.

(15 Hours)

Module V:

Export Pricing– objectives – importance – price and non – price factors in pricing decisions - Methods of pricing. Export policy - the pre - reform period. – An overall view of export promotion policies – critical evaluation of export policy – New Trade policy, the reform period – critical evaluation of the New Trade Policy. Special Economic Zones – New Export – Import Policy 2010– 2011.

(15 Hours)

Books for Reference:

- Paras Ram : Export What Where How, Anupam Publishers, Delhi, 2004 – 2005.
Kapoor. D.C : Export Management, Vikas Publishing House, New Delhi, 2002.
Kathiresan.S and Radha.V : Export Management, Prasanna Publishers, Chennai, 2002.
Balagopal T.A.S : Export Management, Himalaya Publishing House, New Delhi, 2006.
Misra and Puri : Indian Economy, Himalaya Publishing House, New Delhi, 2004.
N.Kumar and R. Mittal : Export Management, Anmol Publication Pvt Ltd., New Delhi, 2002.
Justin Paul and Rajiv Aserkar : Export Import Management, Oxford University Press, New Delhi, 2008.
Khurana P.K : Export Management, Galgotia Publishing Co, New Delhi, 2001.

Starred and underlined portions are for self-study.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of History
MA HISTORY
 Scheme of Examination – CBCS Pattern
 (For the students admitted from the academic year 2017-18 onwards)

Course code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
17MH01	Core I – Social and Economic History of Tamilnadu upto A.D1800.	6	3	25	75	100	4
17MH02	Core II- History of the Freedom Struggle since A.D.1857.	6	3	25	75	100	4
17MH03	Core III- Constitutional History of India from A.D1773 - A.D 1947	6	3	25	75	100	4
17MH04	Core IV- Socio- Religious Reform Movements in India during 19 th & 20 th Century.	6	3	25	75	100	4
17MHE1/ 17MHE2	Elective I: Journalism / Public Administration	6	3	25	75	100	4
Semester II							
17MH05	Core V – Social and Economic History of Tamilnadu A.D 1800 to A.D 1996.	5	3	25	75	100	4
17MH06	Core VI – History of USA upto A.D 1865	5	3	25	75	100	4
17MH07	Core VII – Constitutional History of India from A.D.1947 - A.D.2015.	5	3	25	75	100	4
17MH08	Core VIII- History of Kongu Country.	5	3	25	75	100	4
17MH09	Core IX- Intellectual History of Tamilnadu.	4	3	25	75	100	4
17MHE3/ 17MHE4	Elective II - Women in Development / World Women Prominent Personalities	4	3	25	75	100	4
17MHIS	Internship.	-	-	50	-	50	2
17MGCS	Cyber security.	2	2	50	-	Grade	Grade
17MHA1	Advanced Learners Course -I- Subject Viva Voce.	-	-	-	100	100	4*

Course code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester III							
17MH10	Core X- Historiography.	5	3	25	75	100	4
17MH11	Core XI- History of USA from A.D1865 to A.D.1989.	5	3	25	75	100	4
17MH12	Core XII – Archaeology.	5	3	25	75	100	4
17MH13	Core XIII- Contemporary history of India.	5	3	25	75	100	4
17MH14	Core XIV- International Relations I	5	3	25	75	100	4
17MHE5/ 17MHE6	Elective III: Office Automation / Museology	5	3	40/25	60/75	100	4
Semester IV							
17MH15	Core XV – Archives Keeping.	6	3	25	75	100	4
17MH16	Core XVI- International Relations II.	6	3	25	75	100	4
17MHE7/ 17MHE8	Elective IV - Human Rights / Epigraphy	6	3	25	75	100	4
17MHPV	Project.	-	-	-	200	200	8
17MHA2	Advanced Learners Course – II-Subject Viva Voce.	-	-	-	100	100	4*
TOTAL						2250	90

*Starred credits are treated as additional credits, which are optional.

M.A. History
Semester - I

Credit: 4 Core I-Social and Economic History of Tamil Nadu upto A.D 1800 17MH01
(For students admitted from the academic year 2017-18 onwards)

Objectives: **Hours: 75**

- To study the political and cultural history of Tamil Nadu from the beginning to 1800 A.D.
- To emphasize the social and economic conditions of Tamil Nadu.

Unit I : Pre Historic Period- Sangam Period : Literature – Society-Religion - Culture – Economic Life – Foreign Trade – Aryanisation- Spread of Jainism and Buddhism – Saivism – Vaishnavism. (15Hrs)

Unit II: Bhakthi Movement in Tamilnadu- Pallavas: Society–Literature - Religious – Economic Condition. (15Hrs)

Unit III: Cholas: Society – Growth of Saivism– Art and Architecture - Literature. (15Hrs)

***Unit IV:** Second Pandyan Empire: Social and Economic condition- Art and Architecture – Literature. (15Hrs)

Unit V: Nayaks: Social and Economic Condition – Literature –Religious Condition: Hinduism-Islam - Christianity –Marathas: Society-Education and Literature. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. K.A. Nilakanta Sastri - The Colas, University of Madras, 1975.
2. K.K. Pillai - A Social History of Tamils, Vol I University of Madras , 1975
- 3.N.Subramanian - History of Tamilnadu, Ennes Publication, Udumalpet, 1991.
4. Chithra Madhavan - History and Culture of Tamil Nadu, Vol.1, D.K. Print World (P) Ltd.,New Delhi, 2005.
- 5.k. Rajjyan - Real History of Tamilnadu, Ratna Publication,Trivandrum,2005
- 6.K.A. Nilakanta Sastri - The History of South India, Oxford University Press, USA, 2009.
- 7.Manoranjithanmoni - History of Tamil Nadu (Kindle Edition),Dave-Bery Publications, 2015.

Course Designed by : Dr.V.K.Saraswathi.
Course Reviewed by :Mrs.S.Shenbagavalli
Checked by : Dr.R.Meera.

M.A. History
Semester - I

Credit:4 Core II – History of the Freedom Struggle since A.D. 1857 17MH02
(For students admitted from the academic year 2017-18 onwards)

Objectives: **Hours: 75**

- To Know the politics of modern conception
- To understand the growth of nationalist spirit and the right of self-determination.

Unit I: Great Revolt of 1857: Causes and Consequences - Queen's Proclamation- Indian Nationalism- Indian National congress - Muslim League. (15Hrs)

Unit II: Swadeshi Movement-Home Rule Movement: Tilak and Anne Besant - Montague Declaration- Rowlatt Act- Non-Co-operation Movement- Birth of the Swaraj Party-The Simon Commission (15Hrs)

Unit III: Civil Disobedience Movement- Round Table Conference- Communal Award-Poona Pact-August Offer-Individual Satyagraha-Cripps Mission- Quit India Movement. (15Hrs)

Unit IV: Netaji Subash Chandra Bose and the Indian National Army- Demand for Partition- C.R.Formula-Wavell Plan – Simla Conference- Cabinet Mission Plan- Direct Action Day - Establishment of Interim Government-Mount batten Plan. (15Hrs)

***Unit V:** Partition of India- Indian Independence Act of 1947-Freedom Struggle in Tamilnadu - V.O.Chidambaram Pillai – Subramania Bharathi- Rajaji- Tirupur Kumaran. (15 Hrs)

*Starred Unit is Self Study.

Books for Reference:

- 1.Tara Chand - History of Freedom Movement in India, Ministry of Information and Broadcasting,Government of India,Pakala House,1972,Vol.IV.
2. R.C.Agarwal - Constitutional History of India and National Movement, S.Chand&Com.Ltd, 5th Edition, 1981
3. SrinivasaMoorthy - History of India's freedom Movement 1857-1947, S.Chand & Company Ltd., 1987
4. Bhalaksha - History of India (Since Independence 1947-2008 Volume IV) Shashi Prakashana Publications., Mysore.2014

Course Designed by : Dr.S,Renuka Devi.
Course Reviewed by -Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

M.A. History
Semester - I

Credit:4 Core III - Constitutional History of India from A.D 1773 - A.D 1947 17MH03
(For students admitted from the academic year 2017-18 onwards)

Objectives:

Hours: 75

- To trace the constitutional development of India.
- To impart the knowledge about the colonial policy of Great Britain.

Unit I: Regulating Act of 1773 - Pitt's India Act of 1784 - The Charter Act of 1793 – Provisions – Significance – Merits and Defects. (15Hrs)

Unit II: The Charter Act of 1813, 1833& 1853: Circumstances leading to the passing of the Acts - Provisions – Significance Advantages and Disadvantages. (15Hrs)

***Unit III:** Impact of the Revolt of 1857 - Government of India Act of 1858: Main Features - Queen's Proclamation: Significance. (15Hrs)

Unit IV: India Councils Act of 1861- Indian Councils Act of 1892-Merits-Demerits of the Act - Government of India Act of 1909 – Growth of Executive, Legislature, Judiciary. (15Hrs)

Unit V: Government of India Act of 1919 – Features of the Act – Dyarchy in the Provinces – Government of India Act of 1935 – Federal Government – Provincial Autonomy – Indian Independence Act of 1947. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

- 1.Sri Ram Sharma - Constitutional History of India, Orient Longman Ltd.,Delhi.,1974.
2. Jyoti Prasad Suda - Constitutional development (1773-1947),K.Nath & Co, Meerut, 1983.
3. Agarwal.R.C. - Constitutional development and National Movement of India, S.Chand& Company Ltd., Ramnagar, New Delhi,1991.
4. Srivastava A.L - Constitutional History of India and National Movement, S.B.D.Publishers, Naisarak, Delhi.2001.

Course Designed by : Dr.P.Siranjeevi
Course Reviewed by : Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

M.A. History
Semester - I

Core IV- Socio- Religious Reform Movements in India during 19th & 20th Century.
(For students admitted from the academic year 2017-18 onwards)

Credit: 4

17MH04

Objectives:

Hours: 75

- To know the social and religious systems of India and the reform movements which profoundly influenced the society
- To provide a knowledge on the social evils.

Unit I : Religions of India in the 19th Century ; Hinduism-Sikhism-Islam- Christianity-Hindu Society-Caste system –Position of women. (15Hrs)

Unit II : Social evils in the Hindu Society; Child marriage-Position of Widow – Sati-Female Infanticide- Dowry System-Devadasi System- Muslim Society: Purdah system-Polygamy. (15Hrs)

Unit III : Social Reforms introduced by Governor Generals and Viceroys: Lord William Bentinck – Lord Dalhousie-Reform Movement – Brahma samaj – Aryasamaj – Prathanasamaj – Theosophical Society – Rama Krishna Mission-St.Ramalinga Mission and Christian Mission. (15Hrs)

***Unit IV :** Life and works of important Reformers in the 19th Century –Rajaram Mohan Roy- Devandranath Tagore-Keshab Chandrasen-DayanandaSaraswathi – Iswar Chandra Vidyasagar – Ramakrishna Paramahansa – Vivekanandar. (15Hrs)

Unit V : Reformers in the 20th Century- Anne Besant – Mahatma Gandhi: Harijans Seva Sanga- Ambedkar-Narayana Guru-Durgabai Deshmuk – Pandit Ramabai – Muthulakshi Reddi- E.V.Ramasamy Naicker – Muthu Ramalinga Tevar- Mother Teresa- Vaikunta swamigal- M.C. Raja. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. V.A.Narain – Social History of Modern India in the 19th century, Meenakshi Prakasan Publications, Delhi-1972.
2. Dr.Ramnath Sharma – Society and Culture in India, Rajhan Prakhn Mandir Educational Publishers, Meerut -1975.
3. Dr.C.Paramarthalingam – Social Reform Movements in Tamilagam, Rajakumari Publications, Madurai- 1995.
4. Dr.S.N.Busi - Mahatma Gandhi and Baba Sabab, Ambedkar, Saroja Publication, Andhra Pradesh-1997

Course Designed by : Mrs.S.Shenbagavalli.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

M.A. History

Semester - I

Credit :4

Elective I - Journalism

17MHE1

(For students admitted from the academic year 2017-18 onwards)

Objectives:

Hours: 75

- To impart the basic knowledge regarding the theory and practice of Journalism.
- To motivate the students to choose the exciting and interesting profession of Journalism.

Unit I: Concept of Journalism - History of Press in India: British Period – Post -Independence Period –Role of the Press in the Freedom Movement. (15Hrs)

Unit II: History of Vernacular Journalism: Tamil - Characteristics of Journalist-Career aspects of Journalism- Freelance Journalist. (15Hrs)

Unit III: Sources of News- News Agencies: PTI, UNI -Structure of News Paper-Organization of Newspaper. (15Hrs)

Unit IV: -Writing the News - Headlines-Types of Headlines-Lead and its Types-Investigative Journalism. (15Hrs)

***Unit V:** Major Players: The Hindu, The New Indian Express, Dina Mani, DinaThanthi, Dina Malar. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. B.N.Ahuja&S.S.Chhabra - Principles and Techniques of Journalism,Surjeet Publications, New Delhi, 2002.
2. Barun Roy - Beginners guide to Journalism,Pustak Mahal,Delhi,2004.
3. Shah Zad Ahmad - Art of Modern Journalism, AnmolPublications,New Delhi,2005.
4. Seema S - Development of Journalism,AnmolPublications,New Delhi, 2005.
- 5.M.P. Gurusamy, Journalism, (Tamil), Guru-Thenmozhi Publication, Dindigul, 2009.
6. RangaswamiParthasarathy - Basic Journalism,Macmillan Publishers India Ltd,Delhi,2010.

Course Designed by : Mrs.S.Shenbagavalli.

Course Reviewed by : Dr.S.Renuka Devi

Checked by : Dr.V.K.Saraswathi.

**M.A. History
Semester - II**

Credit : 4 Core VIII- History of Kongu Country 17MH08
(For students admitted from the academic year 2017-18 onwards)

Objectives: **Hours: 65**

- To provide Comprehensive knowledge about the socio and cultural progress of the Kongu region.
- To impart the valuable information and facts to do the historical research.

Unit I: Sources-Geographical features of Kongu Nadu-Territorial Division-Kongu Nadu in Ancient times. (13Hrs)

Unit II: History of Kongu Nadu-Sangam Age - Cheras –Cholas – Pandyas -Gangas. (13Hrs)

Unit III: Kongu under Viyayanagar - Madurai Nayak – Raja of Mysore- Hyder Ali - Tipu Sultan – British Conquest of Kongu. (13Hrs)

Unit IV: Contribution of Kongu region in Freedom Movement: Home Rule Movement – Non co operation Movement – Civil Dis obedience Movement- Quit India Movement. (13Hrs)

***Unit V:** Society: Caste system - Social life- – Religion-Economic condition: Agriculture – Industry. (13Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. M.Arokiasamy -History of Kongu Country, University of Madras, II Edition 1986.
2. V.Manickam -Kongu Nadu-A History upto 1400 A.D”,Makkal Veliyeedu,Chennai,2001.
3. V.Ramamoorthy -History of the kongu Part I &II,Asiatic Publication, Boes Garden ,Madras.
4. K.S.Vaidyanathan -Ancient Geography of the Kongu Country, Government of India, 1983.

Course Designed by :Mrs.S.Shenbagavalli.
Course Reviewed by :Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

**M.A. History
Semester - II**

**Credit: 4 Core IX- Intellectual History of Tamilnadu 17MH09
(For students admitted from the academic year 2017-18 onwards)**

Objectives: **Hours: 54**

- To know the life and work of several intellectuals from various fields.
- To focus the great role played by Intellectuals in the development of Tamil Society.

Unit I: Nature and Scope of Intellectual History – Thiruvalluvar – Life and Teachings of St.Ramalinga – Subramaniya Bharathi: Literary achievements - Bharathidasan: Contribution to Tamil Literature . (11 Hrs)

Unit II: Thiru.V.Kalyanasundaranar's writings – Literary works of MaraimalaiAdigal – Dr.Muthu Lakshmi Reddy – Political Awareness - Her role in the Madras Legislative Council. (11Hrs)

Unit III: Intellectuals of Justice Party :Dr. T.M. Nair – Panneer Selvam - Non –Brahmin Movement – Swami Sahaja Nanda – His services to the down trodden – U.V.SwaminatheAiyer : His achievements in Tamil Classics . (11Hrs)

***Unit IV:** Kamarajar : Educational Reforms – C.N.Annadurai – Jeeva – C.Subramaniam – Dr.Radha Krishnan.: His contribution to Education- M.S.Subbulakshmi. (10 Hrs)

Unit V: Role of Universities to the cause of Education - Madras University: LakshmanaswamiMudaliar – Annamalai University: Dr. Raja Sri Annamalai Chettiar – Madurai Kamaraj University – Bharathiar University - Mother Teresa University. (11 Hrs)

*Starred Unit is Self Study.

Books for Reference:

- 1.Ramamurthi - The Freedom struggle and the Dravidian movement, Orient Longman, 1987.
- 2.Dr.C.Paramarthalingam - Social Reform Movement in Tamilnadu, Rajakumari Publications,1995.
3. Dr.A.Devanesan - History of Tamilnadu,Renu Publications,Marthandam,2000.
4. Jayshree - The Great Personalities (Brief life sketch of famous people) Vohra Publishers and Distribution, 2003.
5. R.Kannan - Anna- The Life and Times of C.N.Annadurai, PenguinGroup,2010.

Course Designed by :Dr.S.Renuka Devi
Course Reviewed by :Dr..V.K.Saraswathi.
Checked by :Dr.R.Meera.

17MH10**Hours: 65**

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**M.A. History
Semester - III**

Credit : 4

Core XII – Archaeology

17MH12

(For students admitted from the academic year 2017 - 18 onwards)

Objectives:

Hours:65

- To focus in detail on Epigraphy, Numismatics and Pottery.
- To present the latest trend and theories on Archaeology.

Unit I: Nature and Scope – Branches of Archaeology – Discoveries - Excavation – Site Survey methods -Stratigraphy –Scientific methods of Excavation –Recording the Excavation Data – Burial Record – Photographic Records. (13Hrs)

Unit II: Epigraphy – Asokan Edicts – Allahabad Pillar Inscription of Harisena – Uttaramerur Inscriptions –Konguchola Inscriptions – Copper plates of Pallavas –Evolution of Script – Brahmi – Grantha –Vatteluttu. (13Hrs)

Unit III: The Harappan culture –Pottery –Megaliths –Memorial Stones:Hero Stones Archaeological Sites of Tamilnadu. (13Hrs)

Unit IV: Numismatics: Punch marked Coins –Gupta Coins –Pallava Coins –Kongu Coins-KonguChola Coins-Vijayanagar Coins-Archaeological Significance. (13Hrs)

***Unit V:** Archaeologists of India:JamesPrincep –Alexander Cunningham-Robert Bruce Foote – Sir John Marshall –Mortimer Wheeler. Archaeologists of Tamilnadu: Dr.Nagasamy-Dr.Natanakasinathan – Dr.K.V.Raman- IravathamMahadevan. (13Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. K.V.Raman -Principles and Methods of Archaeology,Parthajan Publication,Chennai,1998.
2. V.Ramamoorthy - History of the Kongu,AsiaticPublication,Madras.
4. Nicholas.V.Riasauovsky - A History of Russia,Oxford University Press,New York Publication, 1977.
5. K.Rajan, Archaeology - Principles and Methods, Manoo Pathippakam, Thnjavur, 2002.
6. R.Venkatraman - Indian Archaeology,,Ennes Publication,Udumalpet,2005.
7. Dilip.K.Chakrabati - India An Arachaeological,HistoryIIEd.OxfordUniversity,New Delhi, 2010.

Course Designed by : Dr.R.Meera.
Course Reviewed by : Mrs.S.Shenbagavalli.
Checked by : Dr.V.K.Saraswathi.

**M.A. History
Semester - III**

Credit : 4

Core XIII – Contemporary History of India

17MH13

(For students admitted from the academic year 2017-18 onwards)

Objectives:

Hours:65

- To provide information on the social, political and economic history of Contemporary India.
- To motivate for the critical and analytical study of free India.

Unit I: Basic Developments: Transport: Railways-Roadways-Airways-Mass Media: Press-Television - IT Technology. (13Hrs)

Unit II: Achievements: India in Space Club: History of Space Science-ISRO Centre's and Module-ISRO's Major Projects-Launch Vehicle Technology. (13Hrs)

Unit III: Sports & Games: Hockey – Cricket – Chess – Tennis – Badminton- Music: A.R.Rehman – Lata Mangeshkar. (13Hrs)

Unit IV: Burning Issues: Ayodhya Issue – Cauvery Water Dispute – MullaiPeriyar Dam Controversy - Telengana Issue. (13Hrs)

***Unit V:** Great Personalities: Abdul Kalam-Infosys Narayanamoorthy- Sachin Tendulkar-Arundathi Roy- IndraNooyi. (13Hrs)

*Starred Unit is Self Study.

Books for References:

1. G.John Gilbert – Contemporary History of India, Anmol Publications, New Delhi, 2006.
2. K.Venkatesan –History of Contemporary India 1947-2000, V.C.Publications, 2005.
3. Bipin Chandra – India after Independence 1947-2000, A Penguin Books, New Delhi, 2000.

Course Designed by : Dr.V.K.Saraswathi.
Course Reviewed by : Mrs.Shenbagavalli.
Checked by :Dr.R.Meera.

**M.A. History
Semester - III**

Credit: 4

Core XIV – International Relations I

17MH14

(For students admitted from the academic year 2017-18 onwards)

Objectives:

Hours:65

- The study is on the diplomatic relations of the World Powers.
- To update the knowledge of the students on World affairs.

Unit I: Definition - Scope – Significance - Approaches: Realist Theory –The System Theory.
(13Hrs)

Unit II: I World War: Causes - Main events-Result-Wilson’s Fourteen Points- Peace Conference of Paris: The Treaties-Versailles- Saint Germain – Neuilly – Trianon– Sevres. (13Hrs)

***Unit III:** League of Nations: Organisation- Achievements – Failure - II World War - Causes- Main Events- Results – Conferences. (13Hrs)

Unit IV: United Nations Organisation : Organs - Specialized Agencies - Achievements: Political- Social- Economic. (13Hrs)

Unit V: Cold war –Causes - Regional Pacts: Truman Doctrine - Marshall Plan – NATO – CENTO - ANZUS – SEATO – WARTO – II Phase of the Cold War and its Impact. (13Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. RadheyShyam - International Relations, Kings Books, Delhi, 1997.
2. Dr. KrishnaveniMuthiah - International Relations, Himalaya publishing House, Mumbai, 2005
3. L.N.Srivastava - International Relations, SBD Publishers, New Delhi, 2006.
- 4.J.C.Johari - New Comparative Government, Lotus press publishers & Distributors, Delhi, 2006
5. Gulam Mohammad Dar - An Introduction to International Relations, Rajat Publications, New Delhi, 2008.

Course Designed by :Mrs.S.Shenbagavalli.

Course Reviewed by :Dr.V.K.Saraswathi.

Checked by :Dr.R.Meera.

**M.A. History
Semester - III**

Credit :4 Elective III- Practicals – Office Automation 17MHE5

(For students admitted from the academic year 2017-18 onwards)

Objectives: **Hours: 75**

- To equip with computer skills
- To inculcate in-depth programming knowledge in MS Office.

List of Programs

Word Processor

1. Text creation and Manipulation
 - i. Paragraph and Tab setting
 - ii. Text Selection
 - iii. Cut, Copy and Paste
 - iv. Font and Size selection
 - v. Bold, Italic and Underline

vi. Alignment of Text: Center , left , right and Justify

2. Formatting the Text

- 1.Changing Font, Size and Colour
- 2.Paragraph Indenting
- 3.Bullets and Numbering
- 4.Use of Tab and Tab Setting
5. Changing Case

3. Table Manipulation

1. Creation of Rows, columns and Cells
2. Draw table
3. Changing Cell width and height
4. Alignment of text in Cell
5. Copying of Cell
6. Delete / insertion of rows and Coloumns

4. Prepare a Timetable.

5. Prepare a Resume.

6. Using the concept of Mail Merge

- i) Blood donation Camp
- ii) Seminar Organisation

Spreadsheet

7. Prepare a mark list of a class for 5 subjects and consolidate by using the formula:

Sum, Average, Max, Min, Count.

8. Create Employee details using Sort and Filter.

9. Prepare Student Information.

Presentation

10. Prepare Power point slides regarding Sports Day (Use Hyperlink).

11. Prepare slides using Custom Animation.

12. Prepare slides using animation effects.

Internet

- 13.Create a Group Mail-Id and Send a mail by attaching files.
- 14.Store and Surf the documents in Google drive.
- 15.Check Plagiarism using tools.
- 16.Search the tourist/ pilgrim centres of a particular country.

Course Designed by :Mrs.S.Shenbagavalli.
 Course Reviewed by :Dr.V.K.Saraswathi.
 Checked by :Dr.R.Meera.

M.A. History
Semester - III
Elective III - Museology

Credit :4
17MHE6

(For students admitted from the academic year 2017-18 onwards)

Objectives:

Hours: 75

- To expose the students to the preservation and Conservation of Museum objects.
- To Motivate the students to choose the interesting profession of Museum organization and Management

Unit I: Museology: Origin – Definition - Aim and Scope – Importance. History of Museum Movement in India: Early phase – British period – after the independence. (15 Hrs)

Unit II Different kinds of Museums - Archaeological, Natural History – Ethnological Museum; important museums in India : Nalanda archaeological Museum – National gallery of Modern art, New Delhi - Sri Meenakshi Sundereswarar Museum, Madurai – Jalar Jung Museum, Hyderabad. (15 Hrs)

Unit III Indian Legislative Measures relating to Museum Objects – Treasure trove Act, ancient monuments and sites preservation Act, Antiquities export control Act, Antiquities registration Act. (15 Hrs)

Unit IV Acquisition and display of objects – Preparation of Cards, Registers and other documents. (15 Hrs)

Unit V Museum Organization and Management – Curator - Security Measures and Upkeeps - Preservation and Conservation of Museum Objects. (15 Hrs)

Books for Reference:

1. G. Sethuraman - Museum And Its Technique, Sastha Publications, Madurai, 1996.
- 2.O.P.Agarwal - Preservation of Art Objects and Library Materials, National Book Trust, New Delhi, 1993.
- 3.Jitendra Nath Basu - Indian Museums Movement, Benson's Publisher, the University of Virginia,1965.
- 4.Benjamin Ives Gilman -Museum Ideals, Purpose and Method, Biblio Bazaar Publisher, South Carolina,2014
- 5.N.Harinarayana &

V. Jeyaraj - Care of Museum Objects, Government Museum, Madras, 1995.
 6.C.Sivarama Murthi - Directory of Museums in India, (Tamil), Government of Tamilnadu, Madras, 1963.

Course Designed by :Dr.S.Renukadevi.
 Course Reviewed by :Dr.V.K.Saraswathi.
 Checked by :Dr.R.Meera.

M.A. History Semester - IV

Credit : 4 Core XV - Archives Keeping 17MH15
(For students admitted from the academic year 2017-18 onwards)

Objectives: **Hours: 75**

- The Paper attempts to focus on the organization, administration and uses of Archives.
- To enable the student to have a knowledge on the utilization of Records for research in Modern History.

Unit I: Definition and Meaning of the terms ‘Archives’ and ‘Record’ – Nature of Archives – Types of Archives – History of Archives: Archives Keeping in the Ancient Period – Archives in Medieval and Modern Europe – Archives Keeping in India. (15 Hrs)

Unit II: Creation of Archives: Material used for the creation of Archives – Modern Developments: Collection of Records – Registry system. Archival location: Building and Record Room. Organization of Archives in India: British Period and Post Independent Period. (15Hrs)

***Unit III:** Functions of Archives: Primary Functions: Acquisition and Preservation of Historical Material - Allied functions. Uses of Archives: Research Value – Cultural and Social Value – Administrative Value – Use of Archives for Publication. (15 Hrs)

Unit IV: Administration of Archives: Aspects of Administration – Administrative Legislation. Preservation of Archives: Agents of Deterioration – Methods to Check Internal and External Deteriorating Agents – Nursing of Materials – Rehabilitation of Damaged Records – Lamination – Stain Removal. (15Hrs)

Unit V: National Archives Origin – Archival Material – Access to Archives – Indian Historical Record Commission. Tamilnadu Archives: Rules and Regulation of the Tamilnadu Archives – Private Archives. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. J.Dharmarajan - Archives Keeping, Tensy Publications, Sivakasi, 2008.
2. Dr. J.Thiyagarajan - Archives Keeping, Prabha Publications, Madurai, 2002
3. Sundara Raj - Manual of Archival Systems and World of Archives, Siva Publications, Chennai, 1999.

Course Designed By : Dr.R.Meera.
Course Reviewed By : Mrs.V.K.Sarawathi.
Checked By : Dr.S.Renukadevi

M.A. History Semester - IV

Credit : 4 Core XVI – International Relations II 17MH16
(For students admitted from the academic year 2017-18 onwards)

Objectives: **Hours:75**

- The study is on the diplomatic relations of the World Powers.
- To update the knowledge of the students on World affairs.

Unit I: Disarmament: Meaning-Nuclear Test Ban - Limited Test Ban - Non-Proliferation-SALT(1969,1979) - Nuclear-Non-Proliferation - Sea-Bed-Biological Weapons, Chemical Weapons Convention – CTBT - India and NPT - India and CTBT. (15Hrs)

Unit II: Middle East: Arab-Israel Relations – Iran- Iraq War - Gulf War. (15Hrs)

Unit III: Regional Organization: Organisation of American States-Non Alignment Movement - Organisation of African Union -Association of South East Asian Nations-South Asian Association for Regional Co operation. (15Hrs)

***Unit IV: India and Her Neighbours: India- Pakistan Relations - India – China Relations - India – Srilanka Relations. (15Hrs)**

Unit V: India - US Relations - Collapse of USSR - Impact on International Relations – International Terrorism - Impact. (15Hrs)

*Starred Unit is Self Study.

Books for References:

1. RadheyShyam - International Relations, Kings Books, Delhi, 1997.
2. Dr. Krishnaveni Muthiah - International Relations, Himalaya publishing House, Mumbai, 2005.
3. L.N. Srivastava - International Relations, SBD Publishers, New Delhi, 2006.
4. J.C. Johari - New comparative Government, Lotus press publishers & Distributors, Delhi, 2006
5. Gulam Mohammad Dar - An Introduction to International Relations, Rajat Publications, New Delhi, 2008
6. Gulam Mohammad Dar - An Introduction to International Relations, Rajat Publications, New Delhi, 2008.

Course Designed by : Mrs.S.Shenbagavalli.
Course Reviewed by : Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

**M.A. History
Semester - IV**

Credit : 4

Elective IV – Human Rights

17MHE7

(For students admitted from the academic year 2017-18 onwards)

Objectives:

Hours:75

- To present the general study about the functioning of the Human Rights.
- To know the importance of contemporary issues in Human Rights.

Unit I: Definition-Characteristics of Human Rights - Classification: Moral – Legal – Civil – Political - Universal Declaration of Human Rights. (15Hrs)

Unit II: Human Rights and Voluntary Organisations: Amnesty International -Asia Watch-America Watch – Hot Line - People Union for Civil Liberties-People Union for Democratic Rights- Citizens for Democracy. (15Hrs)

Unit III: Children's Rights - Refugees - Bonded Labour – Dalits - Tribals - Mass Media and Human Rights - CEDAW - Role of Governmental & Non-Governmental Organisations. (15Hrs)

Unit IV: India & Human Rights: Motilal Committee Report – Indian Constitution and Human Rights – Nature of Fundamental Rights – Directive Principles of State policy (15Hrs)

***Unit V:** National Human Rights Commission-State Human Rights commission-Human Rights Court- Moot Court and Mock Trial. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

- 1.Dr.Sivakami Paramasivam - Human Rights – A Study , Sriram Computers Prints & Offset, Salem, 1998.
2. K.Mohana Sundaram - Human Rights - Thoery and Practice, Concept Publishing Company, New Delhi, 2013.
3. B.P. Singh Sehla. - Human rights in India's Problems and Perspectives, D& D Publications, New Delhi,2008
4. K.P.Sakesana - Human Rights 50 years of India's Independence,Gyan publishing House, New Delhi, 2001.
5. Dr.Gokulesh Sharma - Human Rights and Legal Remedies, D&D Publications, New Delhi,2003.
4. Satya P.Kanan - Human Rights Evolution and Development,Wissom Press, NewDelhi,2012.
- 5.Dr.B.Ramasamy - Human Rights Principles and Practices,Alfa Publications, NewDelhi,2013.

Course Designed By :Dr.V.K.Saraswathi.
Course Reviewed By :Mrs.S.Shenbagavalli.
Checked By : Dr.R.Meera.

**M.A. History
Semester - IV**

Credit : 4

Elective IV – Epigraphy

17MHE8

(For students admitted from the academic year 2017-18 onwards)

Objectives:

Hours:75

- To create an interest among the students on ancient History.
- To make the study of History in scientific way on the basis of Epigraphy.
- To get job opportunities in Archaeological Departments, Museums, Art Gallery etc.

Unit I: Meaning and Classification – Inscriptions as Historical source material – Writing materials: Metals – other Substances than Metal. (15 Hours)

Unit II: Inscriptions of Asoka: Rock Edicts – Pillar Edicts – Cave inscriptions – Historical importance of Asokan edicts. (15 Hours)

Unit III: Scripts: Evolution of Brahmi Script – James Princep – Tamil Brahmi Cave Inscription in Tamilnadu – Grantha and Vatteluttu Script – Techniques of Estampages. (15 Hours)

Unit IV: Inscription of South India: Uttaramerur Inscription- Pallava Copper Plates- The Pandiyan , Copper Plates - Copper Plates of the Imperial Cholas. (15 Hours)

Unit V: Post Asokan Inscriptions: Allahabad Pillar Inscriptions and its Historical significance _ Girnar Rock Inscription of Rudradaman. (15 Hours)

.Books for Reference:

1. Vincent A. Smith - India its Epigraphy, Antiquities Archaeology, Numismatics and Architecture, ESS ESS Publications, Delhi, 1975.
2. N. Subramanian & R. Venkatraman - Tamil Epigraphy A survey, ENNES Publications, Madurai 1980 .
3. R. Venkatraman - Indian Archaeology- A Survey, ENNES Publications, Udumalpet, 1999.

Course Designed By : Dr. V. K. Saraswathi.
Course Reviewed By : Mrs. S. Shenbagavalli.
Checked By : Dr. R. Meera

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of History
MA HISTORY
 Scheme of Examination – CBCS Pattern
 (For the students admitted from the academic year 2016– 17onwards)

Course code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
15MH01	Core I – Social and Economic History of Tamilnadu upto A.D1800.	6	3	25	75	100	4
15MH02	Core II- History of the Freedom Struggle since A.D.1857.	6	3	25	75	100	4
15MH03	Core III- Constitutional History of India from A.D1773 - A.D 1919.	6	3	25	75	100	4
15MH04	Core IV- Socio- Religious Reform Movements in India during 19 th & 20 th Century.	6	-	25	75	100	4
15MHE1	Elective I- Journalism.	6	3	25	75	100	4
Semester II							
15MH05	Core V – Social and Economic History of Tamilnadu A.D 1800 to A.D 1996.	5	3	25	75	100	4
15MH06	Core VI – History of USA upto A.D 1865	5	3	25	75	100	4
15MH07	Core VII – Constitutional History of India from A.D.1935 - A.D.2000.	5	3	25	75	100	4
15MH08	Core VIII- History of Kongu Country.	5	3	25	75	100	4
15MH09	Core IX- Intellectual History of Tamilnadu.	4	-	25	75	100	4
15MHE2	Elective II-Women in Development.	4	3	25	75	100	4
15MHIS	Internship.	-	-	50	-	50	2
15MGCS	Cyber security.	2	2	50	-	Grade	Grade
15MHSV	Advanced Learners Course -I- Subject Viva Voce.	-	-	-	100	100	4*

Course code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester III							
15MH10	Core X- Historiography.	5	3	25	75	100	4
15MH11	Core XI- History of USA from A.D1865 to A.D.1989.	5	3	25	75	100	4
15MH12	Core XII – Archaeology.	5	3	25	75	100	4
15MH13	Core XIII- India of our Times.	5	3	25	75	100	4
15MH14	Core XIV- International Relations I	5	-	25	75	100	4
15MHE3	Elective III – Computer Applications.	5	3	40	60	100	4
Semester IV							
15MH15	Core XV – Archives Keeping.	6	3	25	75	100	4
15MH16	Core XVI- International Relations II.	6	3	25	75	100	4
15MHE4	Elective IV- Human Rights.	6	3	25	75	100	4
15MHPV	Project.		-	-	200	200	8
15MHSV	Advanced Learners Course – II-Subject Viva Voce.	-	-	-	100	100	4*
TOTAL						2250	90

*Starred credits are treated as additional credits, which are optional.

**M.A. History
Semester - I**

Credit: 4 Core I-Social and Economic History of Tamil Nadu upto A.D 1800 15MH01
(For students admitted from the academic year 2016– 17onwards)

Preamble: Hours: 75

- To study the political and cultural history of Tamil Nadu from the beginning to 1800 A.D.
- To emphasize the social and economic conditions of Tamil Nadu.

Unit I : Pre Historic Period- Sangam Period : Literature – Society-Religion - Culture – Economic Life – Foreign Trade – Aryanisation- Spread of Jainism and Buddhism – Saivism – Vaishnavism. (15Hrs)

Unit II: Bhakthi Movement in Tamilnadu- Pallavas: Society–Literature - Religious – Economic Condition. (15Hrs)

Unit III: Cholas: Society – Growth of Saivism– Art and Architecture - Literature. (15Hrs)

***Unit IV:** Second Pandyan Empire: Social and Economic condition- Art and Architecture – Literature. (15Hrs)

Unit V: Nayaks: Social and Economic Condition – Literature –Religious Condition: Hinduism-Islam - Christianity –Marathas: Society-Education and Literature. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Prof. K.A.N. Sastri : The Cholas, History of South India ,The Pandiyan Kingdom.
2. Dr.C. Meenakshi : Administration & Society under Pallavas
3. Dr. R. Rajalakshmi : Tamil Polity
4. Dr. N. Subramanian :Sangam Policy
5. Dr. Burton Stein : Peasants State and Society in Medieval South India

Course Designed by : Dr.V.K.Saraswathi.

Course Reviewed by :Mrs.S.Shenbagavalli

Checked by : Dr.R.Meera.

**M.A. History
Semester - I**

Credit:4 Core II – History of the Freedom Struggle since A.D. 1857 15MH02
(For students admitted from the academic year 2016–

17onwardsPreamble:

Hours: 75

- To Know the politics of modern conception
- To understand the growth of nationalist spirit and the right of self-determination.

Unit I: Great Revolt of 1857: Causes and Consequences - Queen's Proclamation- Indian Nationalism- Indian National congress - Muslim League. (15Hrs)

Unit II: Swadeshi Movement-Home Rule Movement: Tilak and Anne Besant - Montague Declaration- Rowlatt Act- Non-Co-operation Movement- Birth of the Swaraj Party-The Simon Commission (15Hrs)

Unit III: Civil Disobedience Movement- Round Table Conference- Communal Award-Poona Pact-August Offer-Individual Satyagraha-Cripps Mission- Quit India Movement. (15Hrs)

Unit IV: Netaji Subash Chandra Bose and the Indian National Army- Demand for Partition- C.R.Formula-Wavell Plan – Simla Conference- Cabinet Mission Plan- Direct Action Day - Establishment of Interim Government-Mount batten Plan. (15Hrs)

***Unit V:** Partition of India- Indian Independence Act of 1947-Freedom Struggle in Tamilnadu - V.O.Chidambaram Pillai – Subramania Bharathi- Rajaji- Tirupur Kumaran. (15 Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. R.C.Agarwal -Constitutional History of India and National Movement, S.Chand&com.Ltd, 5th Edition,1981.
2. Tara Chand -History of Freedom Movement in India, Ministry of Information and Broadcasting,Government of India,Pakala House,1972,Vol.IV.
3. SrinivasaMoorthy -History of India's freedom Movement 1857-1947,S.Chand & Company Ltd., 1987.

Course Designed by : Dr.S,Renuka Devi.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

M.A. History Semester - I

Credit:4 Core III - Constitutional History of India from A.D1773 - A.D 1919 15MH03
(For students admitted from the academic year2016– 17onwards)

Preamble: **Hours: 75**

- To trace the constitutional development of India.
- To impart the knowledge about the colonial policy of Great Britain.

Unit I: Regulating Act of 1773 - Pitt's India Act of 1784 - The Charter Act of 1793 Provisions - Significance. (15Hrs)

Unit II: The Charter Act of 1813, 1833& 1853: Provisions & Significance. (15Hrs)

***Unit III:** Government of India Act of 1858: Main Features - Queen's Proclamation: Significance. (15Hrs)

Unit IV: India Councils Act of 1861- Indian Councils Act of 1892-Merits-Demerits of the Act. (15Hrs)

Unit V: Government of India Act of 1909 – Growth of Executive, Legislature, Judiciary- Government of India Act of 1919 – Features of the Act – Dyarchy in the Provinces. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Agarwal.R.C. - Constitutional development and National Movement of India, S.Chand& Company Ltd., Ramnagar, New Delhi,1991.
2. Jyoti Prasad Suda - Constitutional development (1773-1947),K.Nath & Co, Meerut, 1983.
3. Sri Ram Sharma - Constitutional History of India, Orient Longman Ltd.,Delhi.,1974.
4. Srivastava A.L - Constitutional History of India and National Movement, S.B.D.Publishers, Naisarak, Delhi.2001.

Course Designed by : Mrs.S.Shenbagavalli.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

**M.A. History
Semester - I**

Core IV- Socio- Religious Reform Movements in India during 19th & 20th Century.
(For students admitted from the academic year 2016– 17 onwards))

Credit: 4 **15MH04**

Preamble: **Hours: 75**

- To know the social and religious systems of India and the reform movements which profoundly influenced the society
- To provide a knowledge on the social evils.

Unit I : Religions of India in the 19th Century ; Hinduism-Sikhism-Islam- Christianity-Hindu Society-Caste system –Position of women. (15Hrs)

Unit II : Social evils in the Hindu Society; Child marriage-Position of Widow – Sati-Female Infanticide- Dowry System-Devadasi System- Muslim Society: Purdah system-Polygamy. (15Hrs)

Unit III : Social Reforms introduced by Governor Generals and Viceroys: Lord William Bentinck – Lord Dalhousie-Reform Movement – Brahma samaj – Aryasamaj – Prathanasamaj – Theosophical Society – Rama Krishna Mission-St.Ramalinga Mission and Christian Mission. (15Hrs)

***Unit IV :** Life and works of important Reformers in the 19th Century –Rajaram Mohan Roy- Devandranath Tagore-Keshab Chandrasen-DayanandaSaraswathi – Iswar Chandra Vidyasagar _ Ramakrishna Paramahansa – Vivekanandar. (15Hrs)

Unit V : Reformers in the 20th Century- Anne Besant – Mahatma Gandhi- Ambedkar-Narayana Guru-Durgabai Deshmuk – Pandit Ramabai – Muthulakshi Reddi- E.V.Ramasamy Naicker – Muthu Ramalinga Tevar- Mother Teresa. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Dr.Ramnath Sharma – Society and Culture in India,Rajhan Prakhan Mandir Educational Publishers, Meerut -1975.
2. V.A.Narain – Social History of Modern India in the 19th century, Meenakshi Prakasan Publications,Delhi-1972.
3. Dr.C.Paramarthalingam – Social Reform Movements in Tamilagam, Rajakumari Publications, Madurai- 1995.
4. Dr.S.N.Busi - Mahatma Gandhi and Baba Sabeb,Ambedkar,Saroja Publication,Andhra Pradesh-1997

Course Designed by : Mrs.S.Shenbagavalli.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

M.A. History

Semester - I

Credit :4

Elective I- Journalism

15MHE1

(For students admitted from the academic year 2016– 17onwards)

Preamble:

Hours: 75

- To impart the basic knowledge regarding the theory and practice of Journalism.
- To motivate the students to choose the exciting and interesting profession of Journalism.

Unit I: Concept of Journalism - History of Press in India: British Period – Post -Independence Period –Role of the Press in the Freedom Movement. (15Hrs)

Unit II: History of Vernacular Journalism: Tamil - Characteristics of Journalist-Career aspects of Journalism- Freelance Journalist. (15Hrs)

Unit III: Sources of News- News Agencies: PTI, UNI -Structure of News Paper-Organization of Newspaper. (15Hrs)

Unit IV: -Writing the News - Headlines-Types of Headlines-Lead and its Types-Investigative Journalism. (15Hrs)

- Course Designed by :Mrs.S.Shenbagavalli.
Course Reviewed by :Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

Credit: 4	Core IX- Intellectual History of Tamilnadu	15MH09
	(For students admitted from the academic year 2016– 17onwards)	
Preamble:		Hours: 54

- Unit I:** Nature and Scope of Intellectual History – Thiruvalluvar – Life and Teachings of St.Ramalinga – Subramaniya Bharathi: Literary achievements - Bharathidasan: Contribution to Tamil Literature . (11 Hrs)

Unit II: Thiru.V.Kalyanasundaranar's writings – Literary works of MaraimalaiAdigal – Dr.Muthu Lakshmi Reddy – Political Awareness - Her role in the Madras Legislative Council. (11Hrs)

Unit III: Intellectuals of Justice Party :Dr. T.M. Nair – Panneer Selvam - Non –Brahmin Movement – Swami Sahaja Nanda – His services to the down trodden – U.V.SwaminatheAiyer : His achievements in Tamil Classics . (11Hrs)

***Unit IV: Kamarajar : Educational Reforms – C.N.Annadurai – Jeeva – C.Subramaniam – Dr.Radha Krishnan.: His contribution to Education- M.S.Subbulakshmi. (10 Hrs)**

Unit V: Role of Universities to the cause of Education - Madras University: Lakshmanaswami Mudaliar – Annamalai University: Dr. Raja Sri Annamalai Chettiar – Madurai Kamaraj University – Bharathiar University - Mother Teresa University. (11 Hrs)

*Starred Unit is Self Study.

1. Dr.A.Devanesan - History of Tamilnadu,Renu Publications,Marthandam,2000.
2. Jayshree - The Great Personalities (Brief life sketch of famous people)
Vohra Publishers and Distribution, 2003.
3. R.Kannan - Anna- The Life and Times of C.N.Annadurai, PenguinGroup,2010.
4. Dr.C.Paramarthalingam - Social Reform Movement in Tamilnadu, Rajakumari
Publications,1995.
5. Ramamurthi - The Freedom struggle and the Dravidian movement, Orient Longman, 1987.

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M.A. History
Semester - III
Credit : 4 Core X – Historiography 15MH10

(For students admitted from the academic year 2016– 17 onwards)

Preamble: **Hours: 65**

- To understand the meaning and values of History.
- To learn the classification of History and develop the method of Historical Research.

Unit I: Meaning and Scope of History -Kinds-Values-Lessons. (13Hrs)

Unit II: History is a Science or Art-Theories of History-Philosophy of History. (13Hrs)

Unit III: Historical Research-Requisites of the Research Scholars -Selecting a suitable topic-Formulation of Hypothesis-Preparing a working Bibliography-Making notes. (13Hrs)

***Unit IV:** Collection of Sources-Primary and Secondary Sources in India and Tamilnadu-Collection of Data. (13Hrs)

Unit V: Objectivity and Subjectivity in Writing History-Criticism: Internal and External – Arrangements of Thesis: Synthesis - Footnotes - Bibliography. (13Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Dr.G.Venkatesan - A Study of Historiography, V.C.Publication, Rajapalayam,2005.
2. Dr.V.Manickam - On History and Historiography, Clio Publication, Madura ,2010.
3. Tej Ram Sharma - Research methodology in History, Concept Publishers Company,New Delhi,2013.
4. ShyamalaThangamani - Elements of Historiography, Fine Quality Offset Printers, Coimbatore, 2005
5. R.N.Senapati - An Introduction to Historiography, Astha Publishers and Distributors, New Delhi,2013
6. N.Subramaniam -Historiography and Historical Methods , Ennes publications, Udumalpet, 1999.

Course Designed By :Dr.V.K.Sarasvathi.

Course Reviewed By : Dr. S.Renuka Devi.

Checked By : Dr.R.Meera.

M.A. History

Semester - III

Credit : 4

Core XII – Archaeology

15MH12

(For students admitted from the academic year 2016– 17 onwards)

Preamble:

Hours:65

- To focus in detail on Epigraphy, Numismatics and Pottery.
- To present the latest trend and theories on Archaeology.

Unit I: Exploration- -Definition – Branches of Archaeology –Excavation – Site Survey methods –Stratigraphy –Scientific methods of Excavation –Recording the Excavation Data –Burial Record – Photographic Records. (13Hrs)

Unit II: Epigraphy – Asokan Edicts – Allahabad Pillar Inscription of Harisena – Uttaramerur Inscriptions –Konguchola Inscriptions – Copper plates of Pallavas –Evolution of Script – Brahmi – Grantha –Vatteluttu. (13Hrs)

Unit III: The Harappan culture –Pottery –Megaliths –Memorial Stones:Hero Stones Archaeological Sites of Tamilnadu. (13Hrs)

Unit IV: Numismatics: Punch marked Coins –Gupta Coins –Pallava Coins –Kongu Coins-KonguChola Coins-Vijayanagar Coins-Archaeological Significance. (13Hrs)

***Unit V:** Archaeologists of India:JamesPrincep –Alexander Cunningham-Robert Bruce Foote – Sir John Marshall –Mortimer Wheeler. Archaeologists of Tamilnadu: Dr.Nagasamy-Dr.Natanakasinathan – Dr.K.V.Raman- IravathamMahadevan. (13Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. K.V.Raman -Principles and Methods of Archaeology,Parthajan Publication,Chennai,1998.
2. V.Ramamoorthy - History of the Kongu,AsiaticPublication,Madras.
3. R.Venkatraman - Indian Archaeology,,Ennes Publication,Udumalpet,2005.
4. Nicholas.V.Riasauovsky - A History of Russia,Oxford University Press,New York Publication, 1977.
5. Dilip.K.Chakrabati - India An Archaeological,HistoryIIEd.OxfordUniversity,New Delhi, 2010.

Course Designed by : Dr.R.Meera.

Course Reviewed by : Mrs.S.Shenbagavalli.

Checked by : Dr.V.K.Saraswathi.

Credit: 4 **Core XIV – International Relations I** **15MH14**
(For students admitted from the academic year 2016– 17 onwards)

- The study is on the diplomatic relations of the World Powers.
- To update the knowledge of the students on World affairs.

Unit II: I World War: Causes - Main events-Result-Wilson's Fourteen Points- Peace Conference of Paris: The Treaties-Versailles- Saint Germain – Neuilly – Trianon– Sevres. (13Hrs)

Unit IV: United Nations Organisation : Organs - Specialized Agencies - Achievements:
Political- Social- Economic. (13Hrs)

Unit V: Cold war –Causes - Regional Pacts: Truman Doctrine - Marshall Plan – NATO – CENTO - ANZUS – SEATO – WARTO – II Phase of the Cold War and its Impact. (13Hrs)

*Starred Unit is Self Study.

1. Gulam Mohammad Dar - An Introduction to International Relations, Rajat Publications, New Delhi, 2008.
2. L.N.Srivastava - International Relations, SBD Publishers, New Delhi, 2006.
3. Dr. Krishnaveni Muthiah - International Relations, Himalaya publishing House, Mumbai, 2005
4. Radhey Shyam - International Relations, Kings Books, Delhi, 1997.

Course Designed by :Mrs.S.Shenbagavalli.
Course Reviewed by :Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

Credit : 4 Core XV - Archives Keeping 15MH15
(For students admitted from the academic year 2016– 17onwards)

- The Paper attempts to focus on the organization, administration and uses of Archives.
- To enable the student to have a knowledge on the utilization of Records for research in Modern History.

Unit II: Human Rights and Voluntary Organisations: Amnesty International of India-Asia Watch-People Union for Civil Liberties-People Union for Democratic Rights-Mass Media and Human Rights. (15Hrs)

Unit III: Human Rights in India-Constitutional guarantee on Human rights - Human Rights and Refugees - Children's Rights-Bonded Labour-Dalits- Tribals - Caste Conflict in Tamilnadu. (15Hrs)

Unit IV: Women's Rights: CEDAW - Role of Governmental & Non-Governmental Organisations-Women and Media-Women Cell-Rights to Dissent by Women: Aung San Suukyi-MedhaPatkar-Arunthathi Roy. (15Hrs)

***Unit V:** National Human Rights Commission-State Human Rights commission-Human Rights Court- Moot Court and Mock Trial. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. B.P. Singh Sehla. -Human rights in India's Problems and Perspectives, D& D Publications, New Delhi.
2. K.P.Sakesana -Human Rights 50 years of India's Independence,Gyan publishing House,New Delhi-2001.
3. Dr.Gokulesh Sharma -Human Rights and Legal Remedies, D& D Publications, New Delhi, 2003.
4. SatyaP.Kanan - Human Rights Evolution and Development,Wissom Press, New Delhi,2012.
- 5.Dr.B.Ramasamy - Human Rights Principles and Practices,Alfa Publications, New Delhi,2013.

Course Designed By :Dr.V.K.Saraswathi.
Course Reviewed By :Mrs.S.Shenbagavalli.
Checked By : Dr.R.Meera.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of History
MA HISTORY
 Scheme of Examination – CBCS Pattern
 (For the students admitted from the academic year 2015 – 16 onwards)

Course code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
15MH01	Core I – Social and Economic History of Tamilnadu upto A.D1800.	6	3	25	75	100	4
15MH02	Core II- History of the Freedom Struggle since A.D.1857.	6	3	25	75	100	4
15MH03	Core III- Constitutional History of India from A.D1773 - A.D 1919.	6	3	25	75	100	4
15MH04	Core IV- Socio- Religious Reform Movements in India during 19 th & 20 th Century.	6	-	25	75	100	4
15MHE1	Elective I- Journalism.	6	3	25	75	100	4
Semester II							
15MH05	Core V – Social and Economic History of Tamilnadu A.D 1800 to A.D 1996.	5	3	25	75	100	4
15MH06	Core VI – History of USA upto A.D 1865	5	3	25	75	100	4
15MH07	Core VII – Constitutional History of India from A.D.1935 - A.D.2000.	5	3	25	75	100	4
15MH08	Core VIII- History of Kongu Country.	5	3	25	75	100	4
15MH09	Core IX- Intellectual History of Tamilnadu.	4	-	25	75	100	4
15MHE2	Elective II-Women in Development.	4	3	25	75	100	4
15MHIS	Internship.	-	-	50	-	50	2
15MGCS	Cyber security.	2	2	50	-	Grade	Grade
15MHSV	Advanced Learners Course -I- Subject Viva Voce.	-	-	-	100	100	4*

Course code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester III							
15MH10	Core X- Historiography.	5	3	25	75	100	4
15MH11	Core XI- History of USA from A.D1865 to A.D.1989.	5	3	25	75	100	4
15MH12	Core XII – Archaeology.	5	3	25	75	100	4
15MH13	Core XIII- India of our Times.	5	3	25	75	100	4
15MH14	Core XIV- International Relations I	5	-	25	75	100	4
15MHE3	Elective III – Computer Applications.	5	3	40	60	100	4
Semester IV							
15MH15	Core XV – Archives Keeping.	6	3	25	75	100	4
15MH16	Core XVI- International Relations II.	6	3	25	75	100	4
15MHE4	Elective IV- Human Rights.	6	3	25	75	100	4
15MHPV	Project.		-	-	200	200	8
15MHSV	Advanced Learners Course – II-Subject Viva Voce.	-	-	-	100	100	4*
TOTAL						2250	90

*Starred credits are treated as additional credits, which are optional.

M.A. History
Semester - I

Credit: 4 Core I-Social and Economic History of Tamil Nadu upto A.D 1800 15MH01
(For students admitted from the academic year 2015-16 onwards)

Preamble: **Hours: 75**

- To study the political and cultural history of Tamil Nadu from the beginning to 1800 A.D.
- To emphasize the social and economic conditions of Tamil Nadu.

Unit I : Pre Historic Period- Sangam Period : Literature – Society-Religion - Culture – Economic Life – Foreign Trade – Aryanisation- Spread of Jainism and Buddhism – Saivism – Vaishnavism. (15Hrs)

Unit II: Bhakthi Movement in Tamilnadu- Pallavas: Society–Literature - Religious – Economic Condition. (15Hrs)

Unit III: Cholas: Society – Growth of Saivism– Art and Architecture - Literature. (15Hrs)

***Unit IV:** Second Pandyan Empire: Social and Economic condition- Art and Architecture – Literature. (15Hrs)

Unit V: Nayaks: Social and Economic Condition – Literature –Religious Condition: Hinduism-Islam - Christianity –Marathas: Society-Education and Literature. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Prof. K.A.N. Sastri : The Cholas, History of South India ,The Pandiyan Kingdom.
2. Dr.C. Meenakshi : Administration & Society under Pallavas
3. Dr. R. Rajalakshmi : Tamil Polity
4. Dr. N. Subramanian :Sangam Policy
5. Dr. Burton Stein : Peasants State and Society in Medieval South India

Course Designed by : Dr.V.K.Saraswathi.

Course Reviewed by :Mrs.S.Shenbagavalli

Checked by : Dr.R.Meera.

M.A. History
Semester - I

Credit:4 Core II – History of the Freedom Struggle since A.D. 1857 15MH02
(For students admitted from the academic year 2015-16 onwards)

Preamble: **Hours: 75**

- To Know the politics of modern conception
- To understand the growth of nationalist spirit and the right of self-determination.

Unit I: Great Revolt of 1857: Causes and Consequences - Queen's Proclamation- Indian Nationalism- Indian National congress - Muslim League. (15Hrs)

Unit II: Swadeshi Movement-Home Rule Movement: Tilak and Anne Besant - Montague Declaration- Rowlatt Act- Non-Co-operation Movement- Birth of the Swaraj Party-The Simon Commission (15Hrs)

Unit III: Civil Disobedience Movement- Round Table Conference- Communal Award-Poona Pact-August Offer-Individual Satyagraha-Cripps Mission- Quit India Movement. (15Hrs)

Unit IV: Netaji Subash Chandra Bose and the Indian National Army- Demand for Partition- C.R.Formula-Wavell Plan – Simla Conference- Cabinet Mission Plan- Direct Action Day - Establishment of Interim Government-Mount batten Plan. (15Hrs)

***Unit V:** Partition of India- Indian Independence Act of 1947-Freedom Struggle in Tamilnadu - V.O.Chidambaram Pillai – Subramania Bharathi- Rajaji- Tirupur Kumaran. (15 Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. R.C.Agarwal -Constitutional History of India and National Movement, S.Chand&com.Ltd, 5th Edition,1981.
2. Tara Chand -History of Freedom Movement in India, Ministry of Information and Broadcasting,Government of India,Pakala House,1972,Vol.IV.
3. SrinivasaMoorthy -History of India's freedom Movement 1857-1947,S.Chand & Company Ltd., 1987.

Course Designed by : Dr.S,Renuka Devi.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

M.A. History Semester - I

Credit:4 Core III - Constitutional History of India from A.D1773 - A.D 1919 15MH03
(For students admitted from the academic year 2015-16 onwards)

Preamble: **Hours: 75**

- To trace the constitutional development of India.
- To impart the knowledge about the colonial policy of Great Britain.

Unit I: Regulating Act of 1773 - Pitt's India Act of 1784 - The Charter Act of 1793 Provisions - Significance. (15Hrs)

Unit II: The Charter Act of 1813, 1833& 1853: Provisions & Significance. (15Hrs)

***Unit III:** Government of India Act of 1858: Main Features - Queen's Proclamation: Significance. (15Hrs)

Unit IV: India Councils Act of 1861- Indian Councils Act of 1892-Merits-Demerits of the Act. (15Hrs)

Unit V: Government of India Act of 1909 – Growth of Executive, Legislature, Judiciary- Government of India Act of 1919 – Features of the Act – Dyarchy in the Provinces. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Agarwal.R.C. - Constitutional development and National Movement of India, S.Chand& Company Ltd., Ramnagar, New Delhi,1991.
2. Jyoti Prasad Suda - Constitutional development (1773-1947),K.Nath & Co, Meerut, 1983.
3. Sri Ram Sharma - Constitutional History of India, Orient Longman Ltd.,Delhi.,1974.
4. Srivastava A.L - Constitutional History of India and National Movement, S.B.D.Publishers, Naisarak, Delhi.2001.

Course Designed by : Mrs.S.Shenbagavalli.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

**M.A. History
Semester - I**

Core IV- Socio- Religious Reform Movements in India during 19th & 20th Century.
(For students admitted from the academic year 2015-16 onwards)

Credit: 4 **15MH04**

Preamble: **Hours: 75**

- To know the social and religious systems of India and the reform movements which profoundly influenced the society
- To provide a knowledge on the social evils.

Unit I :Religions of India in the 19th Century ; Hinduism-Sikhism-Islam- Christianity-Hindu Society-Caste system –Position of women. (15Hrs)

Unit II :Social evils in the Hindu Society; Child marriage-Position of Widow – Sati-Female Infanticide- Dowry System-Devadasi System- Muslim Society: Purdah system-Polygamy. (15Hrs)

Unit III : Social Reforms introduced by Governor Generals and Viceroys:Lord William Bentinck – Lord Dalhousie-Reform Movement – Brahma samaj – Aryasamaj – Prathanasamaj – Theosophical Society – Rama Krishna Mission-St.Ramalinga Mission and Christian Mission. (15Hrs)

***Unit IV :** Life and works of important Reformers in the 19th Century –Rajaram Mohan Roy- Devandranath Tagore-Keshab Chandrasen-DayanandaSaraswathi – Iswar Chandra Vidyasagar _ Ramakrishna Paramahansa – Vivekanandar. (15Hrs)

Unit V : Reformers in the 20th Century- Anne Besant – Mahatma Gandhi- Ambedkar-Narayana Guru-Durgabai Deshmuk – Pandit Ramabai – Muthulakshi Reddi- E.V.Ramasamy Naicker – Muthu Ramalinga Tevar- Mother Teresa. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Dr.Ramnath Sharma – Society and Culture in India,Rajhan Prakhan Mandir Educational Publishers, Meerut -1975.
2. V.A.Narain – Social History of Modern India in the 19th century, Meenakshi Prakasan Publications,Delhi-1972.
3. Dr.C.Paramarthalingam – Social Reform Movements in Tamilagam, Rajakumari Publications, Madurai- 1995.
4. Dr.S.N.Busi - Mahatma Gandhi and Baba Sabeb,Ambedkar,Saroja Publication,Andhra Pradesh-1997

Course Designed by : Mrs.S.Shenbagavalli.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

M.A. History

Semester - I

Credit :4

Elective I- Journalism

15MHE1

(For students admitted from the academic year 2015-16 onwards)

Preamble:

Hours: 75

- To impart the basic knowledge regarding the theory and practice of Journalism.
- To motivate the students to choose the exciting and interesting profession of Journalism.

Unit I: Concept of Journalism - History of Press in India: British Period – Post -Independence Period –Role of the Press in the Freedom Movement. (15Hrs)

Unit II: History of Vernacular Journalism: Tamil - Characteristics of Journalist-Career aspects of Journalism- Freelance Journalist. (15Hrs)

Unit III: Sources of News- News Agencies: PTI, UNI -Structure of News Paper-Organization of Newspaper. (15Hrs)

Unit IV: -Writing the News - Headlines-Types of Headlines-Lead and its Types-Investigative Journalism. (15Hrs)

***Unit V:** Major Players: The Hindu, The New Indian Express, Dina Mani, Dina Thanthi, Dina Malar. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. B.N.Ahuja&S.S.Chhabra - Principles and Techniques of Journalism, Surjeet Publications, New Delhi, 2002.
2. Barun Roy - Beginners guide to Journalism, Pustak Mahal, Delhi, 2004.
3. Rangaswami Parthasarathy - Basic Journalism, Macmillan Publishers India Ltd, Delhi, 2010.
4. Shah Zad Ahmad - Art of Modern Journalism, Anmol Publications, New Delhi, 2005.
5. Seema S - Development of Journalism, Anmol Publications, New Delhi, 2005.

Course Designed by : Mrs.S.Shenbagavalli.
Course Reviewed by : Dr.S.Renuka Devi
Checked by : Dr.V.K.Saraswathi.

M.A. History Semester - II

Credit : 4 Core V – Social and Economic History of Tamilnadu A.D 1800- A.D 1996 15MH05
(For students admitted from the academic year 2015-16 onwards)

Preamble:

Hours: 65

- This paper attempts to make the students understand the Socio-Economic Development of Tamil Nadu.
- To prepare for the Competitive Examination.

Unit I: Tamil Nadu during 1800-1900 – Socio – Economic Conditions – Agriculture – Cottage Industries. (13Hrs)

Unit II: Impact of Colonialism – Land Revenue: Ryotwari System –Judiciary –Education and role of Christian Missionaries – Change in Agricultural Economy to marketing economy – Decline of Cottage Industries – Rise of Nationalism in Tamil Nadu. (13Hrs)

Unit III: Tamil Literary Development – Pure Tamil Movement –Vallalar & Sanmarga Movement – Development of Social Novels, Journals and Short Stories – Birth of Non-Brahmin Movement. (13Hrs)

***Unit IV:** E.V.R. and Self Respect Movement – Impact on Depressed Classes – Temple Entry Movement – Temperance Movement. (13Hrs)

Unit V: Post Independence Development - Social Legislation- Five Year Plans –Agrarian Reforms – Industrial Growth – Development of Modern System of Communication and Transport and its impact on Society. (13Hrs)

*Starred Unit is Self Study.

1. Rajjyan - Real History of Tamilnadu,Ratna Publication,Trivandrum,2005.
2. Dr.A.Devanesn - History of Tamilnadu,Renu Publications,Marthandam,2000.
3. N.Subramanian - History of Tamilnadu,Ennes Publication, Udumalpet, 1991.
4. A.Swaminathan - Social and Cultural History of Tamilnadu,Deepa Pathipagam,Chennai,1991.
5. B.S.Baliga - Studies in Madras Adminstration,Vol I &II.

Course Designed by : Dr.V.K.Saraswathi.
Course Reviewed by : Mrs.S.Shenbagavalli
Checked by : Dr.R.Meera.

Credit : 4 Core VIII- History of Kongu Country 15MH08
(For students admitted from the academic year 2015-16 onwards)

- To provide Comprehensive knowledge about the socio and cultural progress of the Kongu region.
- To impart the valuable information and facts to do the historical research.

Unit I: Sources-Geographical features of Kongu Nadu-Territorial Division-Kongu Nadu in Ancient times. (13Hrs)

Unit II: History of Kongu Nadu-Sangam Age - Cheras –Cholas – Pandyas -Gangas. (13Hrs)

Unit III: Kongu under Viyayanagar - Madurai Nayak – Raja of Mysore- Hyder Ali - Tipu Sultan – British Conquest of Kongu. (13Hrs)

Unit IV: Contribution of Kongu region in Freedom Movement: Home Rule Movement – Non co operation Movement – Civil Dis obedience Movement- Quit India Movement. (13Hrs)

***Unit V:** Society: Caste system - Social life- – Religion-Economic condition: Agriculture – Industry. (13Hrs)

*Starred Unit is Self Study.

1. M.Arokiasamy -History of Kongu Country, University of Madras, II Edition 1986.
2. V.Manickam -Kongu Nadu-A History upto 1400 A.D”,Makkal Veliyeedu,Chennai,2001.
3. V.Ramamoorthy -History of the kongu Part I & II,Asiatic Publication, BoesGarden ,Madras.
4. K.S.Vaidyanathan -Ancient Geography of the Kongu Country, Government of India, 1983.

Course Designed by :Mrs.S.Shenbagavalli.
Course Reviewed by :Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

M.A. History Semester - II

Credit: 4 Core IX- Intellectual History of Tamilnadu 15MH09
(For students admitted from the academic year 2015-16 onwards)

Preamble: **Hours: 54**

- To know the life and work of several intellectuals from various fields.
- To focus the great role played by Intellectuals in the development of Tamil Society.

Unit I: Nature and Scope of Intellectual History – Thiruvalluvar – Life and Teachings of St.Ramalinga – Subramaniya Bharathi: Literary achievements - Bharathidasan: Contribution to Tamil Literature . (11 Hrs)

Unit II: Thiru.V.Kalyanasundaranar's writings – Literary works of MaraimalaiAdigal – Dr.Muthu Lakshmi Reddy – Political Awareness - Her role in the Madras Legislative Council. (11Hrs)

Unit III: Intellectuals of Justice Party :Dr. T.M. Nair – Panneer Selvam - Non –Brahmin Movement – Swami Sahaja Nanda – His services to the down trodden – U.V.SwaminatheAiyer : His achievements in Tamil Classics . (11Hrs)

***Unit IV: Kamarajar : Educational Reforms – C.N.Annadurai – Jeeva – C.Subramaniam – Dr.Radha Krishnan.: His contribution to Education- M.S.Subbulakshmi. (10 Hrs)**

Unit V: Role of Universities to the cause of Education - Madras University: Lakshmanaswami Mudaliar – Annamalai University: Dr. Raja Sri Annamalai Chettiar – Madurai Kamaraj University – Bharathiar University - Mother Teresa University. (11 Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Dr.A.Devanesan - History of Tamilnadu,Renu Publications,Marthandam,2000.
2. Jayshree - The Great Personalities (Brief life sketch of famous people)
Vohra Publishers and Distribution, 2003.
3. R.Kannan - Anna- The Life and Times of C.N.Annadurai, PenguinGroup,2010.
4. Dr.C.Paramarthalingam - Social Reform Movement in Tamilnadu, Rajakumari
Publications,1995.
5. Ramamurthi - The Freedom struggle and the Dravidian movement, Orient Longman, 1987.

Course Designed by :Dr.S.Renuka Devi
Course Reviewed by :Dr..V.K.Saraswathi.
Checked by :Dr.R.Meera.

M.A. History
Semester - III
Credit : 4 Core X – Historiography 15MH10

(For students admitted from the academic year 2015-16 onwards)

Preamble: **Hours: 65**

- To understand the meaning and values of History.
- To learn the classification of History and develop the method of Historical Research.

Unit I: Meaning and Scope of History -Kinds-Values-Lessons. (13Hrs)

Unit II: History is a Science or Art-Theories of History-Philosophy of History. (13Hrs)

Unit III: Historical Research-Requisites of the Research Scholars -Selecting a suitable topic-Formulation of Hypothesis-Preparing a working Bibliography-Making notes. (13Hrs)

***Unit IV:** Collection of Sources-Primary and Secondary Sources in India and Tamilnadu-Collection of Data. (13Hrs)

Unit V: Objectivity and Subjectivity in Writing History-Criticism: Internal and External – Arrangements of Thesis: Synthesis - Footnotes - Bibliography. (13Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. Dr.G.Venkatesan - A Study of Historiography, V.C.Publication, Rajapalayam,2005.
2. Dr.V.Manickam - On History and Historiography, Clio Publication, Madura ,2010.
3. Tej Ram Sharma - Research methodology in History, Concept Publishers Company,New Delhi,2013.
4. ShyamalaThangamani - Elements of Historiography, Fine Quality Offset Printers, Coimbatore, 2005
5. R.N.Senapati - An Introduction to Historiography, Astha Publishers and Distributors, New Delhi,2013
6. N.Subramaniam -Historiography and Historical Methods , Ennes publications, Udumalpet, 1999.

Course Designed By :Dr.V.K.Sarasvathi.

Course Reviewed By : Dr. S.Renuka Devi.

Checked By : Dr.R.Meera.

**M.A. History
Semester - III**

Credit : 4

Core XII – Archaeology

15MH12

(For students admitted from the academic year 2015-16 onwards)

Preamble:

Hours:65

- To focus in detail on Epigraphy, Numismatics and Pottery.
- To present the latest trend and theories on Archaeology.

Unit I: Exploration- -Definition – Branches of Archaeology –Excavation – Site Survey methods –Stratigraphy –Scientific methods of Excavation –Recording the Excavation Data –Burial Record – Photographic Records. (13Hrs)

Unit II: Epigraphy – Asokan Edicts – Allahabad Pillar Inscription of Harisena – Uttaramerur Inscriptions –Konguchola Inscriptions – Copper plates of Pallavas –Evolution of Script – Brahmi – Grantha –Vatteluttu. (13Hrs)

Unit III: The Harappan culture –Pottery –Megaliths –Memorial Stones:Hero Stones Archaeological Sites of Tamilnadu. (13Hrs)

Unit IV: Numismatics: Punch marked Coins –Gupta Coins –Pallava Coins –Kongu Coins-KonguChola Coins-Vijayanagar Coins-Archaeological Significance. (13Hrs)

***Unit V:** Archaeologists of India:JamesPrincep –Alexander Cunningham-Robert Bruce Foote – Sir John Marshall –Mortimer Wheeler. Archaeologists of Tamilnadu: Dr.Nagasamy-Dr.Natanakasinathan – Dr.K.V.Raman- IravathamMahadevan. (13Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. K.V.Raman -Principles and Methods of Archaeology,Parthajan Publication,Chennai,1998.
2. V.Ramamoorthy - History of the Kongu,AsiaticPublication,Madras.
3. R.Venkatraman - Indian Archaeology,,Ennes Publication,Udumalpet,2005.
4. Nicholas.V.Riasauovsky - A History of Russia,Oxford University Press,New York Publication, 1977.
5. Dilip.K.Chakrabati - India An Archaeological,HistoryIIEd.OxfordUniversity,New Delhi, 2010.

Course Designed by : Dr.R.Meera.
Course Reviewed by : Mrs.S.Shenbagavalli.
Checked by : Dr.V.K.Saraswathi.

Credit: 4 Core XIV – International Relations I 15MH14
(For students admitted from the academic year 2015-16 onwards)

- The study is on the diplomatic relations of the World Powers.
- To update the knowledge of the students on World affairs.

Unit II: I World War: Causes - Main events-Result-Wilson's Fourteen Points- Peace Conference of Paris: The Treaties-Versailles- Saint Germain – Neuilly – Trianon– Sevres. (13Hrs)

Unit IV: United Nations Organisation : Organs - Specialized Agencies - Achievements:
Political- Social- Economic. (13Hrs)

*Starred Unit is Self Study.

1. Gulam Mohammad Dar - An Introduction to International Relations, Rajat Publications, New Delhi, 2008.
2. L.N.Srivastava - International Relations, SBD Publishers, New Delhi, 2006.
3. Dr. Krishnaveni Muthiah - International Relations, Himalaya publishing House, Mumbai, 2005
4. Radhey Shyam - International Relations, Kings Books, Delhi, 1997.

Course Designed by :Mrs.S.Shenbagavalli.
Course Reviewed by :Dr.V.K.Saraswathi.
Checked by : Dr.R.Meera.

Credit : 4 Core XV - Archives Keeping 15MH15
(For students admitted from the academic year 2015-16 onwards)

- The Paper attempts to focus on the organization, administration and uses of Archives.
- To enable the student to have a knowledge on the utilization of Records for research in Modern History.

Unit I: Definition and Meaning of the terms ‘Archives’ and ‘Record’ – Nature of Archives – Types of Archives – History of Archives: Archives Keeping in the Ancient Period – Archives in Medieval and Modern Europe – Archives Keeping in India. (15 Hrs)

Unit II: Creation of Archives: Material used for the creation of Archives – Modern Developments: Collection of Records – Registry system. Archival location: Building and Record Room. Organization of Archives in India: British Period and Post Independent Period. (15Hrs)

***Unit III:** Functions of Archives: Primary Functions: Acquisition and Preservation of Historical Material - Allied functions. Uses of Archives: Research Value – Cultural and Social Value – Administrative Value – Use of Archives for Publication. (15 Hrs)

Unit IV: Administration of Archives: Aspects of Administration – Administrative Legislation. Preservation of Archives: Agents of Deterioration – Methods to Check Internal and External Deteriorating Agents – Nursing of Materials – Rehabilitation of Damaged Records – Lamination – Stain Removal. (15Hrs)

Unit V: National Archives Origin – Archival Material – Access to Archives – Indian Historical Record Commission. Tamilnadu Archives: Rules and Regulation of the Tamilnadu Archives – Private Archives. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. J.Dharmarajan - Archives Keeping, Tensy Publications, Sivakasi, 2008.
2. Sundara Raj - Manual of Archival Systems and World of Archives, Siva Publications, Chennai, 1999.
3. Dr. J.Thiyagarajan - Archives Keeping, Prabha Publications, Madurai, 2002.

Course Designed By : Dr.R.Meera.
Course Reviewed By : Mrs.V.K.Sarawathi.
Checked By : Dr.S.Renukadevi

M.A. History Semester - IV

Credit : 4 Elective IV – Human Rights 15MHE4
(For students admitted from the academic year 2015-16 onwards)

Preamble: Hours:75

- To present the general study about the functioning of the Human Rights.
- To know the importance of contemporary issues in Human Rights.

Unit I: Definition-Characteristics of Human Rights - Classification: Moral and Legal-Universal Declaration of Human Rights. (15Hrs)

Unit II: Human Rights and Voluntary Organisations: Amnesty International of India-Asia Watch-People Union for Civil Liberties-People Union for Democratic Rights-Mass Media and Human Rights. (15Hrs)

Unit III: Human Rights in India-Constitutional guarantee on Human rights - Human Rights and Refugees - Children's Rights-Bonded Labour-Dalits- Tribals - Caste Conflict in Tamilnadu. (15Hrs)

Unit IV: Women's Rights: CEDAW - Role of Governmental & Non-Governmental Organisations-Women and Media-Women Cell-Rights to Dissent by Women: Aung San Suukyi-MedhaPatkar-Arunthathi Roy. (15Hrs)

***Unit V:** National Human Rights Commission-State Human Rights commission-Human Rights Court- Moot Court and Mock Trial. (15Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. B.P. Singh Sehla. -Human rights in India's Problems and Perspectives, D& D Publications, New Delhi.
2. K.P.Sakesana -Human Rights 50 years of India's Independence,Gyan publishing House,New Delhi-2001.
3. Dr.Gokulesh Sharma -Human Rights and Legal Remedies, D& D Publications, New Delhi, 2003.
4. SatyaP.Kanan - Human Rights Evolution and Development,Wissom Press, New Delhi,2012.
- 5.Dr.B.Ramasamy - Human Rights Principles and Practices,Alfa Publications, New Delhi,2013.

Course Designed By :Dr.V.K.Saraswathi.
Course Reviewed By :Mrs.S.Shenbagavalli.
Checked By : Dr.R.Meera.

BA HISTORY

Semester wise Distribution with Scheme of Examination

(For students admitted during the academic year 2014-15)

Semester	Course	Credits	Duration of Exam Hrs(ESE)	Marks		Total
				CIA	ESE	
I	Part I -Language I	3	3	25	75	100
	Part II - English I	3	3	25	75	100
	Part III- Core I – Main Currents in Indian History upto A.D 647	4	3	25	75	100
	Core II- Main Currents in Indian History A.D 647 - A.D 1526.	4	3	25	75	100
	Allied I- Introduction to Tourism	5	3	25	75	100
	Part IV -Environmental Studies	2	-	50	-	50
II	Part I-Language II	3	3	25	75	100
	Part II- English II	3	3	25	75	100
	Part III - Core III – Main Currents in Indian History A.D 1526 - A.D1707	4	3	25	75	100
	Core IV– Main Currents in Indian History A.D1707 - A.D1857	4	3	25	75	100
	Allied II – Cultural Tourism In India	5	3	25	75	100
	Part IV-Value Education	2	-	50	-	50
	ALC I – Social History of India upto A.D 1206	3	3	-	100	100
III	Part I – Language III	3	3	25	75	100
	Part II- English III	3	3	25	75	100
	Part III - Core V-Main Currents in Indian History A.D1858 - A.D1947	4	3	25	75	100
	Core VI - Main Currents in Indian History A.D 1947-A.D 2000	4	3	25	75	100
	Allied III – Modern Governments	5	3	25	75	100
	Skill Based Course -Tourism Management-I-Travel Management	3	-	100	-	100
	Non-Major Elective	2	-	75	-	75

Semester	Course	Credits	Duration of Exam Hrs(ESE)	Marks		Total
				CIA	ESE	
IV	Part I – Language IV	3	3	25	75	100
	Part II – English IV	3	3	25	75	100
	Part III-Core VII -History of TamilNadu Upto A.D. 1565	4	3	25	75	100
	Core VIII- History of TamilNadu A.D 1565 – A.D .2000	4	3	25	75	100
	Allied IV – Indian Constitution	5	3	25	75	100
	Skill Based Course - Tourism Management - II- Hotel Management	3	-	100	-	100
	General Awareness	2	-	75	-	75
	ALC II- Social History of India A.D1206 - A.D.1950	3	3	-	100	100
	Extension Activities	1	-	50	-	50
V	Core – IX World History A.D 1453-A.D 1789	4	3	25	75	100
	Core X- History of England A.D. 1485-A.D.1714	4	3	25	75	100
	Core XI – History of China and Japan A.D.1800-A.D.1970	4	3	25	75	100
	Core XII– History of Science and Technology	4	3	25	75	100
	Elective – I – Tourist Destinations In India	5	3	25	75	100
	Skill Based Course - Tourism Management - III- Catering Management	3	-	100	-	100
VI	Core XIII – World History A.D 1789- A.D.2000	4	3	25	75	100
	Core XIV - History of England A.D 1714 – A.D 1990	4	3	25	75	100
	Core XV –India and Her Neighbours	4	3	25	75	100
	Elective II – Tourist Destinations in TamilNadu	5	3	25	75	100
	Elective III – Women Studies	5	3	25	75	100
	Skill Based Course - Tourism Management- IV - Project	3	-	-	-	100
	ALC –III Eminent South Indians	3	3	100	-	100

Non Major Course offered by the department-History for Competitive Examination

B.A History– Semester I **114H01**

Part III - Core I- Main Currents in Indian History upto A.D 647
(For students admitted during the academic year 2014-15)

Preamble:

Hours: 75

- This paper attempts to know the political and social history of India
- To develop the quality of sympathetic imagination and an eagerness to enter into a different atmosphere of a bygone era.

Module I: The Effect of Geography on Indian History- The Indus Valley Civilization-The Vedic Age - The Aryans- Society - The Caste system. (15 Hrs)

Module II: Alexander's Invasion - Impact –The Rise of the Mauryan Empire - Asoka - Buddhism –Administration. (15Hrs)

Module III: Kanishka – Gandhara Art - The Age of the Gupta: Chandra Gupta I -Samudra Gupta-Chandra Gupta II –Administration. (15Hrs)

Module IV: Society and Economy under the Guptas –Art and Architecture-Divine of the Guptas. (15Hrs)

Module V: Harshavardhana - Society & Religion -The Satavahanas- Society and culture. (15Hrs)

Map Study: 1. The Physical features of India 2. Gupta Empire

Book for Study:

1. R.K.Majumdar & A.N.Srivastva -An Easy Approach to Indian History (From Earliest times to 1526 A.D)'BD Publishers,New Delhi,2009.

Books for Reference:

- 1 Bhasham, A.L. - The Wonder that was India ,Rupa &Co., New Delhi, 2000.
2. Dr.Hans Raj - Advanced History of India, SurjeetPublications, New Delhi, 2013.
3. John Clark Makshman - History of India,Akansha Publishers,Delhi,2005
4. S.C.Raychaudry - Social Cultural and Economic History of India: (Ancient Times to 1526),Surjeet Publications,New Delhi,2013.

Course Designed By : Mrs.P.Karpagavalli.
Course Reviewed By : Dr.S.Renuka Devi.
Checked By : Mrs.V.K.Saraswathi.

B.A History– Semester I **114H02**

Part III - Core II- Main Currents in Indian History A.D 647- A.D 1526.
(For students admitted during the academic year 2014-15)

Preamble:

Hours: 75

- To provide the background for understanding about the enrichment of Indian spirit through the ages.

- To make them imbibe the value of heroic qualities, selfless services and marvelous leadership.

Module I: Rajputs: Origin –Society and Economy–Arab conquest of Sind–Mahamud of Ghazni- Mahamud of Ghor. (15Hrs)

Module II: The Sultanate of Delhi: Qutb-ud-din-Aibak- Iltumish - Razia- Balban. (15Hrs)

Module III: Alauddin khilji - Malik Kafur's invasion - Muhammad Bin Tughlaq –Firuz Tughlaq. (15Hrs)

Module IV: Timur's invasion - Sikandar Lodi - Ibrahim Lodi - First Battle of Panipat- Bhakti Movement. (15Hrs)

Module V: Society, Economy, Architecture under Delhi Sultanate - Decline of the Sultanate - Sufism. (15Hrs)

Map study: 1. Empire of Balban. 2. Empire of Muhammad Bin Tughlaq.

Book for study

1.R.K.Majumdar &A.N.Srivastva - An Easy Approach to Indian History,SBD Publishers, New Delhi, 2009.

Books for Reference:

1. Dr.Hans Raj - Advanced History of India,Surjeet Publications,New Delhi,2013.
2. John Clark Makshman - History of India,Akansha Publishers, Delhi, 2005.
3. S.C.Ray Chaudry - Social Cultural and Economic History of India: (Ancient Times to 1526) ,Surjeet Publications,New Delhi,2013.

Course Designed By : Mrs.S.Shenbagavalli.
Course Reviewed By : Dr.S.Renuka Devi.
Checked By : Dr.(Mrs). R.Meera.

B.A History– Semester I 114AH1

Part III -Allied I- Introduction to Tourism (For students admitted during the academic year 2014-15)

Preamble: **Hours: 75**

- To impart the basic facts about Tourism.
- To provide a simple and comprehensive outline of various dimensions of tourism.

Module I: Definition: Tourism – Tourist. Motivations - Forms of Tourism- Basic Components – Elements – Types. (15Hrs)

Module II: History of Tourism: The Romans-Medieval Times -Industrial Revolution – Beginning of Modern Travel Agency. (15Hrs)

Module III: Travel through the ages: Accounts of famous Travellers-Pleasure Travel – Religious purpose – The Grand Tour – Annual Holiday –Paid Holidays – Mass Tourism. (15Hrs)

Module IV: Socio-Economic importance of Tourism: Economic Impact – Positive Social impact – Adverse effects - India as a Tourist Paradise. (15Hrs)

Module V: Tourism Administration of India: Ministry of Tourism - State Tourism Departments – ITDC, TTDC. (15Hrs)

Book for Study:

M.A.Khan1- Introduction To Tourism ,Anmol Publications,New Delhi,2005.

Books for References:

1. R.Abbas - Tourism and Travel Management, Izad Publications, Madurai, 2006.
2. A.K.Bhatia - International Tourism Management, Sterling Publishers New Delhi, 2003.
3. A.Vijay Kumar - Indian Tourism Industry ‘Sonali Publications,Delhi,2009.

Course Designed By :Mrs.S.RenukaDevi.
Course Reviewed By :Mrs.S.Shenbagavalli.
Checked By : Mrs.P.Karpagavalli

B.A. History– Semester II **214H03**
Part III – Core III- Main Currents in Indian History A.D 1526 - A.D 1707
(For students admitted during the academic year 2014-15)

Preamble **Hours: 75**

- To Highlight the significant phases of the Mughal India
- To derive inspiration for the present and guidance for the future.

Module I: India on the Eve of Babur’s Invasion – Babur – Humayun – SherShah’s Administration. (15Hrs)

Module II: Akbar: Conquest, Religious Policy – Jahangir – Nurjahan- ShahJahan- Golden Period. (15Hrs)

Module III: Aurangzeb: Deccan Policy- Downfall of the Mughal Empire- Mughal Art and Architecture. (15Hrs)

Module IV: Vijayanagar Empire: Krishnadevaraya – Battle of Talaikota- Administration.(15Hrs)

Module V: History of Sikhs up to 1707 – Shivaji – Administration. (15Hrs)

Map Study: 1. Akbar’s Empire 2.Empire of Aurangzeb

Book for Study:

Advanced History of India (From earliest times to present times) - Dr.Hansraj,Surjeeth Publications, Delhi,2010.

Books for Reference:

1. J.C. Aggarwal - The Medieval Indian History,S.Chand &Co,New Delhi,2009.
2. S.C.Raychoudhary - History of Mughal India,Surjeet Publications, New Delhi, 2007.

3. Shailesh Chandra - Medieval India (1300 – 1800), Aifa Publications, New Delhi, 2009.

Course Designed By : Mrs. P. Karpagavalli
Course Reviewed By : Mrs. S. Renuka Devi
Checked By : Dr. Mrs. R. Meera

B.A. History– Semester II **214H04**
Part III – Core IV- Main Currents in Indian History A.D1707 – A.D.1857
(For students admitted during the academic year 2014-15)

Preamble: **Hours: 75**

- This paper attempts to know the rise and growth of British rule in India.
- To be familiar with the epic struggle for freedom in its entire dimension and their sacrifices as the national heroes.

Module I: European Settlements in India- The Carnatic wars- Robert Clive – Black Hole Tragedy-Battle of Plassey – Battle of Buxar. *(15 Hrs)*

Module II: Warren Hastings: Administration & Impeachment. Lord Cornwallis: Reforms - Permanent land revenue settlement - Anglo-Mysore Wars. *(15 Hrs)*

Module III: Lord Wellesly: Subsidiary Alliance – Lord Hastings: Gurkha War- Suppression of the Pindaris- Reforms. *(15 Hrs)*

Module IV: Lord William Bentinck: Reforms-Raja Ram Mohan Roy- Ranjit Singh. *(15 Hrs)*

Module V: Lord Dalhousie: Reforms-The Doctrine of Lapse -The Great upheaval of 1857: Causes and Results. *(15 Hrs)*

Map study: 1. The Carnatic Wars (Centers). 2. Important centers of Mutiny of 1857.

Books for study:

Dr. Hansraj - Advanced History of India (From earliest times to present times)
Surjeeth Publications, Delhi, 2010.

Books for Reference:

1. J.C. Aggarwal - The Modern Indian History, S. Chand & Co, New Delhi 2009.
2. Four Authors - Simple History of India (Since 1526), SBD Publishers, New Delhi, 2008.
3. S.C. Raychoudhary - History of India (1526 to Present Times)-, Surjeet Publications, New Delhi, 2013.

Course Designed by : Mrs. S. Shenbagavalli
Course Reviewed by : Mrs. P. Karpagavalli.
Checked by : Mrs. V. K. Saraswathi.

B.A. History– Semester II **212AH2**
Part III – Allied II - Cultural Tourism in India
(For students admitted during the academic year 2014-15)

Peamble: **Hours: 75**

- To highlight the various components of cultural Heritage.

- To inculcate the responsibility of a citizen in preserving the unique culture of India

Module I: Indian Dances: Kuchipudi-Bharatanatyam –Kathak – Kathakali – Manipuri – Mohiniattam. (15Hrs)

Module II: Indian Dance Festivals: Khajuraho – Konark – Mamallapuram Utsav – Natyanjali – Nishagandhi – Elephanta. (15Hrs)

Module III: Indian Music: Hindustani - Carnatic 1 -Indian Musical Instrument – Music Festivals. (15Hrs)

Module IV: Indian Fairs: Kumbhamella-Sonepur Cattle Fair – Rajasthan Camel Fair. Indian Festivals: Holi- Ganesh Chaturthi – Dussehra - Diwali - Pongal. (15Hrs)

Module V: Indian Painting: Ajantha - Sittanavasal – Tanjore - The Mughal School of Painting – Rajput School of Painting. (15Hrs)

Book for Study:

1. Lavkush Mishra - Cultural Tourism In India, Mohit Publications, New Delhi, 2005.

Books for Reference:

1. Ashok Singh - Cultural Tourism In India, Raj Book Enterprises, Jaipur, 2002.
2. Manohar Bhardwaj - Cultural and Traditional History of India -, Cyber Tech Publications, New Delhi, 2008.
3. Manohar Bhardwaj - A Modern Book on Art and Culture, Cyber Tech Publications, New Delhi, 2009.

Designed by : Mrs.S.Renuka Devi.
Course Reviewed by : Mrs.P.Karpagavalli.
Checked by : Mrs.V.K.Saraswathi.

B.A History – Semester II 214ALH **Advanced Learners Course I- Social History of India upto A.D.1206** **(For students admitted during the academic year 2014-15)**

Preamble:

- To learn the Social Condition of the early period.
- To impart the Social Values.

Module I: Indus society –Social life of the Aryans –Position of women in the Epic age.

Module II: Caste system and its impact –The Mauryan Society –Social condition during the Gupta period.

Module III: Society during the period of Harsha –Social life in Rajput period –Society under Satavahanas.

Module IV: Sangam Society – Pallava Society.

Module V: Social condition under the Cholas – Social life of the people during the Pandya period –Impact of Arab conquest on Indian Society.

Book for study:

1. History of India upto 1306 - N.Jayabalan & S.Joseph , Mohan Pathipagam,Madras.

Books for Reference:

1. R.Abbas - History of India,Izad Publications,Madurai,2006.
2. B.N.Luniya - Evolution of Indian Culture ,Lakshmi Narain Agarwal, Agra,1978 .
3. N.Subramaniam - Social and Cultural History of TamilNadu ,Asian Printers,Coimbatore,2007.
4. Vidyotma Singh Indian Society - Vista International Publishing House, Delhi, 2006.

Course Designed by : Mrs. V.K.Saraswathi.

Course Reviewed by : Mrs.s.Shenbagavalli

Checked by : Mrs.Dr.R.Meera

B.A. History – Semester III

314H05

Part III – Core V- Main Currents in Indian History A.D. 1858 – A.D.1947

(For students admitted during the academic year 2014-15)

Preamble:

Hours: 65

- This study deals with the moral and material progress of the British rule in India.
- To enlighten the students on National Movement.

Module I: Queen’s Proclamation - Lord Canning – Lord Lytton –Lord Ripon. (13 Hrs)

Module II: Indian National Congress- Moderates- Extremists-Lord Curzon. (13 Hrs)

Module III: Surat Split - Muslim League - Home Rule Movement – Jallianwalabagh- Non - Co-Operation Movement. (13 Hrs)

Module IV: Swarajya Party- Civil Disobedience Movement – Salt Satyagraha- Round Table Conferences - Cripps Mission. (13 Hrs)

Module V: Quit India Movement – Indian National Army – Cabinet Mission – Wavell plan – Rajaji Formula – Mountbatten Plan – Causes for the Partition of India. (13Hrs)

Map Study: 1.Important Centers of the Freedom Movement. 2. Partition of India.

Book for Study:

Dr.Hansraj - Advanced History of India(From earliest times to present times)
,Surjeeth Publications, Delhi,2010.

Books for Reference:

- 1.C.Chandra Mohanthi – A Comprehensive l History of India ,A.K. Publucation , New Delhi, 2013.
2. J.C. Aggarwal - The Modern Indian History,S.Chand &Co,New Delhi2009

3. L.P.Sharma - History of Modern India, Konark Publishers, Delhi, 2008.

Course Designed by : Mrs. S.Shenbagavalli.
Course reviewed by :Mrs.V.K.Saraswathy
Checked by : Dr.R.Meera

B.A. History – Semester III **312H06**
Part III - Core VI- Main Currents in Indian History - A.D. 1947 – A.D.2000
(For students admitted during the academic year 2014-15)

Preamble: **Hours: 65**

- This paper will present a picture on the growth of Constitution.
- To appear for the Competitive Examination.

Module I: Integration of Princely States-Sardar Vallabhai Patel-The Linguistic Reorganization of the States in 1955-Nehru's Administration-Five year Plans-Foreign Policy. (13 Hrs)

Module II: Lal Bahadur Sastri-Indo-Pak War 1965-Tashkent Declaration 1966 - Mrs.Indira Gandhi's Administration. (13 Hrs)

Module III:Janata Party Rule - Moraji Desai- - Rajiv Gandhi reforms -New Educational Policy – Panchayat Raj – Narasimha Rao - LPG Policy. (13 Hrs)

Module IV: National Front Government - V.P.Singh - Mandal Commission –BJP rule - Vajpayee- Kargil issue. (13 Hrs)

Module V: Dr.Manmohan Singh - UPA Government – reforms. (13 Hrs)

Map Study: 1.Re-organization of states. 2. States and Union Territories of India.

Book for Study:

G.Venkatesan - "History of Contemporary India 1947- 2004", V.C Publications, Rajapalayam, 2005.

Books for Reference:

1. The Modern Indian History - J.C. Aggarwal,S.Chand &Co,New Delhi2009.
2. Simple History of India (Since 1526) - Four Authors, SBD Publishers, NewDelhi, 2008.
3. History of India (1526 to Present Times)- S.C.Raychoudhary, Surjeet Publications, New Delhi, 2013.

Course Designed by : Mrs. P.Karpagavalli
Course reviewed by :Mrs.V.K.Saraswathy
Checked by : Dr.(Mrs)R.Meera

B.A. History – Semester III **312AH3**
Part III - Allied III- Modern Governments
(For students admitted during the academic year 2014-15)

Preamble: **Hours: 65**

- The paper focuses on the political process and the actual functioning of the political system.

- It imparts knowledge on the major constitutions of the world by adopting a comparative approach.

Module I: Constituion-Types – Written and Unwritten – Rigid and Flexible – Moduleary and Federal – Presidential and Parliamentary. (13 Hrs)

Module II: Constitution of England – Salient Features – Executive: The Crown: Position and Powers – The Cabinet – Functions – Prime Minister and his Powers. (13 Hrs)

Module III: Legislature: House of Lords – House of Commons – Structure and Functions- Speaker and his Powers – Judiciary: Organisation. (13 Hrs)

Module IV: Constitution of USA: Salient Features – President: Powers and Functions. Vice-President: Powers. Legislature: Senate – House of Representatives. (13Hrs)

Module V: Constitution of Switzerland: Salient Features – The Federal Council – Federal Assembly: The National Council – The Council of States – Federal Tribunal. (13 Hrs)

Book for Study:

Dr.P.Gomathynayakam –“Modern Governments”,Tensy Publications,Sivakasi,2007.

Books for References:

1. Dr.J.Kasthuri-“Modern Governments”,ENNS Publications,Udumalpet,1998.
2. W.Ivor Jennings-“The British Constitution”,Cambridge University Press,1954.
3. Vishnoo Bhagwan & Vidya Bhusan –“World Constitution”,Sterling Publishers, 2002.

Course Designed by :Dr.(Mrs).R.Meera

Course reviewed by :Dr.(Mrs)K.C.KRajabhuvanavathy

Checked by :Mrs.A.Alagurani

B.A. History – Semester IV

412H07

Part III - Core VII– History of Tamil Nadu upto A.D. 1565 (For students admitted during the academic year2014-15)

Preamble:

Hours: 65

- The study presents the essential events & political and cultural history of Tamil Nadu from the beginning to 1565 A.D.
- To emphasize the social and economic conditions of Tamil Nadu.

Module I: Geography of Tamil Country– Sources– Sangam Age: Political, Social, Economic and Religious Condition. (13 Hrs)

Module II:Khalabhras - Pallavas: Mahendravarman I – Narasimhavarman I-Bakthi Movement- Art and Architecture. (13 Hrs)

Module III:Imperial Cholas –Rajaraja I – Rajendra I - Kulotunga I – Local Administration – Saivism – Literature- Art and Architecture. (13Hrs)

Module IV:Second Pandya Empire: Marcopolo Account– Jatavarman Sundarapandya – Maravarman Kulasekara Pandya- Maravarman Sundarapandya — Malik Kafur -Art and Architecture— Establishment of Madurai Sultanate. (13Hrs)

Module V: Tamilaham under Vijayanagar –Kumara Kampana – Conquest of Madurai and Tanjore - Social and Economic condition- Its impact on Tamilagam. (13Hrs)

Map Study: 1.Geography of Tamil Nadu 2.Chola Empire

Book for Study:

K.Rajayyan –“Tamil Nadu:A Real History “,Ratna Publications,Trivandrum,2005.

Books for Reference:

1. K.A. Nilakanta Sastri – “History of South India (From Prehistoric Times to the fall of Vijayanagar)”, Oxford University Press, 2009.
2. N. Subrahmanian - “Social and Cultural History of Tamil Nadu upto 1336 A.D.”, Ennes Publications, Udumalpet, 1991.
3. A. Swaminathan - “History of Tamil Nadu”, Deepa Pathippagam, Madras, 1993.

Course Designed by :Mrs.V.K.Saraswathy

Course reviewed by :Dr.(MrsK.C.K.Rajabhuvanavathy.

Checked by : Mrs. A. Alagurani.

B.A. History – Semester IV

412H08

Part III - Core VIII – History of Tamil Nadu from A.D 1565 - A.D 2000.

(For students admitted during the academic year 2014-15)

Preamble:

Hours: 65

- This paper deals with the political and social aspects of History of Tamil Nadu.
- To create keen interest on the study of Regional history.

Module I: Sources- Nayaks of Madurai: Viswanatha – Thirumalai – Chokkanatha – Mangammal – Meenakashi – Nayaks of Tanjore: Regunatha Nayak – Nayaks of Senji : Krishnappa Nayak II – Nayak Administration – Art and Architecture. (13 Hrs)

Module II: Nawabs of Arcot – Administration – Setupathis of Ramnad : Kilavan Setupathi – Ragunatha Sethupathi – Marathas of Tanjore - Education – Culture. (13 Hrs)

Module III: Polygars: Kottabomman – Maruthu Brothers – South Indian Rebellion – Vellore Mutiny - Madras Native Association 1852 – Madras Mahajana Sabha 1884. (13Hrs)

Module IV:Swadesi Movement – Subramania Bharathi .– Anne Besant - Non-Co-Operation Movement 1920 – Neel Statue Satyagraha 1927 – Salt Satyagraha 1930 – Civil Dis-Obedience movement – Dravidian Movement – Justice Party – Self Respect Movement . (13Hrs)

Module V: Reorganisation of Madras Presidency – Tamilnadu under C.Rajagopalachari – K. Kamaraj – C.N.Annadurai- K.Karunanidhi- M.G.Ramachandran- J.Jayalalithaa. (13 Hrs)

Map Study: 1.Importance centers of Nayaks 2.Reorganization of Madras Presidency

Book for Study:

1. K.Rajayyan - “Tamil Nadu:A Real History”,Ratna Publications,Trivandrum,2005.

Books for Reference:

1. R.EdinRajan & D.Gunasekar –“History of Tamil Nadu” ,Chandar Publications,Madurai, 1978.
- 2.N. Subrahmanian-“History of Tamilnadu (1336–1984)”-,Ennes Publications, Udumalpet ,2007.

3. A. Swaminathan –“History of Tamil Nadu”, Deepa Pathippagam, Madras, 1991.

Course Designed by :Mrs.V.K.Saraswathy.
Course reviewed by :Dr.(Mrs)K.C.K.Rajabhuvanavathy
Checked by Mrs. A. Alagurani

B.A. History - Semester – IV
Part III - Allied IV- Indian Constitution

412AH4

(For students admitted during the academic year 2014-15)

Preamble:

Hours: 65

- To study in detail the political structure in India- both constitutional and administrative.
- The historical background to individual constitution is emphasized to gain an understanding of its evolution.

Module I: The Constituent Assembly – Salient Features of the Indian Constitution - Fundamental Rights – Fundamental Duties – Directive Principles of State Policy. (13Hrs)

Module II:Executive: The President: Qualification – Election –Powers and Functions – Vice-President – Prime Minister: Position and Powers – The Council of Ministers. (13Hrs)

Module III: Indian Parliament: Lok Sabha: Composition and Powers – Speaker – Position and powers. Rajya Sabha: Composition and Powers –Chairman. (13Hrs)

Module IV:Judiciary: Supreme Court: Organisation – Powers – High Court - Organisation – Powers – Lok Adalat- Family Courts. (13Hrs)

Module V: Government of the State: Governor – Chief Minister – Council of Ministers – State Legislatures: Legislative Assembly – Legislative Council. (13Hrs)

Book for Study

Dr.P.Gomathynayakam –“Modern Governments”,Tensy Publications,Sivakasi,2007.

Books for References:

1. Biswaranjan Mohanty-“Constitution Government and Politics in India”, New Century Publications,New Delhi,2009.
2. Durga Das Basu-“Introduction of the Constitution of India”, New Delhi, 1995.
3. Dr.J.Kasthuri –“Modern Governments”,ENNS Publications, Udumalpet, 1998.

Course Designed by :Dr.(Mrs)R.Meera..
Course reviewed by :Dr.(Mrs)K.C.K.Rajabhuvanavathy
Checked by Mrs. A. Alagurani

B.A. History – Semester IV

412ALH

Advanced Learners Course II- Social History of India A.D1206 - A.D1950.

(For students admitted during the academic year 2014-15)

Preamble

- To trace the changes in Medieval Indian Society.
- To impart the social Values.

Module I: Society under Delhi Sultanate – Islamic social order.

Module II: Valangai, Idangai groups – Society under Vijayanagar- Status of Women- Segments of Caste.

Module III: Social Life under the Mughals-Status of Women.

Module IV: Brahma Samaj – Arya Samaj – Prarthna Samaj- Ramakrishna Mission – Theosophical Society.

Module V: Impact of British rule on Indian Society, Education, Press and Agriculture. Self – respect Movement.

Book for Study:

J.Thiyagarajan – Social and Cultural History of India, Prabha Publications, Madurai-19, 2003.

Books for Reference:

1. Evolution of Indian Culture - B.N Luniya, Lakshmi Narain Agarwal, Agra, 1978.
2. Social Reforms Movements in Tamilnadu - C.Paramarthalingam, Rajakumar Publications, Madurai, 1995.
3. Society and Culture of Tamilnadu - K.Rajayyan, Ratna Publications, Madurai, 2002.

Course Designed by : Mrs. V.K.Saraswathi

Course Reviewed by : Mrs.AAragurani.

Checked by : Dr (Mrs).R.Meera.

B.A History Semester-V

512H12

Core XII - History of Science and Technology

(For students admitted during the academic year 2014-15)

Preamble:

Hours: 65

- To highlight the major scientific discoveries and the personalities associated with the scientific development
- To impart the rudimentary knowledge of science

Module I: Science in the Ancient World: Egypt-Mesopotamia-Greek science: Hippocrates-Rome: Galen-India: Aryabhata I-Shushruta. (13 Hrs)

Module II: Science and Technology of Arabs: Avicenna-Roger Bacon-Nicholas Copernicus-Galileo-Leonardo-da-vinci. (13 Hrs)

Module III: Royal society in London-French Royal Academy of Science-William Harvey-Simon Laplace-John Hunter-Edward Jenner. (13 Hrs)

Module IV: Louis Pasteur-Thomas Alva Edison-Communication by wire-Telephones and Telegraphs-Marie Curie-Television-Computers-Space research. (13 Hrs)

Module V: Srinivasa Ramanujam-P.C.Roy-Sir C.V. Raman-M.S.Swaminathan-Homi Jehangir Bhabha-Abdul kalam-Sivathanu Pillai- Brahmas. (13 Hrs)

Book for study:

Dr.S.Varghese Jeyaraj -“History of Science and Technology”, Anns Publications, Uthamapalayam, 1997

Books for Reference:

1. Dr.R.Venkatraman -“History of Sience and Technology”,Ennes Publications,Madurai.1988.
2. J.Dharmaraj -“History of Science and Technology”, Tency, Publication, Sivakasi, 1998.

Course designed by : *Mrs.V.K.Saraswathi.*

Course Reviewed by : *Dr.(Mrs). R.Meera.*

Checked by : *Mrs. A. Alagurani.*

B.A History Semester-V**512HE1****Elective – I – Tourist Destinations in India****(For students admitted during the academic year 2014-15)****Preamble:****Hours: 65**

- To Expose the Students to be familiar with the important tourist places in India.
- To understand the value of India as a tourist Destination

Module I: North India: Jammu & Kashmir- Punjab- Madhya Pradesh – Uttar Pradesh.

(13Hrs)

Module II: East: Bihar – Jharkhand – West Bengal – Orissa.

(13Hrs)

Module III: West: Maharashtra- Madhya Pradesh – Gujarat - Rajasthan –Goa.

(13Hrs)

Module IV:North East States : Sikkim – Assam – Arunachal Pradesh – Manipur.

(13Hrs)

Module V: South: Andhra Pradesh – Pondicherry – Kerala – Karnataka.

*(13Hrs)***Book for study:**

1. Tourist Guide to India - Sura, Sura Books Pvt.Ltd, Chennai, 2006.

Books for Reference:

1. Travel & Tourism for All - G.k.Puri,,IIMS publications,New Delhi,1986.
2. North India a Guide - .A.V.Shankaranarayana Rao-“,Vasan Publications,Bangalore,2003.
3. Tourism Today, Vol III - Ratandeep Singh, kanishka Publications New Delhi.1994.
4. India through Ages - T.R.Sareen & S.R. Anmol Publications,New Delhi,1992.

Course designed by :*Mrs.R.Meera.*

Course Reviewed by :*Dr.(Mrs)K.C.K.Rajabhavanavathy.*

Checked by : *Mrs. A. Alagurani.*

B.A History Semester-VI**612HE2****Part III - Elective II- Tourist Destinations in Tamilnadu****(For students admitted during the academic year 2014-15)****Preamble:****Hours: 65**

- To know the important Tourist Centers in Tamilnadu.
- To motivate the students for self employment.

Module I: North Tamilnadu : Chennai – Kancheepuram – Vellore - Tiruvannamalai. (13 Hrs)

ModuleII: South Tamilnadu : Madurai – Ramanathapuram – Tirunelveli – Tuticorin - Kanyakumari. (13Hrs)

Module III: Western Tamilnadu: Salem – Dharmapuri – Krishnagiri – Coimbatore –Erode. (13Hrs)

Module IV: EasternTamilnadu :Trichy – Tanjore – Nagore – Velankani - Pudukottai. (13 Hrs)

Module V: Hill stations: Ooty – Kodaikanal – Yerkad - Valparai. (13Hrs)

Book for study:

V.Narayanasamy - “Splendour of Tamilnadu”,Sura booksPvt.Ltd,Madras,1991.

Books for Reference:

1. Tourist Guide to Tamilnadu -Sura,Sura BooksPvt.Ltd,Madras,2005.
2. Tourist Guide to South India -Sura,Sura Books Pvt.Ltd,Madras,2006.
- 3 Travel & Tourism for All - G.K.Puri,IIMS Publications,New Delhi,1986.

Course designed by : *Mrs. V.K Saraswathi.*
Course Reviewed by : *Dr.(Mrs)K.C.K.Rajabhavanavathy*
Checked by : *Mrs. A. Alagurani.*

Semester III -Skill Based Course - Tourism Management -I 312HS1
Travel Management

(For students admitted during the academic year 2014-15) Hours: 38

Module I: Meaning of Travel Agencies –Forms: Proprietorship –Partnership –Corporate: Public-Private –Government -Multi –national Companies. (8Hrs)

Module II: Organizations –International Travel Booking –Domestic Passenger –Tour Operators –Travel Agents in India and Abroad. (8Hrs)

Module III: Types Retail –Wholesale –Functions of Travel Agency. (7Hrs)

Module IV: Approval and Recognition –GOI and IATA –Preparation of Itineraries. (8Hrs)

Module V: Travel Documents: Passport –Visa –Health –Custom and Migration –Immigration rules. (7Hrs)

Book for study

Mohinder Chand -Travel Agency Management –An Introductory Text.

Books for Reference:

- 1.Dr.Jagmohan Negi - Travel Agency & Tour Operation –Concepts & Principles, Kanishka Publishers,New Delhi ,1997.

2. A.K.Bhatia - Tourism Development, Sterling Publications, New Delhi, 2003.
3. Romila Chawla - Tourism Services and Operation, Arise Publishers, New Delhi, 2003.

Semester IV -Skill Based Course - Tourism Management-II **412HS2**
Hotel Management
(For students admitted during the academic year 2014-15) **Hours:**
38

Module I: Hotel –Types –International –Resort –Commercial –Residential –Floating. (8Hrs)

Module II: Motel –Youth Hostel-Caravan and Camping sites –Pension –Bed and Breakfast Establishment –Tourist Holiday Villages. (8Hrs)

Module III: Organization Categories: Sole Proprietorship –Partnership –Chain Hotels –Hotel Manager: Role and Functions. (7Hrs)

Module IV: Front Office Management: Front Office Staff-General Procedure of Hotel Reservation Registration –Mode of Receiving payment –Communication Skills. (8Hrs)

Module V: Personnel Management in Hotel: Human Resource in Hotel Industry-Wages and Types in Hotel –Hotel Workers. (7Hrs)

Books for study:

1. Pushpinder S. Gill – Tourism and Hotel Management, Anmol Publications, New Delhi
2. J. David - Textbook Of Hotel Management, Anmol Publications, New Delhi, 2004.

Books for reference:

1. J. Mathews - Hotel Management, Pointer Publishers, Jaipur-2008.
2. R. N. Kaul - Dynamics of Tourism: A Trilogy, Vol-II, Accommodation, Sterling Publications, 1985.
3. A. K. Bhatia - Tourism Development –Principles and Practices, Sterling Publications New Delhi, 2003.

Semester V -Skill Based Course -Tourism Management - III **512HS3**
Catering Management
(For students admitted during the academic year 2014-15)
Hours: 38

Module I: Kitchen: Planning the Equipment –Planning of Menu-Dining Halls. (8Hrs)

Module II: Food Service –Guidelines –Service table –Guest reception –Dining Table-Furniture Maintenance. (8Hrs)

Module III: Beverage and Food – Types of Food –South Indian Cuisine –North Indian –Chinese –European –Continental. (8Hrs)

Module IV: Customer care: Communication Skills –Laundry –Tariff and Concessions. (7Hrs)

Module V: Safety measures –Kitchen- Dining –Bars –Rooms –Fire service equipments –
Emergency exit –Cleaning and Sanitation. (7Hrs)

Books for study:

1. J.David - Textbook of Hotel Management, Anmol publication, New Delhi, 2004.
2. J.Mathews - Hotel Management, Pointer Publishers, Jaipur -2008.

Books for Reference:

1. Pushpinder S.Gill -Tourism and Hotel Management, Anmol Publications, New Delhi, 2004.
2. R.N.Kaul - Dynamics of Tourism: A Trilogy, Vol III, Accommodation, Sterling Publications, 1985.
3. A.K. Bhatia - Tourism development –Principles and Practices, Sterling Publications, New Delhi, 2003.

M.A.History

Semester wise Distribution with the Scheme of Examination

(For students admitted during the academic year 2014-15)

Semester	Course	Credits	Duration of Exam	Marks		Total
				CIA	ESE	
I	Core I – History of the Marathas A.D 1600- A.D1818.	5	3	25	75	100
	Core II- History of the Freedom Struggle since A.D.1857.	5	3	25	75	100
	Core III- Constitutional History of India from A.D1773 - A.D 1919	4	3	25	75	100
	Elective I- Civics	3	3	25	75	100
	Diploma Course I- Tourism Business Environment	3	-	100	-	100
II	Core IV – Social and Economic History of Tamilnadu A.D1800 to A.D1987.	5	3	25	75	100
	Core V- Industrial Development and History of Labour Movement in Tamilnadu	5	3	25	75	100
	Core VI – Constitutional History of India from A.D1935 - A.D2000.	4	3	25	75	100
	Core VII- History of the U.S.A upto A.D1865	5	3	25	75	100
		3	3	25	75	100
	Elective II-Journalism	3	-	100	-	100
	Diploma Course II-Hospitality Management ALC I-Temple Study	4	3	-	100	100

III	Core VIII- History of the U.S.A. A.D1865- A.D1989.	5	3	25	75	100
	Core IX- History of Kongu Country	5	3	25	75	100
	Core X- Archaeology	5	3	25	75	100
	Core XI- India of our Times	5	3	25	75	100
	Elective III – Computer Applications	3	3	25	75	100
	Diploma Course III- Medical Tourism	2	-	100	-	100
IV	Core XII – Historiography	5	3	25	75	100
	Core XIII – International Relations since A.D1945	5	3	25	75	100
	Core XIV – Archives Keeping	5	3	25	75	100
	Elective IV Human Rights	3	3	25	75	100
	Diploma Course IV- Project Work	2	-	100	-	100
	ALC II- Sociology	4	3	-	100	100

M.A. History Semester - I

Credit:4 Core II – History of the Freedom Struggle since A.D. 1857 14MH02
(For students admitted from the academic year 2014-15 onwards)

Preamble: **Hours: 75**

- To Know the politics of modern conception
- To understand the growth of nationalist spirit and the right of self-determination.

Unit I: Great Revolt of 1857: Causes and Consequences - Queen's Proclamation- Indian Nationalism- Indian National congress - Muslim League. (15Hrs)

Unit II: Swadeshi Movement-Home Rule Movement: Tilak and Anne Besant - Montague Declaration- Rowlatt Act- Non-Co-operation Movement- Birth of the Swaraj Party-The Simon Commission (15Hrs)

Unit III: Civil Disobedience Movement- Round Table Conference- Communal Award-Poona Pact-August Offer-Individual Satyagraha-Cripps Mission- Quit India Movement. (15Hrs)

Unit IV: Netaji Subash Chandra Bose and the Indian National Army- Demand for Partition- C.R.Formula-Wavell Plan – Simla Conference- Cabinet Mission Plan- Direct Action Day - Establishment of Interim Government-Mount batten Plan. (15Hrs)

***Unit V:** Partition of India- Indian Independence Act of 1947-Freedom Struggle in Tamilnadu - V.O.Chidambaram Pillai – Subramania Bharathi- Rajaji- Tirupur Kumaran. (15 Hrs)

*Starred Unit is Self Study.

Books for Reference:

1. R.C.Agarwal -Constitutional History of India and National Movement, S.Chand&com.Ltd, 5th Edition,1981.
2. Tara Chand -History of Freedom Movement in India, Ministry of Information and Broadcasting,Government of India,Pakala House,1972,Vol.IV.
3. SrinivasaMoorthy -History of India's freedom Movement 1857-1947,S.Chand & Company Ltd., 1987.

Course Designed by : Dr.S,Renuka Devi.

Course Reviewed by : Dr.V.K.Saraswathi.

Checked by : Dr.R.Meera.

M.A. History – Semester -I **14MH03**
Core III- Constitutional History of India A.D. 1773 - A.D.1919.
(For students admitted during the academic year 2014-15)

Preamble:**Hours: 75**

- To trace the constitutional development of India.
- To impart the knowledge about the colonial policy of Great Britain.

Module I: Regulating Act of 1773 - Pitt's India Act of 1784 - The Charter Acts of 1793 Provisions - Significance. (15Hrs)

Module II: The Charter Act of 1813, 1833& 1853: Provisions & Significance. (15Hrs)

Module III: Government of India Act of 1858: Main Features - Queen's Proclamation: Significance. (15Hrs)

Module IV: India Councils Act of 1861- Indian Councils Act of 1892-Merits-Defects of the Act. (15Hrs)

Module V: Government of India Act of 1909 – Growth of Executive, Legislature, Judiciary- Government of India Act of 1919 – Government at the Center – Dyarchy in the Provinces. (15Hrs)

Books for Reference:

- 1.Agarwal.R.C. - "Constitutional development and National Movement of India",S.Chand & Company Ltd.,Ramnagar,New Delhi,1991.
2. Jyoti Prasad Suda - "Constitutional development (1773-1947)",K.Nath & Co., Meerut, 1983.
3. Sri Ram Sharma - "Constitutional History of India",Orient Longman Ltd.,Delhi.,1974.
4. Srivastava A.L -"Constitutional History of India and National Movement", S.B.D.Publishers, Naisarak, Delhi.2001.

Course Designed by : Mrs.M.Vanmathi.
Course Reviewed by : Mrs.V.K.Saraswathy.
Checked by : Mrs.A.Alagurani.

14MHE1

M.A. History - Semester – I
Elective I- Civics
(For students admitted during the academic year 2014-15)

Preamble: **Hours: 75**

- To develop good citizenship
- To create awareness of the human values at all levels

Module I: The meaning and concept of Civics-Term and idea of Citizenship in Modern State-Acquisition of Citizenship- Loss of Citizenship-Good Citizenship –Single Citizenship in India.
(15Hrs)

Module II: Rights of Citizens-Fundamental rights: Freedom of speech-Education-Employment – Religion-Property-Voting-Consumer Rights-Limitation.
(15Hrs)

Module III: Fundamental duties-Responsibilities of a Citizen: Preservation of the Cultural Heritage of India: Importance of Indian Culture-the unique features of Indian Culture Preservation of Monuments, Historical and Pilgrim Centers.
(15Hrs)

Module IV: Role of a Citizen in the protection of Natural Environment: Forests, Lakes,Rivers,Wild Life-Prevention of pollution-Safeguarding the Public Property-Public Interest Litigations.
(15Hrs)

Module V: Challenges: Illiteracy-Unemployment-Poverty-Communalism and Casteism-Anti-Social practices-Growth of Population-Violence against Women and Terrorism. (15Hrs)

Books for Reference:

1. Albert Lobo.S -“Political Theory and Outline”,Agastheas Book Depot,Trichy- 2,1973.
2. Arjun Dev & Indra Arjun Dev - “Human Rights,Source Book”,National Council of Educational Research and Training,New Delhi,1996.
3. Journal - “Environmental Pollution”,Hindu Publication, Editions,1998.

Course Designed by : Mrs.M.Vanmathi.
Course Reviewed by : Dr. (Mrs).R.Meera.
Checked by : Mrs.A.Alagurani.

14MH04

M.A.History Semester II
Core IV – Socio-Economic History of Tamil Nadu A.D 1800 –A.D1987
(For students admitted during the academic year 2014-15)

Preamble: **Hours: 65**

- This paper attempts to make the students understand the Socio-Economic Development of Tamil Nadu.

- To prepare for the Competitive Examination.

Module I: Tamil Nadu during 1800-1900 – Socio – Economic Conditions – Agriculture – Cottage Industries. (13Hrs)

Module II: Impact of Colonialism – Land Revenue: Ryotwari System –Judiciary –Education and role of Christian Missionaries – Change in Agricultural Economy to marketing economy – Decline of Cottage Industries – Rise of Nationalism in Tamil Nadu. (13Hrs)

Module III: Tamil Literary Development – Pure Tamil Movement –Vallalar & Sanmarga Movement – Development of social novels, Journals, Short Stories – Birth of Non-Brahmin Movement. (13Hrs)

Module IV: E.V.R. and Self Respect Movement – Impact of Depressed Classes – Temple Entry Movement – Temperance Movement. (13Hrs)

Module V: Post Independence Development - social Legislation- Five Year Plans –Agrarian Reforms – Industrial Growth – Development of Modern System of Communication and Transport and its impact on Society. (13Hrs)

Books for References:

1. P.N.Chopra & T.k.Ravindran – “History of South India (Modern Period)”,S.Chand & Co.,Chennai,1979.
2. N.Subramanian - “History of Tamilnadu ”Ennes Publication, Udumalpet, 1991.
3. A.Swaminathan - “Social and Cultural History of Tamilnadu”,Deepa Pathipagam,Chennai,1991.
4. B.S.Baliga -“Studies in Madras Adminstration”Vol I &II.

Course Designed by : Mrs.V.K.Saraswathy.

Course Reviewed by : Dr. (Mrs).R.Meera

Checked by : Mrs.A.Alagurani

M.A. History - Semester – II

14MH06

Core VI- Constitutional History of India A.D. 1935 - A.D2000

(For students admitted during the academic year 2014-15)

Preamble:

Hours:65

- To trace the constitutional development of India.
- To impart the knowledge about the colonial policy of Great Britain.

Module I: Government of India Act of 1935 – Federal Government – Provincial Autonomy – Indian Independence Act of 1947. (13Hrs)

Module II: The Republican Constitution – Fundamental Rights and Directive Principles of States Policy – Government at the Center – President – Vice-President and Council of Ministers. (13Hrs)

Module III: Parliament–The Supreme Court – Government in the States - Executive, Legislature and Judiciary. (13Hrs)

Module IV: Landmark in Constitutional Amendment – 24th and 25th Amendments and Fundamental Rights–39th Amendments-Election of President, Vice-President, Prime Minister and Speaker beyond Judicial Scrutiny 42nd Amendment. (13Hrs)

Module V: Changes to Preamble- inclusion of Fundamental duties- far reaching changes in the executive- Legislature and Judiciary-44th Amendment, Nullification of most of the Provisions of the 42nd Amendment–52nd Amendment, Anti- defection Law – 61st Amendment – Lower Voting Age – 72nd Amendment- Panchayat Nagar Polika Act. (13Hrs)

Books for Reference:

1. Agarwal.R.C. - “Constitutional Development and National Movement of India”.C & Comp., New Delhi-1991
2. Jyoti Prasad Suda - “Constitutional development”(1773-1947) K.Nath & Co-Meerut-1983.
3. Srivastava L.N. - “Constitutional History of India and National Movement”S.B.Publishers, Delhi-2001.
4. Sri Ram Sharma - “Constitutional History of India”Orient Long man Ltd,,New Delhi-1974.

Course Designed by :Mrs.M.Vanmathi.
Course Reviewed by :Mrs.V.K.Saraswathy.
Checked by :Mrs.A.Alagurani.

M.A. History - Semester – II **14MHE2**
Elective II - Journalism
(For students admitted during the academic year 2014-15)

Preamble: **Hours: 65**

- The paper attempts to impart the basic knowledge regarding the theory and practice of Journalism.
- To motivate them to choose the exciting and interesting profession of Journalism as a self-employment.

Module I: Concept of Journalism -History of Press in India –Role of the Press in the Freedom Movement. (13Hrs)

Module II: History of the Tamil Journalism-Different kinds of Newspapers-Characteristics of Journalist-Career aspects of Journalism-The Freelance Journalist. (13Hrs)

Module III: Sources of news- News Agencies: P.T.I, U.N.I -Structure of News Paper-Organization of Newspaper. (13Hrs)

Module IV: -Writing the News - Headlines-Types of Headlines-Lead and its Types-Investigative Journalism. (13Hrs)

Module V: Major Players: The Hindu, The New Indian Express, Dina Mani, DinaThanthi, Dina Malar. (13Hrs)

Books for Reference:

1. B.N.Ahuja & S.S.Chhabra -“Principles and Techniques of Journalism”, Sujeet Publications, New Delhi, 2002.
2. Barun Roy -“Beginners guide to Journalism”, Pustak Mahal, Delhi, 2004.
3. Rangaswami Parthasarathy -“Journalism in India from the Earliest Times to The Present Day”, Sterling Publishers Pvt., Ltd., New Delhi, 1991.
4. Shah Zad Ahmad -“Art of Modern Journalism”, Anmol Publications, New Delhi, 2005.
5. Seema Sharma -“Development of Journalism”, Anmol Publications, New Delhi, 2005.

Course Designed by : Mrs.S.Shenbagavalli.
Course Reviewed by : Dr.(Mrs).K.C.K.Rajabhavanavathy.
Checked by : Mrs.A.Alagurani.

M.A History -Semester – II **14MHA1**
Advanced Learners Course I-Temple Study
(For students admitted during the academic year 2014-15)

Preamble:

- To know the importance of Temples.
- To trace the source of History.

Module I: Origin of the Temple-Temple for Village deity-Cave Temple-Structural Temple.

Module II: Temple as the treasure of Historical Records-Temple inscriptions-Significance Ghatikas and Mathas-Divine position and service of the temple.

Module III: Temple as an employer-Administration of the Temple-Devadana lands - Temple employees-Temple as the financial Agent.

Module IV: Temple as the cultural center -Temple festival-Bhakti movement in Tamilnadu-Fine arts-Music-Dance-Paintings.

Module V: Temple Architecture: Aryan Architecture-Dravidian Architecture-Vimanas-Buddhist Viharas.

Books for Reference:

1. Dr.C.Meenakshi -“Pallava Administration” 1978,Bhuvana publication, Madras.
2. Kusana shasthri .H - “South Indian Images of Gods and Goddesses”, Asian Educational Service, New Delhi, 1995
- 3.T.R.Srinivasan -“Temples of South India” National book Depot.
- 4.Venkatraman .V - “Laddigam a Later Chola Empire”, Faridabad ,New Delhi, 1993.

Course Designed By : Mrs.V.K.Saraswathi .
Course Reviewed By : Dr.(Mr)s.R.Meera
Checked By : Mrs.A.Alagurani.

14MH09

M.A. History - Semester – III
Core IX- History of Kongu Country
(For students admitted during the academic year 2014-15)

Preamble: **Hours:65**

- To provide Comprehensive knowledge about the socio and cultural progress of the kongu region.
- To impart the valuable information and facts to do the historical research.

Module I: Sources-Geographical features of Kongu Nadu-Territorial Division-Kongu Nadu in Ancient times. (13Hrs)

Module II: History of Kongu Nadu-Sangam Age-Cheras-Cholas-Pandyas-Gangas. (13Hrs)

Module III: Kongu under Nayak rule-Under Hyder,Tippu – British conquest of Kongu - Kongu freedom movement. (13Hrs)

Module IV: Social-Economic-Religious life of Kongu in the 20th century-trade-commerce. (13Hrs)

Module V: Conditions of peasants and Agricultural growth of industries-post independence. (13Hrs)

Books for Reference:

- 1.M.Arokiasamy -“History of Kongu Country”, University of Madras ,II Edition 1986.
2. V.Manickam -“Kongu nadu”-A History upto 1400 A.D”,Makkal Veliyeedu,Chennai,2001.
- 3.V.Ramamoorthy -“History of the kongu Part I & Part II”,Asiatic Publication,Boes Garden,Madras.
- 4.K.S.Vaidyanathan -Ancient Geography of the Kongu Country,Govt of India,1983.

Course Designed by : Mrs.A.Alagurani.
Course Reviewed by : Dr.(Mrs)R.Meera.
Checked by : Mrs.A.Alagurani

14MH10

M.A. History - Semester – III
Core X- Archaeology
(For students admitted during the academic year 2014-15)

Preamble: **Hours:65**

- To focus in detail on Epigraphy, Numismatics and Pottery.
- To present the latest trend and theories on Archaeology.

Module I: Exploration- -Definition – Branches of Archaeology –Excavation – Site Survey methods -Stratigraphy –Scientific methods of Excavation –Recording the Excavation Data – Burial Record – Photographic records. (13Hrs)

Module II: Epigraphy – Asokan Edicts – Allahabad Pillar Inscription of Harisena – Uttaramerur Inscriptions – Kongu chola Inscriptions – Copper plates of Pallavas –Evolution of Script – Brahmi – Grantha –Vatteluttu. (13Hrs)

Module III: The Harappan culture –Pottery –Megaliths –Memorial stones:Hero stones Archaeological sites of Tamilnadu. (13Hrs)

Module IV: Numismatics: Punch marked coins –Gupta coins –Pallava coins –Kongu coins- Kongu chola coins-Vijayanagar coins-Archaeological significance. (13Hrs)

Module V: Archaeologists of India:James Princep –Alexander Cunningham-Robert Bruce Foote –Sir John Marshall –Mortimer Wheeler. Archaeologists of Tamilnadu: Dr.Nagasamy- Dr.Natanakasinathan – Dr.K.V.Raman- Iravatham Mahadevan. (13Hrs)

Books for Reference:

- 1.K.V.Raman -“Principles and methods of Archaeology”Parthajan Publication,Chennai,1998.
- 2.V.Ramamoorthy - “History of the Kongu”,Asiatic Publication,Madras.
- 3.R.Venkatraman -“Indian Archaeology”,Ennes Publication,Udumalpet,1999.
- 4.Nicholas.V.Riasauovsky -“A History of Russia”Oxford University Press,New York Publication,1977.

Course Designed by : Dr.(Mrs).R.Meera.

Course Reviewed by : Dr. (Mrs).K.C.K.Rajabhavanavathy.

Checked by : Mrs.A.Alagurani

**M.A. History - Semester – IV
Core XII-Historiography**

14MH12

(For students admitted during the academic year2014-15)

Preamble:

Hours:75

- To understand the meaning and values of History.
- To learn the classification of History and develop the method of Historical Research.

Module I: Meaning and Scope of History -Kinds-Values-Lessons. (15Hrs)

Module II: History is a Science or Art-Theories of History-Philosophy of History. (15Hrs)

Module III: Historical Research-Requisites of the Research Scholars -Selecting a suitable topic- Formulation of Hypothesis-Preparing a working Bibliography-Making notes. (15Hrs)

Module IV: Collection of sources-Primary and secondary sources in India and Tamilnadu- Collection of Data. (15Hrs)

Module V: Objectivity and Subjectivity in Writing History-Criticism: Internal and External – Synthesis-Footnotes-Bibliography-Arrangement of Thesis. (15Hrs)

Books for Reference:

1. Dr.G.Venkatesan - “A study of Historiography” ,V.C.Publication, Rajapalayam, 2005.
2. E.H.Carr -“What is History” Mac millan 1961, Reprinted 1983.
3. K.Rajayyan -‘History its Theory and Method’ Madurai Publishing house, Madurai
4. Sheik Ali - History its Theory and Method” Suraj Publication Delhi 1975.
5. N.Subramaniam -“Historiography” Ennes publications ,Udumalpet , 1980.

Course Designed By

Mrs.A.Alagurani

Course Reviewed By

: Dr. (Mrs).K.C.K.Rajabhavanavathy

Checked By

: Mrs.A.Alagurani

M.A.History - Semester-IV

14MH13

Core XIII –International Relations since A.D.1945

(For students admitted during the academic year 2014-15)

Preamble:

Hours: 75

- The study is on the diplomatic relations of the World Powers.
- To update the knowledge of the students on World affairs.

Module I: Definition, Nature and Scope of International Relations-Theories of International Relations – Realist Theory-Systems Theory- Diplomacy-Types of Diplomacy. (15Hrs)

Module II: The Moduleed Nations Organisation - U.N. Charter-Organs-Specialized Agencies-Balance of Power- Collective security-International Law- UN Settlement of International Disputes-U.N’S role in maintaining World Peace. Cold War-Origin and development of regional defence pacts - OAS, NATO, SEATO, CENTO, WARSAW, ANZUS etc, -Impact of Cold War on International politics-Divide of Cold War. (15Hrs)

Module III:Disarmament- Initiative since 1945- Baruch plan-Atoms of peace proposal- Nuclear Test Ban Treaty-Convention to ban biological,bacteriological Toxin warfare- Concept of vertical horizontal freeza-SALT I and SALT II-Nuclear Disarmament- Nuclear proliferation treaty-CTBT- Ten Nation Committee –ABM –ICBM - Impact. (15 Hrs)

Module IV: Africa –Efforts for African Moduley – Contribution of Nelson Mandela-Palestinian issue-Arab- Israel War-Camp David Accord-Oil crisis-Iran-Iraq war-Implications. (15Hrs)

ModuleV: Foreign policy of India-SAARC summit meetings-Indo-American Relations – Indo-Soviet, Indo-Pak,Indo-Sri Lanka,Indo-China-International Terrorism. (15Hrs)

Books for Reference:

1. Palmer & Perkins - "International Relations," CBS Publishers and Distributors, Delhi
2. Subramanian .N - "International Relations," Ennes. Publication, Udumalpet, 1998.
3. Sharma.U - "International Relations", Lakshminarayan Agarwal, Delhi, 1993.
4. Vijayakumar Malhotra - International Relations", Anmol Publications, New Delhi, 1993.
5. Kulshrestha.K.K - A History of International Relations", S.Chand and Co.Ltd., New Delhi.

Course Designed By : Dr.(Mrs).K.C.K.Rajabhuvanavathy.

Course Reviewed By : Mrs.A.Alagurani.

Checked By : Mrs.A.Alagurani.

M.A. History - Semester – IV **14MH14**
Core XIV - Archives Keeping
(For students admitted during the academic year 2014-15)

Preamble:**Hours: 75**

- The Paper attempts to focus on the organization, administration and uses of Archives.
- To enable the student to have a knowledge on the utilization of Records for research in Modern History.

Module I: Definition and Meaning of the terms 'Archives' and 'Record' – Nature of Archives – Types of Archives – History of Archives: Archives Keeping in the ancient period – Archives in Medieval and Modern Europe – Archives Keeping in India. (15 Hrs)

Module II: Creation of Archives: Material used for the creation of Archives – Modern Developments: Collection of Records – Registry system. Archival location: Building and Record Room. Organization of Archives in India: British period and post Independent period. (15Hrs)

Module III: Functions of Archives: Primary Functions: Acquisition and Preservation of Historical Material - Allied functions. Uses of Archives: Research Value – Cultural and Social Value – Administrative value – Use of Archives for Publication. (15 Hrs)

Module IV: Administration of Archives: Aspects of Administration – Administrative Legislation. Preservation of Archives: Agents of deterioration – Methods to check internal and external deteriorating agents – Nursing of materials – Rehabilitation of damaged Records – Lamination – Stain Removal. (15Hrs)

Module V: National Archives Origin – Archival Material – Access to Archives – Indian Historical Record Commission. Tamilnadu Archives: Rules and Regulation of the Tamilnadu Archives –Private Archives. (15Hrs)

Books for Reference:

- 1.Sundara Raj -“Manual of Archival Systems and World of Archives”, Siva Publications, Chennai, 1999.
- 2.Dr. J.Thiyagarajan - “Archives Keeping”, Prabha Publications, Madurai, 2002.

Course Designed By : Dr.(Mr)s. R. Meera.
 Course Reviewed By : Dr.(Mrs). K.C.K.Rajabhuvanavathy.
 Checked By : Mrs A.Alagurani

M.A. History - Semester – IV**14MHE4****Elective IV- Human Rights****(For students admitted during the academic year 2014-15)****Preamble:****Hours: 75**

- To present the general study about the functioning of the Human Rights.
- To know the importance of the Rights of Emerging sectors and contemporary issues in Human Rights.

Module I: Definition-Characteristics of Human Rights-Classification: Moral and Legal-Universal Declaration of Human Rights. (15Hrs)

Module II: Human Rights and Voluntary Organisations: Amnesty International of India-Asia Watch-People union for civil Liberties-People union for Democratic rights-Mass Media and Human Rights. (15Hrs)

Module III: Human Rights in India-Constitutional guarantee on Human rights-Human Rights and Refugees children's Rights-Bonded Labour-Dalits-Tribals-Caste conflict in Tamilnadu. (15Hrs)

Module IV: Women's Rights: Role of Governmental & Non-Governmental Organisations-Women and Media-Women cell-Rights to Dissent by Women:Aung San Suuki-Medha Patkar-Arunthathi Roy. (15Hrs)

Module V: National Human Rights Commission-State Human Rights commission-Human Rights Court. (15Hrs)

Books for Reference:

- 1.Singh Sehla.B.P. -“Human rights in India's Problems and Perspectives”, D& Dublications,New Delhi.
2. Sakesana K.P -“Human Rights 50 years of India's Independence”,Gyan publishing House,New Delhi-2001.
3. Dr.Gokulesh Sharma -“Human Rights and Legal Remedies”, D& DPublications , New Delhi-2003.
4. Dr (Mrs) Sivagami -“Studies in Human Rights”,Thai Publication,Salem,1998.

5. Krishna Iyer.S -“Human Rights and in Human Wrongs”,Publishing Corporation,
Delhi, 1998.

Course Designed By : Mrs. V.K.Saraswathy
Course Reviewed By : Dr.(Mrs). K.C.K.Rajabhuvanavathy.
Checked By : Mrs. A.Alagurani

M.A. History - Semester – I
Diploma in Tourism Studies-I
Tourism Business Environment **14MDT1**
(For students admitted during the academic year 2014-15)

Preamble: To give student knowledge of International rules and trends in Tourism. **Hours:52**

Module I: History of Tourism-National -International-Definition-Nature-Importance
Components. (11Hrs)

Module II: Recent trends -Organisation domestic –International Tourism-Promotion-
development. (11Hrs)

Module III: Tourism in India-Ministry of Tourism-IATA-IATO-Role of civil Aviation
Department-National Action plan of 1992. (10Hrs)

Module IV: Impact of Tourism –Economic-Social-Physical and Environmental. (10Hrs)

Module V: Emerging Trends in Tourism-Health Tourism-Adventure Tourism-Eco Tourism.
(10Hrs)

Books for Reference:

- 1.Dr.N.Jeyakumar & Dr.J.Fredrick - “Eco-Tourism in India”,Vista International Publishing
House,Delhi.
- 2.R.L.Parekh - “ Medical Tourism”,Alfa publications,New Delhi-2,2009.
- 3.G.Radha Krishna - “ Tourism Promotional Perspectives and Issues,”The Icfai
University Press,Hyderabad,2010.
- 4.Ratandeep Singh - “Tourism Today”, Vol III, kanishka Publications New
Delhi.1994.

M.A. History - Semester – II
Diploma in Tourism Studies-II
Hospitality Management **14MDT2**
(For students admitted during the academic year2014-15)

Preamble: To explain the management of Tourism sector. **Hours:52**

Module I: Introduction to Hotel-Nature of Hospitality-Communication - Early History
of Lodging. (11Hrs)

Module II: Organization and structure of Lodging operations:-Scope of the Industry-
Classification of Hotel's-Food service Industry – Management of food services. (11Hrs)

Module III:Rooms Division -Front office management-The Reservation Department-
Telecommunication Department-The uniformed service Department. (10Hrs)

Module IV: Accounting Division-Human Resource Division-Security Division. (10Hrs)

Module V: Future trends in Hospitality Industry-Chain of Hotel-Role of Association in
Hospitality Management in India. (10Hrs)

Books for Reference:

- 1.Gray and Ligouri - "Hotel and Hotel Management and operation",2002.
- 2.Andrews - "Hotel front office training manual", Bombay.
- 3.Nagi -"Hotels for Tourism Development" Delhi,2004.
- 4.Nagi -Professional Hotel Management, Delhi-Scotland 2003.

**M.A. History - Semester – III
Diploma in Tourism Studies-III**

Medical Tourism

14MDT3

(For students admitted during the academic year 2014-15)

Preamble:To focus the importance of Medical tourism

Hours:52

Module I: History of Medical Tourism-Philippines-Thailand-Dental Tourism –The world
Tourist organization. (11Hrs)

Module II:Medical Tourism in Kerala-Ayurveda-Naturopathy-Homoeopathy-Health-care
services. (11Hrs)

Module III:Medical Tourist's in India-Promotion of medical Tourism -Tourism policy-issues.
(10Hrs)

Module IV:Economic impacts of Tourism-Foreign Exchange-Employment generation-
Contribution to local Economis-Tourist products (Medicinal plants). (10Hrs)

Module V:Globalization of Medical Tourism-Legal issues-Ethical issues-Response to medical
tourism challenges. (10Hrs)

Books for Reference:

1. Dr.R.Kumar -" Medical Tourism in India",Deep & Deep Publications
Pvt.Ltd.New Delhi-2008.
2. R.L.Parekh - "Medical Tourism,"Alfa publications,New Delhi-2009.
3. G.Radha Krishna - "Tourism Promotional Perspectives and Issues",The Icfai
University Press, Hyderabad,2010.
4. Ratandeep Singh - "Tourism Today", Vol III, kanishka Publications New
Delhi.1994.

BA HISTORY

Semester wise Distribution with Scheme of Examination

(For students admitted during the academic year 2013-14)

Semester	Course	Credits	Duration of Exam Hrs(ESE)	Marks		Total
				CIA	ESE	
I	Part I -Language I	3	3	25	75	100
	Part II - English I	3	3	25	75	100
	Part III- Core I – Main Currents in Indian History upto A.D 647	4	3	25	75	100
	Core II- Main Currents in Indian History A.D 647 - A.D 1526.	4	3	25	75	100
	Allied I- Introduction to Tourism	5	3	25	75	100
	Part IV -Environmental Studies	2	-	50	-	50
II	Part I-Language II	3	3	25	75	100
	Part II- English II	3	3	25	75	100
	Part III - Core III – Main Currents in Indian History A.D 1526 - A.D1707	4	3	25	75	100
	Core IV– Main Currents in Indian History A.D1707 - A.D1857	4	3	25	75	100
	Allied II – Cultural Tourism In India	5	3	25	75	100
	Part IV-Value Education	2	-	50	-	50
	ALC I – Social History of India upto A.D 1206	3	3	-	100	100
III	Part I – Language III	3	3	25	75	100
	Part II- English III	3	3	25	75	100
	Part III - Core V-Main Currents in Indian History A.D1858 - A.D1947	4	3	25	75	100
	Core VI - Main Currents in Indian History A.D 1947-A.D 2000	4	3	25	75	100
	Allied III – Modern Governments	5	3	25	75	100
	Skill Based Course -Tourism Management-I-Travel Management	3	-	100	-	100
	Non-Major Elective	2	-	75	-	75

Semester	Course	Credits	Duration of Exam Hrs(ESE)	Marks		Total
				CIA	ESE	
IV	Part I – Language IV	3	3	25	75	100
	Part II – English IV	3	3	25	75	100
	Part III-Core VII -History of TamilNadu Upto A.D. 1565	4	3	25	75	100
	Core VIII- History of TamilNadu A.D 1565 – A.D .2000	4	3	25	75	100
	Allied IV – Indian Constitution	5	3	25	75	100
	Skill Based Course - Tourism Management - II- Hotel Management	3	-	100	-	100
	General Awareness	2	-	75	-	75
	ALC II- Social History of India A.D1206 - A.D.1950	3	3	-	100	100
	Extension Activities	1	-	50	-	50
V	Core – IX World History A.D 1453-A.D 1789	4	3	25	75	100
	Core X- History of England A.D. 1485-A.D.1714	4	3	25	75	100
	Core XI – History of China and Japan A.D.1800- A.D.1970	4	3	25	75	100
	Core XII– History of Science and Technology	4	3	25	75	100
	Elective – I – Tourist Destinations In India	5	3	25	75	100
	Skill Based Course - Tourism Management - III- Catering Management	3	-	100	-	100
VI	Core XIII – World History A.D 1789- A.D.2000	4	3	25	75	100
	Core XIV - History of England A.D 1714 – A.D 1990	4	3	25	75	100
	Core XV –India and Her Neighbours	4	3	25	75	100
	Elective II – Tourist Destinations in TamilNadu	5	3	25	75	100
	Elective III – Women Studies	5	3	25	75	100
	Skill Based Course - Tourism Management- IV - Project	3	-	-	-	100
	ALC –III Eminent South Indians	3	-	100	-	100
		3	3	-	100	100

Non Major Course offered by the department-History for Competitive Examination

B.A History– Semester I
Part III - Core I- Main Currents in Indian History upto A.D 647
(For students admitted during the academic year 2013-14)

112H01

Preamble:

Hours: 75

- This paper attempts to know the political and social history of India
- To develop the quality of sympathetic imagination and an eagerness to enter into a different atmosphere of a bygone era.

Module I: The Effect of Geography on Indian History- The Indus Valley Civilization-The Vedic Age - The Aryans- Society - The Caste system. (15 Hrs)

Module II: Alexander's Invasion - Impact –The Rise of the Mauryan Empire - Asoka - Buddhism –Administration. (15Hrs)

Module III: Kanishka – Gandhara Art - The Age of the Gupta: Chandra Gupta I -Samudra Gupta-Chandra Gupta II –Administration. (15Hrs)

Module IV: Society and Economy under the Guptas –Art and Architecture-Dcline of the Guptas. (15Hrs)

Module V: Harshavardhana - Society & Religion -The Satavahanas- Society and culture. (15Hrs)

Map Study: 1. The Physical features of India **2.** Gupta Empire

Book for Study:

1. An Easy Approach to Indian History - R.K.Majumdar & A.N.Srivastva
(From Earliest times to 1526 A.D) SBD Publishers, New Delhi, 2009.

Books for Reference:

1. The Wonder that was India - Bhasham, A.L, Rupa & Co., New Delhi, 2000.
2. Advanced History of India - Dr. Hans Raj, Surjeet Publications, New Delhi, 2013.
3. History of India - John Clark Makshman, Akansha Publishers, Delhi, 2005
4. Social Cultural and Economic History of India: (Ancient Times to 1526) - S.C. Raychaudry, Surjeet Publications, New Delhi, 2013.

Course Designed By : Mrs. P. Karpagavalli.

Course Reviewed By : Mrs. M. Vanmathi.

Checked By : Mrs. V. K. Saraswathi.

B.A History– Semester I
Part III - Core II- Main Currents in Indian History A.D 647- A.D 1526.
(For students admitted during the academic year 2013-14)

112H02

Preamble:

Hours: 75

- To provide the background for understanding about the enrichment of Indian spirit through the ages.
- To make them imbibe the value of heroic qualities, selfless services and marvelous leadership.

Module I: Rajputs: Origin –Society and Economy–Arab conquest of Sind–Mahamud of Ghazni- Mahamud of Ghor. (15Hrs)

Module II: The Sultanate of Delhi: Qutb-ud-din-Aibak- Iltumish - Razia- Balban. (15Hrs)

Module III: Alauddin khilji - Malik Kafur's invasion - Muhammad Bin Tughlaq –Firuz Tughlaq. (15Hrs)

Module IV: Timur's invasion - Sikandar Lodi - Ibrahim Lodi - First Battle of Panipat- Bhakti Movement. (15Hrs)

Module V: Society, Economy, Architecture under Delhi Sultanate - Decline of the Sultanate - Sufism. (15Hrs)

Map study: 1. Empire of Ala-ud-din-khilji. 2. Empire of Muhammad Bin Tughlaq.

Book for study

1. An Easy Approach to Indian History - R.K.Majumdar &A.N.Srivastva Publishers, New Delhi,2009.

Books for Reference:

1. Advanced History of India - Dr.Hans Raj ,Surjeet Publications,New Delhi,2013.
2. History of India - John Clark Makshman,Akansha Publishers, Delhi, 2005.
3. Social Cultural and Economic History of India: (Ancient Times to 1526) - S.C.Ray Chaudry,Surjeet Publications,New Delhi,2013.

Course Designed By : Mrs.S.Shenbagavalli.

Course Reviewed By : Dr. (Mrs.) K.C.K.Rajabhavanavathi.

Checked By : Dr.Mrs. R.Meera.

B.A History– Semester I **112AH1**
Part III -Allied I- Introduction to Tourism
(For students admitted during the academic year 2013-14)

Preamble: **Hours: 75**

- To impart the basic facts about Tourism.
- To provide a simple and comprehensive outline of various dimensions of tourism.

Module I: Definition: Tourism – Tourist. Motivations - Forms of Tourism- Basic Components – Elements – Types. (15Hrs)

Module II: History of Tourism: The Romans-Medieval Times -Industrial Revolution – Beginning of Modern Travel Agency. (15Hrs)

Module III: Travel through the ages: Accounts of famous Travellers-Pleasure Travel – Religious purpose – The Grand Tour – Annual Holiday –Paid Holidays – Mass Tourism. (15Hrs)

Module IV: Socio-Economic importance of Tourism: Economic Impact – Positive Social impact –Adverse effects - India as a Tourist Paradise. (15Hrs)

Module V: Tourism Administration of India: Ministry of Tourism - State Tourism Departments – ITDC, TTDC. (15Hrs)

Book for Study:

Introduction To Tourism – M.A.Khan, Anmol Publications, New Delhi, 2005.

Books for References:

1. Tourism and Travel Management - R.Abbas, Izad Publications, Madurai, 2006.
2. Tourism Development - A.K.Bhatia, Sterling Publishers New Delhi, 1982.
3. Indian Tourism Industry - A.Vijay Kumar, Sonali Publications, Delhi, 2009.

Course Designed By : Mrs.S.RenukaDevi.
Course Reviewed By : Mrs.S.Shenbagavalli.
Checked By : Mrs.A.Alagurani

B.A. History– Semester II

212H03

Part III – Core III- Main Currents in Indian History A.D 1526 - A.D 1707

(For students admitted during the academic year 2013-14)

Preamble

Hours: 75

- To Highlight the significant phases of the Mughal India
- To derive inspiration for the present and guidance for the future.

Module I: India on the Eve of Babur's Invasion – Babur – Humayun – SherShah's Administration. (15Hrs)

Module II: Akbar: Conquest, Religious Policy – Jahangir – Nurjahan- ShahJahan- Golden Period. (15Hrs)

Module III: Aurangzeb: Deccan Policy- Downfall of the Mughal Empire- Mughal Art and Architecture. (15Hrs)

Module IV: Vijayanagar Empire: Krishnadevaraya – Battle of TalaiKota- Administration. (15Hrs)

Module V: History of Sikhs up to 1707 – Shivaji – Administration. (15Hrs)

Map Study: 1. Akbar's Empire 2. Empire of ShahJahan

Book for Study:

History of India upto 1707 - Dr.A.Swaminathan, Deepa Pathipagam, Chennai, 2004.

Books for Reference:

1. The Mughal Empire (1526-1707) - K.L.Khurana, Educational Publications, Agra, 1993.
2. History of Mughal India - S.C.Raychoudhary, Surjeet Publications, New Delhi, 2007.
3. Medieval India (1300 – 1800) - Shailesh Chandra, Aifa Publications, New Delhi, 2009.

Course Designed By : Mrs.P.Karpagavalli
Course Reviewed By : Mrs.S.RenukaDevi
Checked By : Dr.Mrs. R.Meera

B.A. History– Semester II **212H04**
Part III – Core IV- Main Currents in Indian History A.D1707 – A.D.1857
(For students admitted during the academic year 2013-14)

Preamble: **Hours: 75**

- This paper attempts to know the rise and growth of British rule in India.
- To be familiar with the epic struggle for freedom in its entire dimension and their sacrifices as the national heroes.

Module I: European Settlements in India- The Carnatic wars- Robert Clive – Black Hole Tragedy-Battle of Plassey – Battle of Buxar. (15 Hrs)

Module II: Warren Hastings: Administration & Impeachment. Lord Cornwallis: Reforms - Permanent land revenue settlement - Anglo-Mysore Wars. (15 Hrs)

Module III: Lord Wellesly: Subsidiary Alliance – Lord Hastings: Gurkha War- Suppression of the Pindaris- Reforms. (15 Hrs)

Module IV: Lord William Bentinck: Reforms-Raja Ram Mohan Roy- Ranjit Singh. (15 Hrs)

Module V: Lord Dalhousie: Reforms-The Doctrine of Lapse -The Great upheaval of 1857: Causes and Results. (15 Hrs)

Map study: 1. The Carnatic Wars (Centers).2. Important centers of Mutiny of 1857.

Books for study:

History of India (1707 to the Present Day) - Dr.A.Swaminathan, Deepa Pathippagam, Chennai, 2004.

Books for Reference:

1. Advanced History of India - Dr..Hans Raj ,Surjeet Publications,New Delhi,2013.
2. Simple History of India (Since 1526) - Four Authors, SBD Publishers, NewDelhi, 2008.
3. History of India (1526 to Present Times)- S.C.Raychoudhary, Surjeet Publications, New Delhi, 2013.

Course Designed by *: Mrs.S.Shenbagavalli*
Course Reviewed by *:Mrs.A.Alagurani*
Checked by *:Mrs.V.K.Saraswathi.*

B.A. History– Semester II **212AH2**
Part III – Allied II - Cultural Tourism in India
(For students admitted during the academic year 2013-14)

Peamble: **Hours: 75**

- To highlight the various components of cultural Heritage.
- To inculcate the responsibility of a citizen in preserving the unique culture of India

Module I: Indian Dances: Kuchipudi-Bharatanatyam –Kathak – Kathakali – Manipuri – Mohiniattam. (15Hrs)

Module II: Indian Dance Festivals: Khajuraho – Konark – Mamallapuram Utsav – Natyanjali – Nishagandhi – Elephanta. (15Hrs)

Module III: Indian Music: Hindustani - Carnatic I -Indian Musical Instrument – Music Festivals. (15Hrs)

Module IV: Indian Fairs: Kumbhamella-Sonepur Cattle Fair – Rajasthan Camel Fair. Indian Festivals: Holi- Ganesh Chaturthi – Dussehra - Diwali - Pongal. (15Hrs)

Module V: Indian Painting: Ajantha - Sittanavasal – Tanjore - The Mughal School of Painting – Rajput School of Painting. (15Hrs)

Book for Study:

1. Cultural Tourism In India - Lavkush Mishra , Mohit Publications, New Delhi, 2005.

Books for Reference:

1. Cultural Tourism In India - Ashok Singh, Raj Book Enterprises, Jaipur, 2002.
2. Cultural and Traditional History of India - Manohar Bhardwaj, Cyber Tech Publications, New Delhi, 2008.
3. A Modern Book on Art and Culture - Manohar Bhardwaj, Cyber Tech Publications, New Delhi, 2009.

Designed by : Mrs.S.Renuka Devi.
Course Reviewed by : Mrs.P.Karpagavalli.
Checked by : Mrs.V.K.Saraswathi.

B.A History – Semester II **212ALH**
Advanced Learners Course I- Social History of India upto A.D.1206
(For students admitted during the academic year 2013-14)

Preamble:

- To learn the Social Condition of the early period.
- To impart the Social Values.

Module I: Indus society –Social life of the Aryans –Position of women in the Epic age.

Module II: Caste system and its impact –The Mauryan Society –Social condition during the Gupta period.

Module III: Society during the period of Harsha –Social life in Rajput period –Society under Satavahanas.

Module IV: Sangam Society – Pallava Society.

Module V: Social condition under the Cholas – Social life of the people during the Pandya period –Impact of Arab conquest on Indian Society.

Book for study:

1. History of India upto 1306 - N.Jayabalan & S.Joseph , Mohan Pathipagam,Madras.

Books for Reference:

1. History of India - R.Abbas,Izad Publications,Madurai,2006
2. Evolution of Indian Culture - B.N.Luniya,Lakshmi Narain Agarwal, Agra,1978 .
3. Social and Cultural History of TamilNadu -N.Subramaniam,Asian Printers,Coimbatore,2007.
4. Indian Society - Vidyotma Singh, Vista International Publishing House, Delhi, 2006.

Course Designed by : Mrs. V.K.Saraswathi.

Course Reviewed by : Mrs.AAlagurani.

Checked by : Mrs.Dr.R.Meera

B.A. History – Semester III**312H05****Part III – Core V- Main Currents in Indian History A.D. 1858 – A.D.1947****(For students admitted during the academic year 2013-14)****Preamble:****Hours: 65**

- This study deals with the moral and material progress of the British rule in India.
- To enlighten the students on National Movement.

Module I: Queen’s Proclamation - Lord Canning – Lord Lytton –Lord Ripon. (13 Hrs)

Module II: Indian National Congress- Moderates- Extremists-Lord Curzon. (13 Hrs)

Module III: Surat Split - Muslim League - Home Rule Movement – Jallianwalabagh-Non - Co-Operation Movement. (13 Hrs)

Module IV: Swarajya Party- Civil Disobedience Movement – Salt Satyagraha- Round Table Conferences - Cripps Mission. (13 Hrs)

Module V: Quit India Movement – Indian National Army – Cabinet Mission – Wavell plan – Rajaji Formula – Mountbatten Plan – Causes for the Partition of India. (13Hrs)

Map Study: 1.Important Centers of the Freedom Movement. 2. Partition of India.

Book for Study:

P.S.Jhoshi & Golkar- “History of Modern India (1800 -1964)”, S.Chand & Company, New Delhi, 1981.

Books for Reference:

1. R.C. Agarwal – “Constitutional History of India & National Movement”,S.Chand & Company Ltd,Ram Nagar, New Delhi, 55. 1981.
2. Raj Kumar - “Development of Nationalism in India”, Anmol Publishers,New Delhi,1999.
3. L.P.Sharma-“History of Modern India”, Konark Publishers, Delhi, 2008.

Course Designed by : Mrs. S.Shenbagavalli.

Course reviewed by :Mrs.V.K.Saraswathy

Checked by : Dr.(Mrs)R.Meera

B.A. History – Semester III **312H06**
Part III - Core VI- Main Currents in Indian History - A.D. 1947 – A.D.2000
(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- This paper will present a picture on the growth of Constitution.
- To appear for the Competitive Examination.

Module I: Integration of Princely States-Sardar Vallabhai Patel-The Linguistic Reorganization of the States in 1955-Nehru's Administration-Five year Plans-Foreign Policy. (13 Hrs)

Module II: Lal Bahadur Sastri-Indo-Pak War 1965-Tashkent Declaration 1966 - Mrs.Indira Gandhi's Administration. (13 Hrs)

Module III: Janata Party Rule - Moraji Desai - Rajiv Gandhi reforms -New Educational Policy – Panchayat Raj – Narasimha Rao - LPG Policy. (13 Hrs)

Module IV: National Front Government - V.P.Singh - Mandal Commission –BJP rule - Vajpayee- Kargil issue. (13 Hrs)

Module V: Dr.Manmohan Singh - UPA Government – reforms. (13 Hrs)

Map Study: 1.Re-organization of states. 2. States and Union Territories of India.

Book for Study:

G.Venkatesan - "History of Contemporary India 1947- 2004", V.C Publications, Rajapalayam, 2005.

Books for Reference:

1. Bipan Chandra- "India After Independence 1947-2000", A Penguin Books Pvt.Ltd., New Delhi, 2000.
2. G.John Gilbert- "Contemporary History of India", Anmol Publications Pvt.Ltd., New Delhi, 2006
3. R.C. Agarwal- "Constitutional History of India & National Movement", S.Chand & Company Ltd, Ram Nagar, New Delhi, 55. 1981.

Course Designed by : Mrs. P.Karpagavalli

Course reviewed by : Mrs.V.K.Saraswathy

Checked by : Dr.(Mrs)R.Meera

B.A. History – Semester III **312AH3**
Part III - Allied III- Modern Governments
(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- The paper focuses on the political process and the actual functioning of the political system.
- It imparts knowledge on the major constitutions of the world by adopting a comparative approach.

Module I: Constituion-Types – Written and Unwritten – Rigid and Flexible – Moduleary and Federal – Presidential and Parliamentary. (13 Hrs)

Module II: Constitution of England – Salient Features – Executive: The Crown: Position and Powers – The Cabinet – Functions – Prime Minister and his Powers. (13 Hrs)

Module III: Legislature: House of Lords – House of Commons – Structure and Functions- Speaker and his Powers – Judiciary: Organisation. (13 Hrs)

Module IV: Constitution of USA: Salient Features – President: Powers and Functions. Vice-President: Powers. Legislature: Senate – House of Representatives. (13Hrs)

Module V: Constitution of Switzerland: Salient Features – The Federal Council – Federal Assembly: The National Council – The Council of States – Federal Tribunal. (13 Hrs)

Book for Study:

Dr.P.Gomathynayakam –“Modern Governments”,Tensy Publications,Sivakasi,2007.

Books for References:

1. Dr.J.Kasthuri-“Modern Governments”,ENNS Publications,Udumalpet,1998.
2. W.Ivor Jennings-“The British Constitution”,Cambridge University Press,1954.
3. Vishnool Bhagwan & Vidya Bhusan –“World Constitution”,Sterling Publishers, 2002.

Course Designed by :Dr.(Mrs).R.Meera
Course reviewed by :Dr.(Mrs)K.C.KRajabhuvanavathy
Checked by :Mrs.A.Alagurani

B.A. History – Semester IV **412H07**
Part III - Core VII– History of Tamil Nadu upto A.D. 1565
(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- The study presents the essential events & political and cultural history of Tamil Nadu from the beginning to 1565 A.D.
- To emphasize the social and economic conditions of Tamil Nadu.

Module I: Geography of Tamil Country– Sources– Sangam Age: Political, Social, Economic and Religious Condition. (13 Hrs)

Module II:Khalabhras - Pallavas: Mahendravarman I – Narasimhavarman I-Bakthi Movement- Art and Architecture. (13 Hrs)

Module III:Imperial Cholas –Rajaraja I – Rajendra I - Kulotunga I – Local Administration – Saivism – Literature- Art and Architecture. (13Hrs)

Module IV:Second Pandya Empire: Marcopolo Account– Jatavarman Sundarapandya – Maravarman Kulasekara Pandya- Maravarman Sundarapandya — Malik Kafur -Art and Architecture— Establishment of Madurai Sultanate. (13Hrs)

Module V: Tamilaham under Vijayanagar –Kumara Kampana – Conquest of Madurai and Tanjore - Social and Economic condition- Its impact on Tamilagam. (13Hrs)

Map Study: 1.Geography of Tamil Nadu 2.Chola Empire

Book for Study:

K.Rajayyan –“Tamil Nadu:A Real History “,Ratna Publications,Trivandrum,2005.

Books for Reference:

1. K.A. Nilakanta Sastri – “History of South India (From Prehistoric Times to the fall of Vijayanagar)”, Oxford University Press, 2009.
2. N. Subrahmanian - “Social and Cultural History of Tamil Nadu upto 1336 A.D.”, Ennes Publications, Udumalpet, 1991.
3. A. Swaminathan - “History of Tamil Nadu”,Deepa Pathippagam, Madras, 1993.

Course Designed by :Mrs.V.K.Saraswathy

Course reviewed by :Dr.(MrsK.C.K.Rajabhuvanavathy.

Checked by : Mrs. A. Alagurani.

B.A. History – Semester IV

412H08

Part III - Core VIII – History of Tamil Nadu from A.D 1565 - A.D 2000.

(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- This paper deals with the political and social aspects of History of Tamil Nadu.
- To create keen interest on the study of Regional history.

Module I: Sources- Nayaks of Madurai: Viswanatha – Thirumalai – Chokkanatha – Mangammal – Meenakashi – Nayaks of Tanjore: Regunatha Nayak – Nayaks of Senji : Krishnappa Nayak II – Nayak Administration – Art and Architecture. (13 Hrs)

Module II: Nawabs of Arcot – Administration – Setupathis of Ramnad : Kilavan Setupathi – Ragunatha Sethupathi – Marathas of Tanjore - Education – Culture. (13 Hrs)

Module III: Polygars: Kottabomman – Maruthu Brothers – South Indian Rebellion – Vellore Mutiny - Madras Native Association 1852 – Madras Mahajana Sabha 1884. (13Hrs)

Module IV:Swadesi Movement – Subramania Bharathi .– Anne Besant - Non-Co-Operation Movement 1920 – Neel Statue Satyagraha 1927 – Salt Satyagraha 1930 – Civil Dis-Obedience movement – Dravidian Movement – Justice Party – Self Respect Movement . (13Hrs)

Module V: Reorganisation of Madras Presidency – Tamilnadu under C.Rajagopalachari – K. Kamaraj – C.N.Annadurai- K.Karunanidhi- M.G.Ramachandran- J.Jayalalithaa. (13 Hrs)

Map Study: 1.Important centers of Nayaks 2.Reorganization of Madras Presidency

Book for Study:

1. K.Rajayyan - “Tamil Nadu:A Real History”,Ratna Publications,Trivandrum,2005.

Books for Reference:

1. R.EdinRajan & D.Gunasekar –“History of Tamil Nadu” ,Chandar Publications,Madurai, 1978.

- 2.N. Subrahmanian-“History of Tamilnadu (1336–1984)”-Ennes Publications, Udumalpet ,2007.
3. A. Swaminathan –“History of Tamil Nadu”, Deepa Pathippagam, Madras, 1991.

Course Designed by :Mrs.V.K.Saraswathy.
 Course reviewed by :Dr.(Mrs)K.C.K.Rajabhuvanavathy
 Checked by Mrs. A. Alagurani

B.A. History - Semester – IV **412AH4**
Part III - Allied IV- Indian Constitution
(For students admitted during the academic year 2013-14)

Preamble: **Hours: 65**

- To study in detail the political structure in India- both constitutional and administrative.
- The historical background to individual constitution is emphasized to gain an understanding of its evolution.

Module I: The Constituent Assembly – Salient Features of the Indian Constitution - Fundamental Rights – Fundamental Duties – Directive Principles of State Policy. (13Hrs)

Module II:Executive: The President: Qualification – Election –Powers and Functions – Vice-President – Prime Minister: Position and Powers – The Council of Ministers. (13Hrs)

Module III: Indian Parliament: Lok Sabha: Composition and Powers – Speaker – Position and powers. Rajya Sabha: Composition and Powers –Chairman. (13Hrs)

Module IV:Judiciary: Supreme Court: Organisation – Powers – High Court - Organisation – Powers – Lok Adalat- Family Courts. (13Hrs)

Module V: Government of the State: Governor – Chief Minister – Council of Ministers – State Legislatures: Legislative Assembly – Legislative Council. (13Hrs)

Book for Study

Dr.P.Gomathynayakam –“Modern Governments”,Tensy Publications,Sivakasi,2007.

Books for References:

1. Biswaranjan Mohanty-“Constitution Government and Politics in India”, New Century Publications,New Delhi,2009.
2. Durga Das Basu-“Introduction of the Constitution of India”, New Delhi, 1995.
3. Dr.J.Kasthuri –“Modern Governments”,ENNS Publications, Udumalpet, 1998.

Course Designed by :Dr.(Mrs)R.Meera..
 Course reviewed by :Dr.(Mrs)K.C.K.Rajabhuvanavathy
 Checked by Mrs. A. Alagurani

B.A. History – Semester IV **412ALH**
Advanced Learners Course II- Social History of India A.D1206 - A.D1950.
(For students admitted during the academic year 2013-14)

Preamble

- To trace the changes in Medieval Indian Society.

- To impart the social Values.

Module I: Society under Delhi Sultanate – Islamic social order.

Module II: Valangai, Idangai groups – Society under Vijayanagar- Status of Women- Segments of Caste.

Module III: Social Life under the Mughals-Status of Women.

Module IV: Brahma Samaj – Arya Samaj – Prarthna Samaj- Ramakrishna Mission – Theosophical Society.

Module V: Impact of British rule on Indian Society, Education, Press and Agriculture. Self – respect Movement.

Book for Study:

J.Thiyagarajan – Social and Cultural History of India, Prabha Publications, Madurai-19, 2003.

Books for Reference:

1. Evolution of Indian Culture - B.N Luniya, Lakshmi Narain Agarwal, Agra, 1978.
2. Social Reforms Movements in Tamilnadu - C.Paramarthalingam, Rajakumar Publications, Madurai, 1995.
3. Society and Culture of Tamilnadu - K.Rajayyan, Ratna Publications, Madurai, 2002.

Course Designed by : Mrs. V.K.Saraswathi

Course Reviewed by : Mrs.AAlagurani.

Checked by : Dr (Mrs).R.Meera.

B.A History Semester-V

512H12

Core XII - History of Science and Technology

(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- To highlight the major scientific discoveries and the personalities associated with the scientific development
- To impart the rudimentary knowledge of science

Module I: Science in the Ancient World: Egypt-Mesopotamia-Greek science: Hippocrates-Rome: Galan-India: Aryabhata I-Shushruta. (13 Hrs)

Module II: Science and Technology of Arabs: Avicenna-Rogar Bacon-Nicholas Copernicus-Galileo-Leonardo-da-vinci. (13 Hrs)

Module III: Royal society in London-French Royal Academy of Science-William Harvey-Simon Laplace-John Hunter-Edward Jenner. (13 Hrs)

Module IV: Louis Pasteur-Thomas Alva Edison-Communication by wire-Telephones and Telegraphs-Marie Curie-Television-Computers-Space research. (13 Hrs)

Module V: Srinivasa Ramanujam-P.C.Roy-Sir C.V. Raman-M.S.Swaminathan-Homi Jehangir Bhaba-Abdul kalam-Sivathanu Pillai- Brahmas. (13 Hrs)

Book for study:

Dr.S.Varghese Jeyaraj -“History of Science and Technology”, Anns Publications, Uthamapalayam, 1997

.Books for Reference:

1. Dr.R.Venkatraman -“History of Sience and Technology”,Ennes Publications,Madurai.1988.
2. J.Dharmaraj -“History of Science and Technology”, Tency, Publication, Sivakasi, 1998.

Course designed by : Mrs.V.K.Saraswathi.

Course Reviewed by : Dr.(Mrs). R.Meera.

Checked by : Mrs. A. Alagurani.

B.A History Semester-V

512HE1

Elective – I – Tourist Destinations in India

(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- To Expose the Students to be familiar with the important tourist places in India.
- To understand the value of India as a tourist Destination

Module I: North India: Jammu & Kashmir- Punjab- Madhya Pradesh – Uttar Pradesh.

(13Hrs)

Module II: East:Bihar – Jharkhand – West Bengal – Orissa.

(13Hrs)

Module III: West: Maharashtra- Madhya Pradesh – Gujarat - Rajasthan –Goa. (13Hrs)

Module IV:North East States : Sikkim – Assam – Arunachal Pradesh – Manipur. (13Hrs)

Module V: South: Andhra Pradesh – Pondicherry – Kerala – Karnataka. (13Hrs)

Book for study:

1. Tourist Guide to India - Sura, Sura Books Pvt.Ltd, Chennai, 2006.

Books for Reference:

1. Travel & Tourism for All - G.k.Puri,,IIMS publications,New Delhi,1986.
2. North India a Guide - .A.V.Shankaranarayana Rao-“,Vasan Publications,Bangalore,2003.
3. Tourism Today, Vol III - Ratandeep Singh, kanishka Publications New Delhi.1994.
4. India through Ages - T.R.Sareen & S.R. Anmol Publications,New Delhi,1992.

Course designed by :Mrs.R.Meera.

Course Reviewed by :Dr.(Mrs)K.C.K.Rajabhavanavathy.

Checked by : Mrs. A. Alagurani.

B.A History Semester-VI

612HE2

Part III - Elective II- Tourist Destinations in Tamilnadu

(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- To know the important Tourist Centers in Tamilnadu.

- To motivate the students for self employment.

Module I: North Tamilnadu : Chennai – Kancheepuram – Vellore - Tiruvannamalai. (13 Hrs)

Module II: South Tamilnadu : Madurai – Ramanathapuram – Tirunelveli – Tuticorin - Kanyakumari. (13Hrs)

Module III: Western Tamilnadu: Salem – Dharmapuri – Krishnagiri – Coimbatore –Erode. (13Hrs)

Module IV: EasternTamilnadu :Trichy – Tanjore – Nagore – Velankani - Pudukottai. (13 Hrs)

Module V: Hill stations: Ooty – Kodaikanal – Yerkad - Valparai. (13Hrs)

Book for study:

V.Narayanasamy - “Splendour of Tamilnadu”,Sura booksPvt.Ltd,Madras,1991.

Books for Reference:

1. Tourist Guide to Tamilnadu -Sura,Sura BooksPvt.Ltd,Madras,2005.
2. Tourist Guide to South India -Sura,Sura Books Pvt.Ltd,Madras,2006.
- 3 Travel & Tourism for All - G.K.Puri,IIMS Publications,New Delhi,1986.

Course designed by : *Mrs. V.K Saraswathi.*
Course Reviewed by : *Dr.(Mrs)K.C.K.Rajabhavanavathy*
Checked by : *Mrs. A. Alagurani.*

B.A History - Semester-VI

612ALH

Advanced Learner’s course III - Eminent South Indians (For students admitted during the academic year 2013-14)

Preamble:

- To know the achievements of eminent leaders of South India
- To inculcate patriotic spirit among the students.

Module I: V.O.Chidambaram Pillai: Early life - Swadeshi Steam Navigation Company - participation in freedom struggle - Harassment in jail - Bharathi: Early life –His contribution to the rise of nationalism -Contribution to Tamil literature –Women liberation.

Module II: Visvesvaraya: Early life and difficulties-Service in Hyderabad and Mysore State - Work in other States - Provinces and Municipalities – Publications. Dr.Muthulakshmi Reddi : Early career-political awareness-As a Legislator-Social Acts-Various Status.

Module III:Rajagopalachari: Early career-Chief Ministership-Administrative Reforms.Kamaraj: Life Story-A model chief Minister-Social legislations-Educational Reforms-Industrial Progress - Electrification and Irrigation.

Module IV: E.V. Ramaswamy Naicker: Life story –Periyar in congress-Agitation-Self Respect Movement-Draivida Khazagam. M.S.Subbulakshmi: Career and achievements-Contribution to Music-Awards and Honours.

Module V: Abdul Kalam: Early Career - Contribution to Science and Technology-Presidentsip.Dr.Radhakrishnan: Early life and Education - Philosopher - Educationist- His work for universities – Ambassador - Presidentship.

Book for study:

Argus -“Eminent South Indians”, Affiliated East –West Press Pvt.Ltd.Madras, 1982.

Books for Reference:

- 1.R.A.Padmanabhan -“V.O Chidambarampillai”,National Book Trust, New Delhi, 1977.
- 2.Mrs.Shakuntala Krishnamoorthy -“Dr.Visvesvaraya, Bangalore Press, Bangalore.
- 3.John Gilbert -“Contemporary History of India”, (RajajiKamaraj), Anmol Publications.

Course designed by : Dr.(Mrs) R.Meera.
Course Reviewed by : Mrs. A. Alagurani.
Checked by : Mrs. A. Alagurani

Skill Based Course - Tourism Management
(For students admitted during the academic year 2013-14)

Preamble: Tourism is a highly Labour –Intensive Industry offering employment to both semi – skilled and unskilled.

The content of the course is designed

- To open new avenues of Knowledge and career advancement in Travel Agency and Hotel industry.
- To instill confidence in securing jobs.
- To train the students on self-employment.

Semester III -Skill Based Course - Tourism Management -I **312HS1**
Travel Management
(For students admitted during the academic year 2013-14) **Hours: 38**

Module I: Meaning of Travel Agencies –Forms: Proprietorship –Partnership –Corporate: Public-Private –Government -Multi –national Companies. (8Hrs)

Module II: Organizations –International Travel Booking –Domestic Passenger –Tour Operators –Travel Agents in India and Abroad. (8Hrs)

Module III: Types Retail –Wholesale –Functions of Travel Agency. (7Hrs)

Module IV: Approval and Recognition –GOI and IATA –Preparation of Itineraries. (8Hrs)

Module V: Travel Documents: Passport –Visa –Health –Custom and Migration –Immigration rules. (7Hrs)

Book for study

Mohinder Chand -Travel Agency Management –An Introductory Text.

Books for Reference:

- 1.Dr.Jagmohan Negi - Travel Agency & Tour Operation –Concepts & Principles, Kanishka Publishers,New Delhi ,1997.
2. A.K.Bhatia - Tourism Development, Sterling Publications,New Delhi,2003.
3. Romila Chawla - Tourism Services and Operation,Arise Publishers,New Delhi,2003.

Semester IV -Skill Based Course - Tourism Management-II **412HS2**
Hotel Management
(For students admitted during the academic year 2013-14) **Hours:**
38

Module I: Hotel –Types –International –Resort –Commercial -Residential –Floating. (8Hrs)

Module II: Motel –Youth Hostel-Caravan and Camping sites –Pension –Bed and Breakfast Establishment –Tourist Holiday Villages. (8Hrs)

Module III: Organization Categories: Sole Proprietorship –Partnership –Chain Hotels –Hotel Manager: Role and Functions. (7Hrs)

Module IV: Front Office Management: Front Office Staff-General Procedure of Hotel Reservation Registration –Mode of Receiving payment –Communication Skills. (8Hrs)

Module V: Personnel Management in Hotel: Human Resource in Hotel Industry-Wages and Types in Hotel –Hotel Workers. (7Hrs)

Books for study:

- 1.Pushpinder S.Gill – Tourism and Hotel Management,Anmol Publications, New Delhi
- 2.J.David - Textbook Of Hotel Management,Anmol Publications,NewDelhi,2004.

Books for reference:

- 1.J.Mathews -Hotel Management, Pointer Publishers,Jaipur-2008.
- 2.R.N.Kaul - Dynamics of Tourism:A Trilogy, Vol-II,Accomodation,Streling Publications,1985.
- 3.A.K.Bhatia - Tourism Development –Principles and Practices,Sterling Publications NewDelhi,2003.

Semester V -Skill Based Course -Tourism Management - III **512HS3**
Catering Management
(For students admitted during the academic year 2013-14)
Hours: 38

Module I: Kitchen: Planning the Equipment –Planning of Menu-Dining Halls. (8Hrs)

Module II: Food Service –Guidelines –Service table –Guest reception –Dining Table-Furniture Maintenance. (8Hrs)

Module III: Beverage and Food – Types of Food –South Indian Cuisine –North Indian –Chinese –European –Continental. (8Hrs)

Module IV: Customer care: Communication Skills –Laundry –Tariff and Concessions. (7Hrs)

Module V: Safety measures –Kitchen- Dining –Bars –Rooms –Fire service equipments – Emergency exit –Cleaning and Sanitation. (7Hrs)

Books for study:

1. J.David - Textbook of Hotel Management, Anmol publication, New Delhi, 2004.
2. J.Mathews - Hotel Management, Pointer Publishers, Jaipur -2008.

Books for Reference:

1. Pushpinder S.Gill -Tourism and Hotel Management, Anmol Publications, New Delhi, 2004.
2. R.N.Kaul - Dynamics of Tourism: A Trilogy, Vol III, Accommodation, Sterling Publications, 1985.
3. A.K. Bhatia - Tourism development –Principles and Practices, Sterling Publications, New Delhi, 2003.

M.A.History

Semester wise Distribution with the Scheme of Examination

(For students admitted during the academic year 2013-14)

Semester	Course	Credits	Duration of Exam	Marks		Total
				CIA	ESE	
I	Core I – History of the Marathas A.D 1600- A.D1818.	5	3	25	75	100
	Core II- History of the Freedom Struggle since A.D.1857.	5	3	25	75	100
	Core III- Constitutional History of India from A.D1773 - A.D 1919	4	3	25	75	100
	Elective I- Civics	3	3	25	75	100
	Diploma Course I- Tourism Business Environment	3	-	100	-	100
II	Core IV – Social and Economic History of Tamilnadu A.D1800 to A.D1987.	5	3	25	75	100
	Core V- Industrial Development and History of Labour Movement in Tamilnadu	5	3	25	75	100
	Core VI – Constitutional History of India from A.D1935 - A.D2000.	4	3	25	75	100
	Core VII- History of the U.S.A upto A.D1865	5	3	25	75	100
	Elective II-Journalism	3	3	25	75	100
	Diploma Course II-Hospitality Management	3	-	100	-	100
	ALC I-Temple Study	4	3	-	100	100
III	Core VIII- History of the U.S.A. A.D1865- A.D1989.	5	3	25	75	100
	Core IX- History of Kongu Country	5	3	25	75	100
	Core X- Archaeology	5	3	25	75	100
	Core XI- India of our Times	5	3	25	75	100
	Elective III – Computer Applications	3	3	25	75	100
	Diploma Course III- Medical Tourism	2	-	100	-	100
IV	Core XII – Historiography	5	3	25	75	100
	Core XIII – International Relations since A.D1945	5	3	25	75	100
	Core XIV – Archives Keeping	5	3	25	75	100
	Elective IV Human Rights	3	3	25	75	100
	Diploma Course IV- Project Work	2	-	100	-	100
	ALC II- Sociology	4	3	-	100	100

12MH02

M.A. History - Semester – I
Core II- History of the Freedom Struggle since A.D1857
(For students admitted during the academic year 2013-14)

Preamble:

Hours: 75

- To Know the politics of modern conception
- To understand the growth of nationalist spirit and the right of self determination.

Module I: The Great Revolt of 1857: Causes and consequences - Queen's Proclamation- Indian Nationalism- Indian National congress. (15Hrs)

Module II: Swadeshi Movement-Home Rule Movement: Tilak and Anne Besant - Montague Declaration-Rowlat Act-The Non-Co-operation Movement-The Birth of the Swaraj Party-The Simon Commission (15Hrs)

Module III: Civil Disobedience Movement-The Round Table Conference-The Communal Award-The Poona Pact-August Offer-Individual Satyagraha-Cripps Mission-The Quit India Movement. (15Hrs)

Module IV: Netaji Subash Chandra Bose and the Indian National Army-The early development of communalism-Demand for Partition-C.R.Formula-Wavell Plan –Simla Conference-The Cabinet Mission Plan-The Direct Action Day -Establishment of Interim Government-Mount batten Plan. (15Hrs)

Module V: Partition of India-The Indian Independence Act of 1947-Freedom Struggle in Tamilnadu-V.O.Chidambaram pillai-Subramania Bharathi- Rajaji- Tirupur Kumaran. (15 Hrs)

Books for Reference:

- 1.R.C.Agarwal -“Constitutional History of India and National Movement,” S.Chand & com.Ltd. 5th Edition,1981.
- 2.Tara Chand -“History of Freedom Movement in India,” Ministry of Information and Broad casting,Government of India,Pakala House,1972,Vol.IV.
- 3.Srinivasa Moorthy -“History of India's freedom Movement 1857-1947”,S.Chand & Com.Ltd., 1987.

Course Designed by : Dr.(Mrs).K.C.K.Rajabhavanavathy
Course Reviewed by :Dr.MrsR.Meera
Checked by :Mrs.A.Alagurani.

12MH03

M.A. History – Semester -I
Core III- Constitutional History of India A.D. 1773 - A.D.1919.
(For students admitted during the academic year 2013-14)

Preamble:

Hours: 75

- To trace the constitutional development of India.
- To impart the knowledge about the colonial policy of Great Britain.

Module I: Regulating Act of 1773 - Pitt's India Act of 1784 - The Charter Acts of 1793
Provisions - Significance. (15Hrs)

Module II: The Charter Act of 1813, 1833 & 1853: Provisions & Significance. (15Hrs)

Module III: Government of India Act of 1858: Main Features - Queen's Proclamation:
Significance. (15Hrs)

Module IV: India Councils Act of 1861- Indian Councils Act of 1892-Merits-Defects of the
Act. (15Hrs)

Module V: Government of India Act of 1909 – Growth of Executive, Legislature, Judiciary-
Government of India Act of 1919 – Government at the Center – Dyarchy in the Provinces.
(15Hrs)

Books for Reference:

1. Agarwal.R.C. - "Constitutional development and National Movement of India", S.Chand & Company Ltd., Ramnagar, New Delhi, 1991.
2. Jyoti Prasad Suda - "Constitutional development (1773-1947)", K.Nath & Co., Meerut, 1983.
3. Sri Ram Sharma - "Constitutional History of India", Orient Longman Ltd., Delhi., 1974.
4. Srivastava A.L - "Constitutional History of India and National Movement", S.B.D.Publishers, Naisarak, Delhi. 2001.

Course Designed by : Mrs.M.Vanmathi.
Course Reviewed by : Mrs.V.K.Saraswathy.
Checked by : Mrs.A.Alagurani.

M.A. History - Semester – I **12MHE1**
Elective I- Civics
(For students admitted during the academic year 2013-14)

Preamble: **Hours: 75**

- To develop good citizenship
- To create awareness of the human values at all levels

Module I: The meaning and concept of Civics-Term and idea of Citizenship in Modern State-
Acquisition of Citizenship- Loss of Citizenship-Good Citizenship –Single Citizenship in India.
(15Hrs)

Module II: Rights of Citizens-Fundamental rights: Freedom of speech-Education-Employment –
Religion-Property-Voting-Consumer Rights-Limitation. (15Hrs)

Module III: Fundamental duties-Responsibilities of a Citizen: Preservation of the Cultural
Heritage of India: Importance of Indian Culture-the unique features of Indian Culture
Preservation of Monuments, Historical and Pilgrim Centers. (15Hrs)

Module IV: Role of a Citizen in the protection of Natural Environment: Forests, Lakes, Rivers, Wild Life-Prevention of pollution-Safeguarding the Public Property-Public Interest Litigations. (15Hrs)

Module V: Challenges: Illiteracy-Unemployment-Poverty-Communalism and Casteism-Anti-Social practices-Growth of Population-Violence against Women and Terrorism. (15Hrs)

Books for Reference:

1. Albert Lobo.S -“Political Theory and Outline”,Agastheas Book Depot,Trichy- 2,1973.
2. Arjun Dev & Indra Arjun Dev - “Human Rights,Source Book”,National Council of Educational Research and Training,New Delhi,1996.
3. Journal - “Environmental Pollution”,Hindu Publication, Editions,1998.

Course Designed by : Mrs.M.Vanmathi.

Course Reviewed by : Dr. (Mrs).R.Meera.

Checked by : Mrs.A.Alagurani.

M.A.History Semester II

12MH04

Core IV – Socio-Economic History of Tamil Nadu A.D 1800 –A.D1987

(For students admitted during the academic year 2013-14)

Preamble:

Hours: 65

- This paper attempts to make the students understand the Socio-Economic Development of Tamil Nadu.
- To prepare for the Competitive Examination.

Module I: Tamil Nadu during 1800-1900 – Socio – Economic Conditions – Agriculture – Cottage Industries. (13Hrs)

Module II: Impact of Colonialism – Land Revenue: Ryotwari System –Judiciary –Education and role of Christian Missionaries – Change in Agricultural Economy to marketing economy – Decline of Cottage Industries – Rise of Nationalism in Tamil Nadu. (13Hrs)

Module III: Tamil Literary Development – Pure Tamil Movement –Vallalar & Sanmarga Movement – Development of social novels, Journals, Short Stories – Birth of Non-Brahmin Movement. (13Hrs)

Module IV: E.V.R. and Self Respect Movement – Impact of Depressed Classes – Temple Entry Movement – Temperance Movement. (13Hrs)

Module V: Post Independence Development - social Legislation- Five Year Plans –Agrarian Reforms – Industrial Growth – Development of Modern System of Communication and Transport and its impact on Society. (13Hrs)

Books for References:

1. P.N.Chopra & T.k.Ravindran – “History of South India (Modern Period)”,S.Chand & Co.,Chennai,1979.
2. N.Subramanian - “History of Tamilnadu ”Ennes Publication, Udumalpet, 1991.

3. A.Swaminathan - “Social and Cultural History of Tamilnadu”,Deepa Pathipagam,Chennai,1991.
 4. B.S.Baliga -“Studies in Madras Administration”Vol I &II.

Course Designed by : Mrs.V.K.Saraswathy.
Course Reviewed by : Dr. (Mrs).R.Meera
Checked by : Mrs.A.Alagurani

M.A. History - Semester – II **12MH05**
Core V- Industrial Development and History of Labour Movement in Tamilnadu
(For students admitted during the academic year 2013-14)

Preamble:

Hours:65

- To inculcate an awareness of Labour problem among the students.
- To know the economic development of our region.

Module I: Ancient and modern Industries-Guild System-Transports, Trade and Commerce. (13Hrs)

Module II: Cottage Industries-Development of Railways-Development of ports and shipping. (13Hrs)

Module III: Industrial Growth-British Trade in Textile-Foundries in Coimbatore Hydroelectric projects-British policy towards local Industries-merits and defects of British policy. (13Hrs)

Module IV:Labour Movement–Factory system and Labour unrest-Migration of Labour urbanization-Impact of Socialism and work of Communist party-Trade Union Movement. (13Hrs)

Module V: Since Independence - Textile and Machinery Industries – Lignite - Oil Refineries – Expansion of Fisheries. (13Hrs)

Books for Reference:

1. Arun Monappa - Industrial Relations,Tata McGraw Hill Publishing Company,Fourteenth Edition,1998.
2. S.C.kuchhal - The Industrial & Economy of India,Chaitanya Publishing House,Eighteenth Edition,1987.
3. S.Perumalsamy - Economic Development of Tamil Nadu,S.Chand & Company,Third Edition,1996.

Course Designed by : Dr. (Mrs).K.C.K.Rajabhavanavathy
Course Reviewed by : Dr. (Mrs).R.Meera
Checked by : Mrs.A.Alagurani

M.A. History - Semester – II **12MH06**

Core VI- Constitutional History of India A.D. 1935 - A.D2000
(For students admitted during the academic year 2013-14)

Preamble: **Hours:65**

- To trace the constitutional development of India.
- To impart the knowledge about the colonial policy of Great Britain.

Module I: Government of India Act of 1935 – Federal Government – Provincial Autonomy – Indian Independence Act of 1947. (13Hrs)

Module II: The Republican Constitution – Fundamental Rights and Directive Principles of States Policy – Government at the Center – President – Vice-President and Council of Ministers. (13Hrs)

Module III: Parliament–The Supreme Court – Government in the States - Executive, Legislature and Judiciary. (13Hrs)

Module IV: Landmark in Constitutional Amendment – 24th and 25th Amendments and Fundamental Rights–39th Amendments-Election of President, Vice-President, Prime Minister and Speaker beyond Judicial Scrutiny 42nd Amendment. (13Hrs)

Module V: Changes to Preamble- inclusion of Fundamental duties- far reaching changes in the executive- Legislature and Judiciary-44th Amendment, Nullification of most of the Provisions of the 42nd Amendment–52nd Amendment, Anti- defection Law – 61st Amendment – Lower Voting Age – 72nd Amendment- Panchayat Nagar Polika Act. (13Hrs)

Books for Reference:

1. Agarwal.R.C. - “Constitutional Development and National Movement of India”.C & Comp., New Delhi-1991
2. Jyoti Prasad Suda - “Constitutional development”(1773-1947) K.Nath & Co-Meerut-1983.
3. Srivastava L.N. - “Constitutional History of India and National Movement”S.B.Publishers, Delhi-2001.
4. Sri Ram Sharma - “Constitutional History of India”Orient Long man Ltd,,New Delhi-1974.

<i>Course Designed by</i>	<i>:Mrs.M.Vanmathi.</i>
<i>Course Reviewed by</i>	<i>:Mrs.V.K.Saraswathy.</i>
<i>Checked by</i>	<i>:Mrs.A.Alagurani.</i>

M.A. History - Semester – II
Elective II - Journalism
(For students admitted during the academic year 2013-14)

12MHE2

Preamble:

Hours: 65

- The paper attempts to impart the basic knowledge regarding the theory and practice of Journalism.
- To motivate them to choose the exciting and interesting profession of Journalism as a self-employment.

Module I: Concept of Journalism -History of Press in India –Role of the Press in the Freedom Movement. (13Hrs)

Module II: History of the Tamil Journalism-Different kinds of Newspapers-Characteristics of Journalist-Career aspects of Journalism-The Freelance Journalist. (13Hrs)

Module III: Sources of news- News Agencies: P.T.I, U.N.I -Structure of News Paper-Organization of Newspaper. (13Hrs)

Module IV: -Writing the News - Headlines-Types of Headlines-Lead and its Types- Investigative Journalism. (13Hrs)

Module V: Major Players: The Hindu, The New Indian Express, Dina Mani, DinaThanthi, Dina Malar. (13Hrs)

Books for Reference:

1. B.N.Ahuja & S.S.Chhabra -“Principles and Techniques of Journalism”, Sujeet Publications, New Delhi, 2002.
2. Barun Roy -“Beginners guide to Journalism”, Pustak Mahal, Delhi, 2004.
3. Rangaswami Parthasarathy -“Journalism in India from the Earliest Times to The Present Day”, Sterling Publishers Pvt., Ltd., New Delhi, 1991.
4. Shah Zad Ahmad -“Art of Modern Journalism”, Anmol Publications, New Delhi, 2005.
5. Seema Sharma -“Development of Journalism”, Anmol Publications, New Delhi, 2005.

Course Designed by : Mrs.S.Shenbagavalli.
Course Reviewed by : Dr.(Mrs).K.C.K.Rajabhavanavathy.
Checked by : Mrs.A.Alagurani.

M.A History -Semester – II
Advanced Learners Course I-Temple Study
(For students admitted during the academic year 2013-14)

12MHA1

Preamble:

- To know the importance of Temples.
- To trace the source of History.

Module I: Origin of the Temple-Temple for Village deity-Cave Temple-Structural Temple.

Module II: Temple as the treasure of Historical Records-Temple inscriptions-Significance Ghatikas and Mathas-Divine of the position and service of the temple.

Module III: Temple as an employer-Administration of the Temple-Devadana lands - Temple employees-Temple as the financial Agent.

Module IV: Temple as the cultural center -Temple festival-Bhakthi movement in Tamilnadu-Fine arts-Music-Dance-Paintings.

Module V: Temple Architecture: Aryan Architecture-Dravidian Architecture-Vimanas-Buddhist Viharas.

Books for Reference:

1. Dr.C.Meenakshi -“Pallava Administration” 1978,Bhuvana publication, Madras.
2. Kusana shasthri .H - “South Indian Images of Gods and Goddesses”, Asian Educational Service,New Delhi,1995
- 3.T.R.Srinivasan -“Temples of South India” National book Depot.
- 4.Venkatraman .V - “Laddigam a Later Chola Empire”,Faridabad ,New Delhi, 1993.

Course Designed By : Mrs.V.K.Saraswathi .
Course Reviewed By : Dr.(Mr)s.R.Meera
Checked By : Mrs.A.Alagurani.

M.A. History - Semester – III **12MH09**
Core IX- History of Kongu Country
(For students admitted during the academic year 2013-14)

Preamble: **Hours:65**

- To provide Comprehensive knowledge about the socio and cultural progress of the kongu region.
- To impart the valuable information and facts to do the historical research.

Module I: Sources-Geographical features of Kongu Nadu-Territorial Division-Kongu Nadu in Ancient times. (13Hrs)

Module II: History of Kongu Nadu-Sangam Age-Cheras-Cholas-Pandyas-Gangas. (13Hrs)

Module III: Kongu under Nayak rule-Under Hyder,Tippu – British conquest of Kongu - Kongu freedom movement. (13Hrs)

Module IV: Social-Economic-Religious life of Kongu in the 20th century-trade-commerce. (13Hrs)

Module V: Conditions of peasants and Agricultural growth of industries-post independence. (13Hrs)

Books for Reference:

- 1.M.Arokiasamy -“History of Kongu Country”, University of Madras ,II Edition 1986.
2. V.Manickam -“Kongu nadu”-A History upto 1400 A.D”,Makkal Veliyeedu,Chennai,2001.
- 3.V.Ramamoorthy -“History of the kongu Part I & Part II”,Asiatic Publication,Boes Garden,Madras.
- 4.K.S.Vaidyanathan -Ancient Geography of the Kongu Country,Govt of India,1983.

Course Designed by : Mrs.A.Alagurani.

Course Reviewed by : Dr.(Mrs)R.Meera.

Checked by : Mrs.A.Alagurani

M.A. History - Semester – III

12MH10

Core X- Archaeology

(For students admitted during the academic year 2013-14)

Preamble:

Hours:65

- To focus in detail on Epigraphy, Numismatics and Pottery.
- To present the latest trend and theories on Archaeology.

Module I: Exploration- -Definition – Branches of Archaeology –Excavation – Site Survey methods -Stratigraphy –Scientific methods of Excavation –Recording the Excavation Data – Burial Record – Photographic records. (13Hrs)

Module II: Epigraphy – Asokan Edicts – Allahabad Pillar Inscription of Harisena – Uttaramerur Inscriptions – Kongu chola Inscriptions – Copper plates of Pallavas –Evolution of Script – Brahmi – Grantha –Vatteluttu. (13Hrs)

Module III: The Harappan culture –Pottery –Megaliths –Memorial stones:Hero stones Archaeological sites of Tamilnadu. (13Hrs)

Module IV: Numismatics: Punch marked coins –Gupta coins –Pallava coins –Kongu coins-Kongu chola coins-Vijayanagar coins-Archaeological significance. (13Hrs)

Module V: Archaeologists of India:James Princep –Alexander Cunningham-Robert Bruce Foote –Sir John Marshall –Mortimer Wheeler. Archaeologists of Tamilnadu: Dr.Nagasamy-Dr.Natanakasinathan – Dr.K.V.Raman- Iravatham Mahadevan. (13Hrs)

Books for Reference:

- 1.K.V.Raman -“Principles and methods of Archaeology”Parthajan Publication,Chennai,1998.
- 2.V.Ramamoorthy - “History of the Kongu”,Asiatic Publication,Madras.
- 3.R.Venkatraman -“Indian Archaeology”,Ennes Publication,Udumalpet,1999.
- 4.Nicholas.V.Riasauovsky -“A History of Russia”Oxford University Press,New York Publication,1977.

Course Designed by : Dr.(Mrs).R.Meera.
 Course Reviewed by : Dr. (Mrs).K.C.K.Rajabhavanavathy.
 Checked by : Mrs.A.Alagurani

12MH12

M.A. History - Semester – IV
Core XII-Historiography
(For students admitted during the academic year 2013-14)

Preamble: **Hours:75**

- To understand the meaning and values of History.
- To learn the classification of History and develop the method of Historical Research.

Module I: Meaning and Scope of History -Kinds-Values-Lessons. (15Hrs)

Module II: History is a Science or Art-Theories of History-Philosophy of History. (15Hrs)

Module III: Historical Research-Requisites of the Research Scholars -Selecting a suitable topic-Formulation of Hypothesis-Preparing a working Bibliography-Making notes. (15Hrs)

Module IV: Collection of sources-Primary and secondary sources in India and Tamilnadu-Collection of Data. (15Hrs)

Module V: Objectivity and Subjectivity in Writing History-Criticism: Internal and External – Synthesis-Footnotes-Bibliography-Arrangement of Thesis. (15Hrs)

Books for Reference:

1. Dr.G.Venkatesan - “A study of Historiography” ,V.C.Publication, Rajapalayam, 2005.
2. E.H.Carr -“What is History” Mac millan 1961, Reprinted 1983.
3. K.Rajayyan -‘History its Theory and Method’ Madurai Publishing house, Madurai
4. Sheik Ali - History its Theory and Method” Suraj Publication Delhi 1975.
5. N.Subramaniam -“Historiography” Ennes publications ,Udumalpet , 1980.

Course Designed By *Mrs.A.Alagurani*
 Course Reviewed By : Dr. (Mrs).K.C.K.Rajabhavanavathy
 Checked By : Mrs.A.Alagurani

12MH13

M.A.History - Semester-IV
Core XIII –International Relations since A.D.1945
(For students admitted during the academic year 2013-14)

Preamble: **Hours: 75**

- The study is on the diplomatic relations of the World Powers.
- To update the knowledge of the students on World affairs.

Module I: Definition, Nature and Scope of International Relations-Theories of International Relations – Realist Theory-Systems Theory- Diplomacy-Types of Diplomacy. (15Hrs)

Module II: The Moduleed Nations Organisation - U.N. Charter-Organs-Specialized Agencies-Balance of Power- Collective security-International Law- UN Settlement of International Disputes-U.N'S role in maintaining World Peace. Cold War-Origin and development of regional defence pacts - OAS, NATO, SEATO, CENTO, WARSAW, ANZUS etc, -Impact of Cold War on International politics-Decline of Cold War. (15Hrs)

Module III:Disarmament- Initiative since 1945- Baruch plan-Atoms of peace proposal- Nuclear Test Ban Treaty-Convention to ban biological,bacteriological Toxin warfare- Concept of vertical horizontal freeza-SALT I and SALT II-Nuclear Disarmament- Nuclear proliferation treaty-CTBT- Ten Nation Committee –ABM –ICBM - Impact. (15 Hrs)

Module IV: Africa –Efforts for African Moduley – Contribution of Nelson Mandela-Palestinian issue-Arab- Israel War-Camp David Accord-Oil crisis-Iran-Iraq war-Implications. (15Hrs)

Module V: Foreign policy of India-SAARC summit meetings-Indo-American Relations – Indo-Soviet, Indo-Pak,Indo-Sri Lanka,Indo-China-International Terrorism. (15Hrs)

Books for Reference:

1. Palmer & Perkins -“International Relations,”CBS Publishers and Distributors,Delhi
- 2.Subramanian .N - “International Relations,”Ennes.Publication, Udumalpet,1998.
3. Sharma.U -“International Relations”,Lakshminarayan Agarval,Delhi,1993.
4. Vijayakumar Malhotra - International Relations”, Anmol Publications,New Delhi,1993.
5. Kulshrestha.K.K - A History of International Relations”,S.Chand and Co.Ltd., New Delhi.

Course Designed By :Dr.(Mrs).K.C.K.Rajabhuvanavathy.
Course Reviewed By :Mrs.A.Alagurani.
Checked By : Mrs.A.Alagurani.

M.A. History - Semester – IV **12MH14**
Core XIV - Archives Keeping
(For students admitted during the academic year 2013-14)

Preamble:

Hours: 75

- The Paper attempts to focus on the organization, administration and uses of Archives.
- To enable the student to have a knowledge on the utilization of Records for research in Modern History.

Module I: Definition and Meaning of the terms ‘Archives’ and ‘Record’ – Nature of Archives – Types of Archives – History of Archives: Archives Keeping in the ancient period – Archives in Medieval and Modern Europe – Archives Keeping in India. (15 Hrs)

Module II: Creation of Archives: Material used for the creation of Archives – Modern Developments: Collection of Records – Registry system. Archival location: Building and Record Room. Organization of Archives in India: British period and post Independent period. (15Hrs)

Module III: Functions of Archives: Primary Functions: Acquisition and Preservation of Historical Material - Allied functions. Uses of Archives: Research Value – Cultural and Social Value – Administrative value – Use of Archives for Publication. (15 Hrs)

Module IV: Administration of Archives: Aspects of Administration – Administrative Legislation. Preservation of Archives: Agents of deterioration – Methods to check internal and external deteriorating agents – Nursing of materials – Rehabilitation of damaged Records – Lamination – Stain Removal. (15Hrs)

Module V: National Archives Origin – Archival Material – Access to Archives – Indian Historical Record Commission. Tamilnadu Archives: Rules and Regulation of the Tamilnadu Archives –Private Archives. (15Hrs)

Books for Reference:

- 1.Sundara Raj -“Manual of Archival Systems and World of Archives”, Siva Publications, Chennai, 1999.
- 2.Dr. J.Thiyagarajan - “Archives Keeping”, Prabha Publications, Madurai, 2002.

Course Designed By : Dr.(Mr)s. R. Meera.

Course Reviewed By : Dr.(Mrs). K.C.K.Rajabhuvanavathy.

Checked By : Mrs A.Alagurani

M.A. History - Semester – IV

12MHE4

Elective IV- Human Rights

(For students admitted during the academic year 2013-14)

Preamble:

Hours: 75

- To present the general study about the functioning of the Human Rights.
- To know the importance of the Rights of Emerging sectors and contemporary issues in Human Rights.

Module I: Definition-Characteristics of Human Rights-Classification: Moral and Legal-Universal Declaration of Human Rights. (15Hrs)

Module II: Human Rights and Voluntary Organisations: Amnesty International of India-Asia Watch-People union for civil Liberties-People union for Democratic rights-Mass Media and Human Rights. (15Hrs)

Module III: Human Rights in India-Constitutional guarantee on Human rights-Human Rights and Refugees children's Rights-Bonded Labour-Dalits-Tribals-Caste conflict in Tamilnadu. (15Hrs)

Module IV: Women's Rights: Role of Governmental & Non-Governmental Organisations-Women and Media-Women cell-Rights to Dissent by Women:Aung San Suuki-Medha Patkar-Arunthathi Roy. (15Hrs)

Module V: National Human Rights Commission-State Human Rights commission-Human Rights Court. (15Hrs)

Books for Reference:

1. Singh Sehla B.P. - "Human rights in India's Problems and Perspectives", D& D Publications, New Delhi.
2. Sakesana K.P - "Human Rights 50 years of India's Independence", Gyan publishing House, New Delhi-2001.
3. Dr. Gokulesh Sharma - "Human Rights and Legal Remedies", D& D Publications, New Delhi-2003.
4. Dr (Mrs) Sivagami - "Studies in Human Rights", Thai Publication, Salem, 1998.
5. Krishna Iyer.S - "Human Rights and in Human Wrongs", Publishing Corporation, Delhi, 1998.

Course Designed By : Mrs. V.K.Saraswathy
Course Reviewed By : Dr.(Mrs). K.C.K.Rajabhuvanavathy.
Checked By : Mrs. A.Alagurani

M.A. History - Semester – I
Diploma in Tourism Studies-I
Tourism Business Environment **12MDT1**
(For students admitted during the academic year 2013-14)

Preamble: To give student knowledge of International rules and trends in Tourism. **Hours:52**

Module I: History of Tourism-National -International-Definition-Nature-Importance Components. (11Hrs)

Module II: Recent trends -Organisation domestic –International Tourism-Promotion-development. (11Hrs)

Module III: Tourism in India-Ministry of Tourism-IATA-IATO-Role of civil Aviation Department-National Action plan of 1992. (10Hrs)

Module IV: Impact of Tourism –Economic-Social-Physical and Environmental. (10Hrs)

Module V: Emerging Trends in Tourism-Health Tourism-Adventure Tourism-Eco Tourism. (10Hrs)

Books for Reference:

1. Dr. N. Jeyakumar & Dr. J. Fredrick - "Eco-Tourism in India", Vista International Publishing House, Delhi.
2. R.L. Parekh - "Medical Tourism", Alfa publications, New Delhi-2, 2009.
3. G. Radha Krishna - "Tourism Promotional Perspectives and Issues", The Icfai University Press, Hyderabad, 2010.

4.Ratandeep Singh

- “Tourism Today”, Vol III, kanishka Publications New Delhi.1994.

M.A. History - Semester – II
Diploma in Tourism Studies-II
Hospitality Management **12MDT2**
(For students admitted during the academic year 2013-14)

Preamble: To explain the management of Tourism sector. **Hours:52**

Module I: Introduction to Hotel-Nature of Hospitality-Communication - Early History of Lodging. *(11Hrs)*

Module II: Organization and structure of Lodging operations:-Scope of the Industry-Classification of Hotel’s-Food service Industry – Management of food services. *(11Hrs)*

Module III:Rooms Division -Front office management-The Reservation Department-Telecommunication Department-The uniformed service Department. *(10Hrs)*

Module IV: Accounting Division-Human Resource Division-Security Division. *(10Hrs)*

Module V: Future trends in Hospitality Industry-Chain of Hotel-Role of Association in Hospitality Management in India. *(10Hrs)*

Books for Reference:

- | | |
|--------------------|--|
| 1.Gray and Ligouri | - “Hotel and Hotel Management and operation”,2002. |
| 2.Andrews | - “Hotel front office training manual”, Bombay. |
| 3.Nagi | -“Hotels for Tourism Development” Delhi,2004. |
| 4.Nagi | -Professional Hotel Management, Delhi-Scotland 2003. |

M.A. History - Semester – III
Diploma in Tourism Studies-III
Medical Tourism **12MDT3**
(For students admitted during the academic year 2013-14)

Preamble:To focus the importance of Medical tourism **Hours:52**

Module I: History of Medical Tourism-Philippines-Thailand-Dental Tourism –The world Tourist organization. *(11Hrs)*

Module II:Medical Tourism in Kerala-Ayurveda-Naturopathy-Homaeopathy-Health-care services. *(11Hrs)*

Module III:Medical Tourist’s in India-Promotion of medical Tourism -Tourism policy-issues. *(10Hrs)*

Module IV:Economic impacts of Tourism-Foreign Exchange-Employment generation-
Contribution to local Economis-Tourist products (Medicinal plants). (10Hrs)

Module V:Globalization of Medical Tourism-Legal issues-Ethical issues-Response to medical
tourism challenges. (10Hrs)

Books for Reference:

1. Dr.R.Kumar -“ Medical Tourism in India”,Deep & Deep Publications Pvt.Ltd.New Delhi-2008.
2. R.L.Parekh - “Medical Tourism,”Alfa publications,New Delhi-2009.
3. G.Radha Krishna - “Tourism Promotional Perspectives and Issues”,The Icfai University Press, Hyderabad,2010.
4. Ratandeep Singh - “Tourism Today”, Vol III, kanishka Publications New Delhi.1994.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)

Affiliated to Bharathiar University

Department of Mathematics

B.Sc. Mathematics

Scheme of Examination–CBCS Pattern

[For students admitted from the academic year 2017–2018 and onwards]

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
117TA1/ 117MY1/ 117HD1/ 117FR1 117EN1	Semester I Part I: Language I	6	3	25	75	100	4
117M01 117M02	Part II: English I Part III: Core I: Algebra and Calculus Core II: Differential Equations and Laplace Transforms	6 5 5	3 3 3	25 25 25	75 75 75	100 100 100	4 4 4
117AM1	Allied I : Physics I	6	3	25	50	75	3
117EVS	Part IV: Environmental Studies	2	2	50	–	50	2
217TA2/ 217MY2/ 217HD2/ 217FR2 217EN2	Semester II Part I: Language II	6	3	25	75	100	4
217M03 217M04	Part II: English II Part III: Core III: Analytical Geometry Core IV: Numerical Methods	6 5 5	3 3 3	25 25 25	75 75 75	100 100 100	4 4 4
217AM2	Allied II: Physics II	4	3	25	50	75	3
217AMP	Allied Physics Practical	2	3	20	30	50	2
217VEC	Part IV: Value Education	2	2	50	–	50	2

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
317TA3/ 317MY3/ 317HD3/ 317FR3	Semester III Part I: Language III	6	3	25	75	100	4
317EN3	Part II: English III	6	3	25	75	100	4
317M05	Part III: Core V: Vector Calculus and Fourier Series	3	3	25	50	75	3
317M06	Core VI: Statics	4	3	25	75	100	4
317AM3/ 317AM1	Allied III: Principles of Accountancy/ Chemistry I	6	3	25	75/50	100/75	4/3
317NMC	Part IV: NME – Basic Mathematics for Competitive Examinations	2	2	50	–	50	2
317MS1	Skill Enhancement Course I: Graph Theory-I	3	3	75	–	75	3
417TA4/ 417MY4/ 417HD4/ 417FR4	Semester IV Part I: Language IV	6	3	25	75	100	4
417EN4	Part II: English IV	6	3	25	75	100	4
417M07	Part III: Core VII: Discrete Mathematics	3	3	25	50	75	3
417M08	Core VIII: Dynamics	4	3	25	75	100	4
417AM4/ 417AM2	Allied IV: Mathematical Statistics/ Chemistry II	6/4	3	25	75/50	100/75	4/3
417AMP	Allied Chemistry Practical	2	3	20	30	50	2
417NGA	Part IV: General Awareness	–	1	50	–	50	2
417MS2	Skill Enhancement Course II: Graph Theory-II	3	3	75	–	75	3
417GIS	Information Security	2	2	50	–	Grade	Grade
417MA1/ 417MA2	Advanced Learners Course I Combinatorics / Statistical Quality Control	–	3	–	100	100	4*

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III:						
517M09	Core IX: Real Analysis I	6	3	25	75	100	4
517M10	Core X: Complex Analysis I	5	3	25	75	100	4
517M11	Core XI: Abstract Algebra	5	3	25	75	100	4
517M12	Core XII: Group Project	5	–	–	100	100	4
517ME1/ 517ME2	Elective I: Programming in C (Theory)/Number Theory	4/6	3	15/25	35/75	50/100	2/4
517MP1	Programming in C Practicals	2	3	15	35	50	2
517MS3	Part IV: Skill Enhancement Course III : Scilab	3	3	75	–	75	3
	Semester VI						
	Part III:						
617M13	Core XIII: Real Analysis II	5	3	25	75	100	4
617M14	Core XIV: Complex Analysis II	5	3	25	75	100	4
617M15	Core XV: Linear Algebra	5	3	25	75	100	4
617ME3/ 617ME4	Elective II : Operations Research / Mathematical Cryptography	6	3	25	75	100	4
617ME5/ 617ME6	Elective III : Fuzzy and Intuitionistic fuzzy sets /Astronomy	6	3	25	75	100	4
617MS4	Part IV: Skill Enhancement Course IV: Internship	3	–	75	–	75	3
617EX1/ 617EX2/ 617EX3/ 617EX4/ 617EX5	Part V : Extension Activity	–	–	50	–	50	2
617MA3/ 617MA4	Advanced Learners Course II: Mathematics in Insurance/ Introduction to Wavelet theory	–	3	–	100	100	4*
Total						3500	140

Starred credits are treated as additional credits which are optional.

B.Sc. Mathematics

Semester I

Part III – Core I – ALGEBRA AND CALCULUS 117M01

[For students admitted from the academic year 2017 – 2018 onwards]

65 Hours

The objectives of introducing this course in the curriculum are

- to impart knowledge about the convergence / divergence criteria of a given series.
- to teach the role of Binomial, Exponential and Logarithmic series and to represent an infinite series in a closed form as the sum of infinite series.
- to develop skills for solving the algebraic equations.
- to expose the various properties of curvature of curves
- to provide a knowledge of various forms of integrals and their applications.

Unit I

(13 Hours)

Convergency and Divergency of series: Definitions and elementary results – Some general theorems concerning infinite series – Series of positive terms – Comparison tests – Cauchy's condensation test – D'Alembert's Ratio test – Cauchy's Root test.

Note : Only Statement of the tests are included.

Book 1: Chapter 2: Sections 8 - 17

Unit II

(13 Hours)

Binomial Theorem: Application of the Binomial Theorem to the summation of series. Exponential and Logarithmic series: The Exponential Theorem (statement only) – Summation – The Logarithmic series – Modification of the Logarithmic series – Series which can be summed up by the Logarithmic series.

Book 1: Chapter 3: Section 10, Chapter 4: Sections 3, 5, 6, 7 and 9

Unit III

(13 Hours)

Theory of Equations: Transformation of Equations – Reciprocal Equation – To increase or decrease the roots of a given equation by a given quantity – Form of the quotient and remainder when a polynomial is divided by a binomial – Removal of terms – Descartes' Rule of signs.

Book 1: Chapter 6: Sections 15 – 19, 24

Unit IV

(13 Hours)

Differential Calculus: Envelopes, Curvature of plane curves: Envelopes – Method of finding the envelope – Curvature – Cartesian formula for the radius of curvature – The coordinates of the center of curvature – Evolute and involute – Radius of curvature when the curve is given in polar co-ordinates – p-r equation.

Book 2: Chapter 10: Sections 1.1 - 1.4, 2.1, 2.3 - 2.8

Unit V

(13 Hours)

Integral Calculus: Multiple integrals: Definition of the double integral – Evaluation of the double integral – Double integral in polar co-ordinates – Triple integrals. Beta and Gamma functions: Definitions – Convergence of $\Gamma(n)$ – Recurrence formula of Gamma functions – Properties of Beta functions – Relation between Beta and Gamma functions.

Book3: Chapter 5: Sections 1, 2.1, 2.2, 3.1, 3.2, 4 (Problems in 2.2, 3.1, 3.2 and 4)

Chapter 7: Sections 2.1-2.3, 3, 4, 5

Books for Study:

Book1: For Units I, II and III: T. K. Manicavachagom Pillay, T. Natarajan and K. S. Ganapathy, Algebra Volume I, S.Viswanathan (printers and publishers) Pvt., Ltd., Eleventh Revised Edition, Reprint –2014.

Book 2: For Unit IV : S.Narayanan and T.K. Manicavachagom Pillay, Calculus (Major) Volume I (Differential Calculus), S.Viswanathan (Printers and Publishers) Pvt., Ltd., Eighteenth Edition, 2012.

Book 3: For Unit V : S. Narayanan and T. K. Manicavachagom Pillay, Calculus volume II (Integral Calculus), S.Viswanathan (Printers and Publishers) Pvt., Ltd., Eighteenth Revised Edition, 2012.

Books for Reference:

1. P.Kandasamy, K.Thilagavathy, Mathematics for B.Sc Br–I, First Semester, Volume I, S.Chand & Company Ltd, First Edition, 2004.
2. Shanthi Narayanan, Differential Calculus, Shayambal Charitable Trust, 1987.
3. Shanthi Narayanan, Integral Calculus, S. Chand & Co, 1987.

Course Outcomes :

Upon successful completion of this course, students will be able to

- CO1:** test the concepts of convergency and divergency of a series
- CO2:** acquire a complete knowledge of Binomial, Exponential and Logarithmic series and their application in summation of infinite series
- CO3:** transform and solve algebraic equations with ease.
- CO4:** find curvature of curves and distinguish the significance of curvature representation in different co-ordinate systems.
- CO5:** know the underlying principles of Double, Triple Integrals, their applications.
- CO6:** acquire skill in comprehending and applying the results of improper integrals.

	PO1	PO2	PO3	PO4	PO5	Knowledge Level
CO1	H	M	M	H	H	U
CO2	H	M	L	H	H	K
CO3	H	H	H	H	H	A
CO4	H	H	H	H	H	U
CO5	H	H	H	H	H	K
CO6	H	H	L	M	M	A

Course Designed by : A.ANIS FATHIMA

Course Reviewed by : N.RAJESWARI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester I

Part III – Core II – DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS

117M02

[For students admitted from the academic year 2017 – 2018 onwards]

65 Hours

The objectives of this course are

- to expose the students to various methods of solving Ordinary and Partial differential equations.
- to equip the students with the knowledge of Laplace transformation and its application in solving differential equations.

Unit I**(13 Hours)**

Differential Equations: Differential equations of the first order: Equations of the first order, but of higher degree: Equations solvable for dy/dx – Equations solvable for y – Equations solvable for x (particular cases of 5.2) – Clairaut's form – Extended form of Clairaut's Equations – Equations that do not contain x explicitly – Equations that do not contain y explicitly – Equations homogeneous in x and y .

Chapter 1: Sections 5.1 - 5.5, 6.1, 6.2, 7.1 - 7.3

Unit II**(13 Hours)**

Linear Differential Equations with Constant Coefficients: Solving $(d^n y / dx^n) + a_1(d^{n-1} y / dx^{n-1}) + a_2(d^{n-2} y / dx^{n-2}) + \dots + a_n y = X$, when X is of the form $e^{ax} V$, V is any function of x – Linear differential equations with variable coefficients – Equations reducible to the linear homogeneous equation.

Chapter 2: Sections 4(d), 8, 9

Unit III**(13 Hours)**

Simultaneous Differential Equations: Simultaneous equations of the first order and first degree – Solutions of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ – Methods for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ – Simultaneous linear differential equations with constant coefficients.

Chapter 3: Sections 1 - 4, 6

Unit IV**(13 Hours)**

Partial Differential Equations: Derivation of Partial Differential Equations – Different integrals of Partial differential equations (definition only) – Standard types of first order equations – Lagrange's equation.

Chapter 4: Sections 1 - 3, 5, 6

Unit V**(13 Hours)**

The Laplace Transforms: Definition – Results from the definition – Laplace transforms of periodic functions – Some general Theorems – Evaluation of certain integrals using Laplace transforms – The inverse transforms – Solving second order differential equations with constant coefficients using Laplace transforms.

Chapter 5: Sections 1 – 8.

Book for Study:

S.Narayanan and T.K.Manicavachagom Pillay, Calculus (Major) Volume III,
S.Viswanathan (Printers and Publishers) Pvt. Ltd, Reprint 2014.

Books for Reference:

1. Ervin Kreyszig, Advanced Engineering Mathematics, Wiley Eastern Ltd., 8th edition, 2006.
2. George .F.Simmons, Differential Equations with applications and Historical notes, McGrawHill, Inc, 2nd Edition 1991.

Course Outcomes

Upon successful completion of this course, students will be able to

CO1: know various methods of solving first order and higher degree differential equations

CO2: Solve the linear differential equations with constant coefficients, variable coefficients and simultaneous differential equations

CO3: solve the first order partial differential equations

CO4: apply Laplace transform to solve differential equations.

	PO 1	PO 2	PO 3	PO 4	PO 5	Knowledge Level
CO1	H	H	L	L	M	K
CO 2	H	H	M	L	H	U
CO 3	H	H	M	M	H	A
CO 4	H	H	M	M	M	A

Course Designed by : A.ANIS FATHIMA

Course Reviewed by : P.JAYALAKSHMI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester II

Part III – Core III – ANALYTICAL GEOMETRY

217M03

[For students admitted from the academic year 2017 – 2018 onwards]

65 Hours

The primary objectives of introducing this course are

- to understand the mathematical representation of the geometrical figures.
- to give a training for visualizing ideas in two and three dimensions.
- to give an in-depth knowledge in three dimensional figures to understand graphic concepts.
- To make the students visualize the concepts using GeoGebra.

Unit I

(13 Hours)

Polar coordinates.

Book 1: Chapter 10

Unit II

(13 Hours)

Planes: First degree equation–Equations of planes – General form of the equation of a plane passing through (x_1, y_1, z_1) – Equations of different planes – Intercept form of equation of a plane – coplanarity of three lines through a point – Loci related to x, y, z intercepts – Equation $P + \lambda P' = 0$. Simple Geometric figures using GeoGebra.

Book 2: Chapter 3: Sections 3.1 - 3.5

Unit III

(13 Hours)

Straight Lines: Equations of a straight line – Equations of the line of intersection of two planes – Conditions for various situations of a line with reference to a plane – Plane through a given line – Coplanarity of two straight lines – Shortest distance between two skew lines – Equations of the common perpendicular – Feet of the common perpendicular. Simple Geometric figures using GeoGebra.

Book 2 : Chapter 4: Sections 4.1 - 4.3, 4.6, 4.9 - 4.11

Unit IV

(13 Hours)

Sphere: Equation of a sphere – Standard equation of a sphere – Sphere on a given diameter – Results based on properties of a sphere – Tangent plane to a sphere – Loci related to x, y, z intercepts (continued) – Equations of a circle – Centre and radius of a circle – Family of spheres through a circle – Touching spheres – Point of contact of touching spheres. Simple Geometric figures using GeoGebra.

Book 2 : Chapter 5: Sections 5.1 - 5.5.2

Unit V

(13 Hours)

Cone and Cylinder: Cone – Right Circular cone – Equation of a general cone – Surface represented by a homogeneous equation – Equation obtained by homogenizing – Nature of a Quadric cone with vertex at the origin – Intersection of a cone by a plane through the vertex – General second degree cone. Simple Geometric figures using GeoGebra.

Book 2 : Chapter 6: Sections 6.1 - 6.5

Books for Study:

Book 1 : For unit I : P.Duraipandian, Kayalal Pachaiyappa, Analytical Geometry (2–D), Muhil Publishers, 2010.

Book 2 : For units II-V : P.Duraipandian, Kayalal Pachaiyappa, Analytical Geometry (3–D), Muhil Publishers, 2009.

Books for Reference:

1. T.K.Manickavasagam Pillai, T.Natarajan, A text book of Analytical Geometry (Part I–Two Dimensions), S.Viswanathan (printers and publishers), Pvt.,Ltd., 2010.
2. T.K.Manickavasagam Pillai and others, Analytical Geometry (Three dimensional), Viswanathan Publications, 2010.

Course Outcomes:

Upon successful completion of this course, students will be able to

CO1: use polar coordinates to represent straight lines, circles and conics

CO2: understand the basic concepts of direction ratios and direction cosines, planes and lines in three dimensions.

CO3: know about the various aspects of sphere and section of a sphere.

CO4: identify the equations of cone and cylinder and obtain them.

CO5: use GeoGebra to draw Geometric figures.

	PO 1	PO 2	PO 3	PO 4	PO 5	Knowledge Level
CO1	H	H	L	L	M	U
CO 2	H	H	M	L	H	A
CO 3	H	H	M	M	H	K
CO 4	H	H	M	M	M	A
CO 5	H	H	M	H	M	A

Course Designed by : T.VANJIKKODI

Course Reviewed by : B.KALAISELVI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester II

Part III – Core IV – NUMERICAL METHODS 217M04

[For students admitted from the academic year 2017 – 2018 onwards]

65 Hours

Objectives of introducing this course are

- to teach the various numerical methods of solving Numerical, Algebraic and Transcendental equations.
- to introduce interpolation techniques and their applications to real life situations.
- to give them a knowledge about the quadrature formulae and their applications.

Unit I (13 Hours)

The solution of Numerical, Algebraic and Transcendental Equation: The Bisection method – Regula-Falsi method – Newton-Raphson method. Solution of Simultaneous Linear Algebraic Equations: Introduction – Gauss-Elimination Method – Gauss-Jordan elimination method – Iterative methods – Gauss-Jacobi method – Gauss-Seidel method of iteration.

Chapter 3: Sections 3.1.1, 3.3, 3.4 Chapter 4: Sections 4.1, 4.2, 4.2.1, 4.7 - 4.9

Unit II (13 Hours)

Finite Differences: First difference – Express any value of y in term of y_n and the backward differences of y_n – Differences of a polynomial – Factorial polynomial – Error propagation in a difference table. Interpolation(for Equal Intervals) : Introduction – Linear Interpolation or method of proportional parts – Gregory-Newton forward Interpolation formula – Gregory-Newton backward Interpolation Formula.

Chapter 5: Sections 5.1 - 5.5, Chapter 6: Sections 6.1 - 6.3.

Unit III (13 Hours)

Central Difference Interpolation formulae (For Equal Intervals): Central differences and central difference table – Central difference interpolation formula – Gauss's forward Interpolation formula – Gauss's backward interpolation formula – Stirling's formula – Bessel's formula.

Chapter 7: Sections 7.1 - 7.6

Unit IV**(13 Hours)**

Interpolation with Unequal Intervals: Introduction – Divided differences – Properties of divided differences – Relation between divided differences and forward differences – Theorem: Newton's interpolation formula for unequal intervals – Deduction: Deduce Gregory Newton interpolation forward formula for equal intervals – Lagrange's interpolation formula (for unequal intervals).

Chapter 8: Sections 8.1 - 8.7

Unit V**(13 Hours)**

Numerical differentiation and Integration: Introduction – Newton's forward difference formula to get the derivative – Newton's backward difference formula to compute the derivative – Derivative using Stirling's formula – Caution – To find maxima and minima of the function given the tabular values. Numerical Integration: Introduction – A general Quadrature formula for equidistant ordinates – Trapezoidal rule – Simpson's one-third rule – Simpson's three-eighths rule.

Chapter 9: Sections 9.1 - 9.9, 9.13 and 9.14

Book for Study:

Dr.P.Kandasamy, Dr. K.Thilagavathy and Dr. K.Gunavathi, Numerical Methods, S. Chand & Company limited, Third Revised Edition Reprint (2016).

Books for Reference:

1. Dr.M.K.Venkataraman, Numerical Methods in Science and Engineering, National Publishing Company, fifth edition, 1995.
2. H.C.Saxena, Finite differences and Numerical Analysis, S. Chand & Company limited, New Delhi, 2001.

Course Outcomes

Upon successful completion of this course, students will be able to

CO1: solve system of equations by Direct and Iteration methods.

CO2: use different types of difference operators.

CO3: solve physical problems using different types of operators.

CO4: find derivatives of functions using various interpolation methods.

CO5: integrate functions using numerical techniques.

	PO 1	PO 2	PO 3	PO 4	PO 5	Knowledge Level
CO1	H	H	M	L	M	A
CO2	H	H	M	L	H	A
CO3	H	H	M	M	H	A
CO4	H	H	M	M	M	A
CO5	H	H	M	H	M	A

Course Designed by : T.VANJIKKODI

Course Reviewed by : R.ANGEL JOY

Course Checked by : S.KALAISELVI

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Mathematics
B.Sc. Mathematics

Scheme of Examination-CBCS Pattern

[For students admitted from the academic year 2015-2016 & 2016-2017 only]

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
115TA1/ 115MY1 /115HD1/ 115FR1 115EN1 115M01 115M02 115AM1 115EVS	Semester I Part I: Language I	6	3	25	75	100	4
	Part II: English I	6	3	25	75	100	4
	Part III: Core I: Algebra and Calculus	5	3	25	75	100	4
	Core II: Differential Equations and Laplace Transforms	5	3	25	75	100	4
	Allied I : Physics I	6	3	25	50	75	3
	Part IV: Environmental Studies	2	2	50	-	50	2
215TA2/ 215MY2/ 215HD2/ 215FR2 215EN2 215M03 215M04 215AM2 215AMP 215VEC	Semester II Part I: Language II	6	3	25	75	100	4
	Part II: English II	6	3	25	75	100	4
	Part III: Core III: Analytical Geometry	5	3	25	75	100	4
	Core IV: Numerical Methods	5	3	25	75	100	4
	Allied II: Physics II	4	3	25	50	75	3
	Allied Physics Practical	2	3	20	30	50	2
	Part IV: Value Education	2	2	50	-	50	2

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
315TA3/ 315MY3/ 315HD3 /315FR3 315EN3 315M05 315M06 315AM3 315NMC 315MS1	Semester III Part I: Language III	6	3	25	75	100	4
	Part II: English III Part III:	6	3	25	75	100	4
	Core V: Vector Calculus and Fourier Series	3	3	25	50	75	3
	Core VI: Statics	4	3	25	75	100	4
	Allied III: Principles of Accountancy	6	3	25	75	100	4
	Part IV: NME - Basic Mathematics for Competitive Examinations	2	2	50	-	50	2
	Skill Based Course I: Graph Theory-I: Introductory Concepts	3	3	75	-	75	3
415TA4/ 415MY4/ 415HD4/4 15FR4 415EN4 415M07 415M08 415AM4 415NGA 415MS2 415GIS 415MA1/ 415MA2	Semester IV Part I: Language IV	6	3	25	75	100	4
	Part II: English IV Part III:	6	3	25	75	100	4
	Core VII: Discrete Mathematics	3	3	25	50	75	3
	Core VIII: Dynamics	4	3	25	75	100	4
	Allied IV: Mathematical Statistics	6	3	25	75	100	4
	Part IV: General Awareness (Online)	-	1	50	-	50	2
	Skill Based Course II: Graph Theory- II: Paths and Trees	3	3	75	-	75	3
	Information Security	2	2	50	-	Grade	Grade
	Advanced Learners Course I : Combinatorics / Statistical Quality Control	-	3	-	100	100	4*

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III:						
515M09	Core IX: Real Analysis I	6	3	25	75	100	4
515M10	Core X: Complex Analysis I	5	3	25	75	100	4
515M11	Core XI: Abstract Algebra	5	3	25	75	100	4
515M12	Core XII: Group Project	5	–	–	100	100	4
515ME1	Elective I: Programming in C						
	(Theory)	6	3	25	75	100	4
515MS3	Part IV: Skill Based Course III : Graph Theory- III: Planar Graphs and Colouring of Graphs	3	3	75	-	75	3
	Semester VI						
	Part III:						
615M13	Core XIII: Real Analysis II	5	3	25	75	100	4
615M14	Core XIV: Complex Analysis II	5	3	25	75	100	4
615M15	Core XV: Linear Algebra	5	3	25	75	100	4
615ME2	Elective II: Operations Research	6	3	25	75	100	4
615ME3	Elective III: Computational Mathematics Laboratory						
	(Scilab and C Practical)	6	3	40	60	100	4
615MS4	Part IV: Skill Based Course IV: Internship	3	-	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V : Extension Activity	-	-	50	-	50	2
615MA3/ 615MA4	Advanced Learners Course II : Mathematics in Insurance / Introduction to wavelet theory	-	-	-	100	100	4*
Total						3500	140

*Starred credits are treated as additional credits.

B.Sc. Mathematics

Semester V

Part III – Core IX – REAL ANALYSIS – I

515M09

[For students admitted during the academic year 2015-2016 and 2016-2017 only and onwards]

75 Hours

The objectives of this course are

- to provide a smooth transition from elementary calculus to advanced topics in the theory of real variables.
- to expose the properties of limit and continuity which are indispensable to the study of subjects such as optimization theory.
- to study the functional relationships between the variables which have more applications in expressing the laws of physics, chemistry, mechanics etc.

Unit I

(15 Hours)

The real and complex number systems: Introduction – The field axioms – The order axioms – Geometric representation of real numbers – Intervals – Integers – The unique factorization theorem for integers – Rational numbers – Irrational numbers – Upper bounds, maximum element, least upper bound – The completeness axiom – Some properties of the supremum – Properties of the integers deduced from the completeness axiom – The Archimedean property of the real number system – Rational numbers with finite decimal representation – Finite decimal approximations to real numbers – Infinite decimal representation of real numbers – Absolute values and the triangle inequality – The Cauchy-Schwarz inequality – Plus and minus infinity and the extended real number system \mathbb{R} – Simple problems.

Chapter 1: Sections 1.1 - 1.20

Unit II

(15 Hours)

Some basic notations of set theory: Introduction – Notations – Ordered pairs – Cartesian product of two sets – Relations and functions – Further terminology concerning functions – One to one functions and inverses – Composite functions Sequences – Similar sets – Finite and infinite sets – Countable and uncountable sets – Uncountability of the real number system – Set algebra – Countable collections of countable sets – Simple problems.

Chapter 2: Sections 2.1 - 2.15

Unit III

(15 Hours)

Elements of point set Topology: Introduction – Euclidean space \mathbb{R}^n – Open balls and open sets in \mathbb{R}^n – The structure of open sets in \mathbb{R}^1 – Closed sets – Adherent points, Accumulation points – Closed sets and adherent points – The Bolzano-Weierstrass theorem – The Cantor intersection theorem.

Chapter 3: Sections 3.1 - 3.9

Unit IV

(15 Hours)

Elements of point set Topology: The Lindelöf covering theorem – The Heine-Borel covering theorem – Compactness in \mathbb{R}^n – Metric Spaces – Point set Topology in metric spaces – Compact subsets of a metric space – Boundary of a set – Simple problems.

Chapter 3: Sections 3.10 - 3.16

Unit V

(15 Hours)

Limits and Continuity : Introduction – Convergent sequences in a metric space – Cauchy sequences – Complete metric spaces – Limit of a function – Limits of complex-valued functions – Limits of vector valued functions – Continuous functions – Continuity of composite functions – Continuous complex valued and vector valued functions – Examples of continuous functions – Continuity and inverse images of open or closed sets – Functions continuous on compact sets – Topological mappings – Bolzano's theorem.

Chapter 4: Sections 4.1 - 4.15

Book for Study:

Tom M.Apostol, Mathematical Analysis, Second Edition, Narosa Publishing House, Twentieth Reprint 2002.

Books for Reference:

1. Walter Rudin, Principles of Mathematical Analysis, Third Edition, McGraw Hill, 1976.
2. Robert G.Bartle, Donald R.Sherbert, Introduction to Real Analysis, Johnwiley & Sons INC 1982.
3. M.S.Rangachari, Source book on 'Real Analysis part I, New Century Book House (P) Ltd, 1996.
4. G.Rangan, Source book on 'Real Analysis part II, New Century Book House (P) Ltd, 1998.
5. Arumugam, Isaac, Modern Analysis, New Gamma Publishing House, 1994.

Course Designed by : N.JEYANTHI

Course Reviewed by : M. THAMILSELVI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester V

Part III – Core X – COMPLEX ANALYSIS – I

515M10

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

65 Hours

The objectives of this course are

- to enable the students to understand the important concepts such as continuity, differentiability and analyticity of complex function with simple illustrations.
- to acquire a deeper knowledge about transformations and power series.

Unit I

(13 Hours)

Complex Numbers: Introduction – Complex Numbers – Conjugation and Modulus – Inequalities – Square Root – Geometrical Representation of Complex Numbers – n^{th} Roots of Complex Numbers – Circles and Straight Lines – Regions in the Complex Plane – The Extended Complex Plane.

Chapter 1: Sections 1.0 - 1.9

Unit II (13 Hours)

Analytic Functions: Introduction – Functions of a Complex variable – The Cauchy-Riemann Equations – Analytic Functions – Harmonic Functions – Conformal mapping.

Chapter 2: Sections 2.0, 2.1, 2.6 - 2.9

Unit III (13Hours)

Bilinear transformations: Introduction – Elementary Transformations – Bilinear Transformations – Cross Ratio – Fixed points of Bilinear Transformations – Some special Bilinear Transformations.

Chapter 3: Sections 3.0 - 3.5

Unit IV (13 Hours)

Power Series: Introduction – Sequences and Series – Sequences and Series of Functions – Power Series–Elementary Functions.

Chapter 4: Sections 4.0 - 4.4

Unit V (13 Hours)

Mapping by Elementary Functions: Introduction – The Mappings $\omega = z^2$, $\omega = z^n$ where n is a positive integer, $\omega = e^z$, $\omega = \sin z$, $\omega = \cos z$, $\omega = \cosh z$, $\omega = \frac{1}{2}\left(z + \frac{1}{z}\right)$.

Chapter 5: Sections 5.0 - 5.7

Book for Study:

S.Arumugam, A.Thangapandi Isaac, A.Somasundaram, Complex Analysis, Scitech publications (India) Pvt ltd, Reprint 2012.

Books for Reference:

1. V.Karunakaran, Complex Analysis, Narosa Publishing House, 2002.
2. P.Duraipandian, Laxmi Duraipandian and D.Muhilan, Complex Analysis, Emerald publishers, Revised edition Reprint 2006.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester V

Part III – Core XI – ABSTRACT ALGEBRA

515M11

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

65 Hours

The objectives of this course are

- to introduce different algebraic structures like groups, rings and fields
- to gain deep knowledge in the structure preserving mappings like homomorphism, isomorphism etc.

Unit I (13Hours)

Preliminary Notions: Mappings – The integers (unique factorization theorem statement only). Group Theory: Definition of a Group – Some Examples of Groups – Some preliminary Lemmas – Sub groups – Simple problems.

Chapter 1: Sections 1.2, 1.3, Chapter 2: Sections 2.1 - 2.4

Unit II (13Hours)

Group Theory: A Counting principle – Normal subgroups and quotient groups – Homomorphisms – Simple problems.

Chapter 2: Sections 2.5 - 2.7

Unit III (13Hours)

Group theory: Automorphisms – Cayley's theorem – Permutation groups – Simple problems.

Chapter 2: Sections 2.8 - 2.10

Unit IV (13Hours)

Ring Theory: Definitions and examples of rings – Some special classes of rings – Homomorphisms – Ideals and quotient rings – Simple problems.

Chapter 3: Sections 3.1 - 3.4

Unit V (13Hours)

Ring Theory: More ideals and quotient rings – The field of quotients of an integral domain – Euclidean rings – Simple problems.

Chapter 3: Sections 3.5 - 3.7

Book for Study:

I.N. Herstein, Topics in Algebra, Second Edition, Wiley India pvt limited, Reprint 2015.

Books for Reference:

1. P.B.Bhattacharya, S.k.Jain, S.R.Nagpoul, Basic Abstract Algebra, Second Edition, Cambridge University press, Reprint 2004.
2. John B. Fraleigh, A First Course in Abstract in Algebra, Fifth printing 2003, Addition Wesley Publishing Company.

Course Designed by : M.THAMILSELVI

Course Reviewed by : N. JEYANTHI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester V

Part III – Core XII – GROUP PROJECT

515M12

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

65 Hours

A project work has to be carried out in an emerging area which is not covered in the syllabus and a report prepared by a group of students must be submitted. Viva-voce examination will be conducted.

The objectives of this course are to

- create awareness of applications of Mathematics in physical, chemical and social sciences.
- develop, practice, and improve group communication skills.
- apply effective research and organizational skills in preparing information.
- plan and manage time.
- refine understanding through discussion and explanation.
- tackle more complex problems than they could on their own.
- pool knowledge and skills.

B.Sc. Mathematics
Semester V
Part III – Elective I – PROGRAMMING IN C
(Theory)

515ME1

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

75 Hours

The objectives of this course are

- to introduce the basics of programming.
- to improve the logical thinking.
- to imbibe confidence to develop programs for solving problems in mathematical and physical sciences.

Unit I

(15 Hours)

Constants, Variables and Data types: Introduction – Character set – C tokens – Keywords and Identifiers – Constants – Variables – Data types – Declaration of variables – Declaration of storage class – Assigning values to variables – Defining symbolic constants – Declaring a variable as constant – Declaring a variable as Volatile. Operators and Expressions: Introduction – Arithmetic operators – Relational operators – Logical operators – Assignment operators– Increment and decrement operators – Conditional operator – Bitwise operators – Special operators – Arithmetic expressions – Evaluation of expressions – Precedence of Arithmetic operators – Some computational problems – Type conversions in expressions – Operator precedence and associativity – Mathematical functions.

Chapter 2: Sections 2.1 - 2.13, Chapter 3

Unit II

(15 Hours)

Managing Input and Output operations: Introduction – Reading a Character – Writing a Character – Formatted Input – Formatted Output. Decision making and Branching: Introduction – Decision making with IF statement – Simple IF statement – The IF...ELSE statement – Nesting of IF...ELSE statements – The ELSE IF ladder – The Switch statement – The ?: operator – The GOTO statement.

Chapter 4 and Chapter 5

Unit III (15 Hours)

Decision making and looping: Introduction – The WHILE statement – The DO statement – The FOR statement – Jumps in loops. Arrays: Introduction – One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays – Two-dimensional arrays – Initializing Two-dimensional arrays – Multi-dimensional arrays.

Chapter 6: Sections 6.1- 6.5, Chapter 7: Sections 7.1 - 7.7

Unit IV (15 Hours)

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – Arithmetic operations on characters – Putting strings together – Comparison of two strings – String handling functions. User-Defined functions : Introduction – Need for user defined functions – A multi- function program – Elements of user defined functions – Definition of functions – Return values and their types – Function calls – Function declaration – Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns a value – Functions that return multiple values.

Chapter 8: Sections 8.1 - 8.8, Chapter 9: Sections 9.1 - 9.14

Unit V (15 Hours)

User - Defined functions: Nesting of functions – Recursion – Passing arrays to functions – Passing strings to functions – The scope, visibility and lifetime of variables. Structures and Unions: Introduction – Defining a Structure – Declaring Structure variables – Accessing Structure members – Structure Initialization – Copying and Comparing Structure variables – Operations on Individual members – Arrays of Structures – Arrays within Structures – Structures within Structures – Structures and Functions – Unions.

Chapter 9: Sections 9.15 - 9.19, Chapter 10: Sections 10.1 - 10.12

Book for Study:

E.Balagurusamy, Programming in ANSI 'C', McGraw Hill Education Private Limited, Sixth Edition, Fifth reprint 2013.

Books for Reference:

1. Henry Mullish and Herbert L. Cooper, The Spirit of 'C' – An Introduction to modern Programming, Jaico publishing house 2006.
2. Harvey Deitel & Paul J.Deitel,C: How to program, Pearson Education Inc, 6th Edition 2010.

E - resource

Spoken Tutorial Project (Programming with C) as e-Resource for Learning – IIT, Mumbai under National Mission on Education through ICT, MHRD, Govt. of India.

Course Designed by : N.RAJESWARI

Course Reviewed by : P.PADMAVATHI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester VI

Part III – Core XIII – REAL ANALYSIS – II

615M13

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

65 Hours

The objectives of this course are

- to impart knowledge and understanding in the advanced topics such as Riemann-Stieltjes integral, Functions of bounded variables.
- to know the applications of the ideas that are being studied in differentiation to integral equations, differential equations and function spaces.

Unit I (13 Hours)

Limits and Continuity: Connectedness – Components of a metric space – Arcwise connectedness – Uniform continuity – Uniform continuity and compact sets – Fixed point theorem for contractions – Discontinuities of real valued functions – Monotonic functions – Simple problems.

Chapter 4: Sections 4.16 - 4.23

Unit II (13 Hours)

Derivatives: Introduction – Definition of derivative – Derivatives and continuity – Algebra of derivatives – The chain rule – One sided derivatives and infinite derivatives – Functions with nonzero derivative – Zero derivatives and local extrema – Rolle's theorem – The Mean-Value theorem for derivatives – Intermediate value theorem for derivatives – Taylor's formula with remainder – Simple problems.

Chapter 5: Sections 5.1 - 5.12

Unit III (13 Hours)

Functions of bounded variation and Rectifiable curves: Introduction – Properties of Monotonic functions – Functions of bounded variation – Total Variation – Additive property of Total Variation – Total Variation on $[a, x]$ as a function of x – Functions of bounded variation expressed as the difference of increasing functions – Continuous functions of bounded variation.

Chapter 6: Sections 6.1 - 6.8

Unit IV (13 Hours)

The Riemann-Stieltjes integral: Introduction – Notation – The definition of the Riemann-Stieltjes integral – Linear Properties – Integration by parts – Change of Variable in a Riemann-Stieltjes integral – Reduction to a Riemann integral – Step functions as integrators – Reduction of a Riemann-Stieltjes integral to a finite sum – Euler's summation formula – Simple problems.

Chapter 7: Sections 7.1 - 7.10

Unit V (13 Hours)

The Riemann-Stieltjes integral: Monotonically increasing integrators. Upper and Lower integrals – Additive and linearity properties of upper and lower integrals – Riemann's

condition – Comparison theorems – Integrators of bounded variation – Sufficient conditions for existence of Riemann-Stieltjes integral – Necessary conditions for existence of Riemann-Stieltjes integral – Simple problems.

Chapter 7: Sections 7.11 - 7.17

Book for Study:

Tom M.Apostol, Mathematical Analysis, Second Edition, Narosa Publishing House, Twentieth Reprint 2002.

Books for Reference:

1. Walter Rudin, Principles of Mathematical Analysis, Third Edition, McGraw Hill, 1976.
2. Robert G.Bartle, Donald R.Sherbert, Introduction to Real Analysis, John Wiley & Sons INC 1982.
3. M.S.Rangachari, Source book on 'Real Analysis' Part I, New Century Book House (P) Ltd, 1996.
4. G.Rangan, Source book on 'Real Analysis' Part II, New Century Book House (P) Ltd, 1998.
5. Arumugam, Isaac, Modern Analysis, New Gamma Publishing House, 1994.

Course Designed by : N.JEYANTHI

Course Reviewed by : S.KALAISELVI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester VI

Part III – Core XIV – COMPLEX ANALYSIS II 615M14

[For students admitted during the academic year 2015-2016 and 2016-2017 only wards]

65 Hours

The objectives of this course are

- to comprehend the fundamental concepts of complex analysis as well as the techniques of applying it to problems in mathematics and physics.
- to examine the analytic functions of complex variables which are closely connected in solving Laplace equation, to which numerous problems of mechanics and physics reduce.

Unit I (13 Hours)

Complex Integration: Introduction – Definite integral – Cauchy's Theorem.

Chapter 6: Sections 6.0 - 6.2

Unit II (13 Hours)

Complex Integration: Cauchy's Integral Formula – Higher Derivatives.

Chapter 6: Sections 6.3 and 6.4

Unit III (13 Hours)

Series Expansions: Introduction – Taylor's Series – Laurent's Series.

Chapter 7: Sections 7.0 - 7.2

Unit IV (13 Hours)

Series Expansions: Zeros of an Analytic function – Singularities.

Calculus of Residues: Introduction – Residues.

Chapter 7: Sections 7.3 and 7.4. Chapter 8: Sections 8.0 and 8.1

Unit V (13 Hours)

Calculus of Residues: Cauchy's Residue Theorem – Evaluation of Definite Integrals.

Chapter 8: Sections 8.2 and 8.3

Book for Study:

S.Arumugam, A.Thangapandi Isaac, A. Somasundaram, Complex Analysis, Scitech Publications (India) Pvt ltd, Reprint 2012.

Books for Reference:

1. V.Karunakaran, Complex Analysis, Narosa Publishing House, 2002.
2. P.Duraipandian, Laxmi Duraipandian and D.Muhilan, Complex Analysis, Emerald publishers, Revised edition Reprint 2006.

Course Designed by : R.ANGEL JOY

Course Reviewed by : N.JEYANTHI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics
Semester VI

Part III – Core XV – LINEAR ALGEBRA

615M15

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

65 Hours

The objectives of this course are

- to introduce a new algebraic structure, vector space and its concepts like linear dependence, basis, dimension etc., which have wide applications in many branches of mathematics.
- to distinguish between the vector space and the algebraic structures groups and rings.
- to introduce many types of matrices which are useful for representing problems in an efficient way.
- to infer the relationship between the linear transformation in vector spaces and matrices.

Unit I (13 Hours)

Vector Spaces and Modules: Elementary basic concepts – Linear Independence and bases – Simple problems.

Book 1: Chapter 4: Sections 4.1 and 4.2

Unit II (13 Hours)

Vector Spaces and Modules: Dual spaces – Inner product spaces – Simple problems.

Book 1: Chapter 4: Sections 4.3 and 4.4

Unit III (13 Hours)

Linear Transformations: The Algebra of Linear Transformations – Characteristic Roots – Matrices – Simple problems.

Book 1: Chapter 6: Sections 6.1 - 6.3

Unit IV (13 Hours)

Linear Transformations: Hermitian, Unitary and Normal Transformations – Simple problems.

Book 1: Chapter 6: Section 6.10

Unit V (13 Hours)

Matrices: Symmetric and Skew-Symmetric matrices – Hermitian and Skew-Hermitian matrices – Orthogonal and Unitary matrices.

Linear Transformations of Vector spaces: Characteristic Roots and Characteristic Vectors of a square matrix.

Book 2: Chapter 1: Sections 1.7 - 1.9. Chapter 3: Section 3.9

Books for Study:

Book 1: For Units I to IV: I.N. Herstein, Topics in Algebra, Wiley India Pvt. Ltd, Reprint 2015.

Book 2: For Unit V : R. Balakrishnan and N. Ramabhadran, A Text Book of Modern Algebra, Vikas Publishing House Pvt Ltd, Third edition, 1979.

Books for Reference:

1. Surjeet Singh and Qazi Zameerudin, Modern Algebra, Vikas Publishing House, Third Edition, 1979.
2. R.S. Aggarwal, A Text book in Modern Algebra, S.Chand and company Ltd, New Delhi, 1996.

Course Designed by : T.VANJIKKODI

Course Reviewed by: B.KALAISELVI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester VI

Part III – Elective II – OPERATIONS RESEARCH 615ME3

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

75 Hours

The prime objectives for introducing this course are:

- to give practical training in converting a managerial decision making problem to a linear programming problem.
- to gain knowledge on techniques for solving linear programming problem.
- to develop logical reasoning in sequencing in a network to trace the shortest route.

- to develop knowledge in basic techniques to deal with inventory.

Unit I (15 Hours)

Linear Programming Problem: Graphical solution and Extension: Introduction – Graphical solution method– Some exceptional cases – General linear programming problem – Canonical and standard forms of L.P.P.

Linear programming problem – Simplex method: Introduction – Fundamental properties of solutions – The computational procedure – Use of artificial variables.

Chapter 3: Sections 3.1 - 3.5, Chapter 4: Sections 4.1 - 4.4

Unit II (15 Hours)

Duality in Linear Programming: Introduction – General Primal – Dual pair – Formulating a dual problem – Primal – Dual pair in matrix form – Duality and Simplex method – Dual Simplex method. Transportation Problem: Introduction – LP formulation of the transportation problem – Existence of Solution in T.P – Duality in transportation problem – The transportation table – Loops in transportation tables – Triangular basis in a T.P – Solution of a transportation problem – Finding an initial basic feasible solution – Test for optimality – Economic Interpretation of u_j 's and v_j 's – Degeneracy in transportation problem – Transportation algorithm [MODI method].

Assignment Problem: Introduction – Mathematical formulation of the problem – Solution Methods of Assignment Problem.

Chapter 5: Sections 5.1 - 5.4, 5.7, 5.9, Chapter 10: Sections 10.1 - 10.13

Chapter 11: Sections 11.1 - 11.3

Unit III (15 Hours)

Games and Strategies: Introduction – Two-person zero-sum games – Some basic terms – The Maximin-Minimax principle – Games without saddle points – Mixed strategies – Graphic solution of $2 \times n$ and $m \times 2$ games.

Chapter 17: Sections 17.1 - 17.6

Unit IV (15 Hours)

Inventory Control I: Introduction – Types of Inventories – Reasons for carrying Inventories – The inventory decisions – Objectives of Scientific Inventory Control – Costs associated with inventories – Factors affecting inventory control – An Inventory Control Problem – The Concept of EOQ – Deterministic inventory problems with No shortages – Deterministic inventory problems with shortages – Problems of EOQ with Price Breaks.

Chapter 19: Sections 19.1 - 19.12

Unit V (15 Hours)

Network Scheduling by PERT/CPM: Introduction – Network: Basic Components – Logical Sequencing – Rules of Network Construction – Concurrent Activities – Critical path analysis – Probability considerations in PERT – Distinction between PERT and CPM.

Chapter 25: Sections 25.1 - 25.8

Note: Statement of the theorems and algorithms are included.

Book for Study:

Kanti Swarup, P.K Gupta, Man Mohan, Operations Research, Sultan Chand & Sons, New Delhi, Fifteenth Edition, Reprint 2010.

Books for Reference:

1. J.K.Sharma, Operations Research: Theory and Applications, MacMillan India Ltd, Second Edition, 2003.
2. Hamdy A. Taha, Operations Research: An Introduction, Macmillan Publishing Company, Eighth Edition, 2008.

Course Designed by : P.PADMAVATHI

Course Reviewed by : N.RAJESWARI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics**Semester VI****Part III – Elective III – COMPUTATIONAL MATHEMATICS LABORATORY
(Scilab and C Practical) 615ME5**

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

75 Hours

The objective of this course is to

- develop the logical and programming skills.
- provide hands on training in executing programs.

Programming in C – List of Programs

1. Finding sum, average, standard deviation for a given set of numbers.
2. Printing Fibonacci series.
3. Prime number checking.
4. Finding roots of a Quadratic Equation.
5. Finding the product of two matrices.
6. Finding the factorial of a number using recursion.
7. Finding whether a string is PALINDROME or not.
8. Arranging strings in alphabetical order.
9. Counting tabs, number of lines, characters and blank spaces in a given text.
10. Reading and Printing personal information using structures.

Scilab – List of Programs

1. Solving a system of linear Equations.
2. Arithmetic operations on arrays.
3. Drawing 2D and 3D plots.
4. Finding derivatives and integrals of polynomials
5. Creating a structure for an employee data base containing employee code, name, designation and salary.
6. A function subprogram to calculate the compound interest, given the initial amount, time period of deposit, rate of interest and time of compounding.

7. Program to process the applications for admission to an engineering college and to list the candidates eligible for admission based on the following conditions:
 - (a) Marks in Maths ≥ 60
 - (b) Marks in Physics ≥ 55
 - (c) Marks in Chemistry ≥ 55
 - (d) Total marks ≥ 180
8. Program to reverse the digits of a number having minimum three digits.
9. Program to solve first order Ordinary Differential Equations.
10. Solving Linear Programming Problem.

Course Designed by : N.RAJESWARI

Course Reviewed by : S.KALAISELVI

Course Checked by : S.KALAISELVI

B.Sc. Mathematics

Semester VI

Part IV – Skill Enhancement Course IV: INTERNSHIP 615MS4

[For students admitted during the academic year 2015-2016 and 2016-2017 only]

35 Hours

The students have to select a concern/industry and take up practical training in any area related to the courses they have studied for a period of 10 days and a report has to be submitted and viva voce examination will be conducted

The objectives of internship are

- to open up a pathway to enter into a job.
- to provides awareness about the applications on Mathematics in real life.
- to instill confidence to meet people and interact with them.
- to establishes a proactive industry institute relationships.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Mathematics
B.Sc. Mathematics
 Scheme of Examination-CBCS Pattern

[For students admitted from the academic year 2015-2016 onwards]

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
115TA1/ 115MY1/ 115HD1/ 115FR1 115EN1	Semester I Part I: Language I	6	3	25	75	100	4
115EN1	Part II: English I	6	3	25	75	100	4
115M01 115M02	Part III: Core I: Algebra and Calculus Core II: Differential Equations and Laplace Transforms	5	3	25	75	100	4
115AM1	Allied I : Physics I	5	3	25	75	100	4
115EVS	Part IV: Environmental Studies	6	3	25	50	75	3
		2	2	50	-	50	2
215TA2/ 215MY2/ 215HD2/ 215FR2 215EN2	Semester II Part I: Language II	6	3	25	75	100	4
215EN2	Part II: English II	6	3	25	75	100	4
215M03 215M04	Part III: Core III: Analytical Geometry Core IV: Numerical Methods	5	3	25	75	100	4
215M04		5	3	25	75	100	4
215AM2	Allied II: Physics II	4	3	25	50	75	3
215AMP	Allied Physics Practical	2	3	20	30	50	2
215VEC	Part IV: Value Education	2	2	50	-	50	2

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
315TA3/ 315MY3/ 315HD3/ 315FR3 315EN3	Semester III Part I: Language III	6	3	25	75	100	4
315M05	Part II: English III Part III: Core V: Vector Calculus and Fourier Series	6	3	25	75	100	4
315M06	Core VI: Statics	3	3	25	50	75	3
315AM3	Allied III: Principles of Accountancy	4	3	25	75	100	4
315NMC	Part IV: NMEC I- Basic Mathematics for Competitive Examinations	6	3	25	75	100	4
315MS1	Skill Based Course I: Graph Theory-I: Introductory Concepts	2	2	50	-	50	2
		3	3	75	-	75	3
415TA4/ 415MY4/ 415HD4/ 415FR4 415EN4	Semester IV Part I: Language IV	6	3	25	75	100	4
415M07	Part II: English IV Part III: Core VII: Discrete Mathematics	6	3	25	75	100	4
415M08	Core VIII: Dynamics	3	3	25	50	75	3
415AM4	Allied IV: Mathematical Statistics	4	3	25	75	100	4
415NGA	Part IV: NMEC II -General Awareness (Online)	6	3	25	75	100	4
415MS2	Skill Based Course II: Graph Theory- II: Paths and Trees	-	1	50	-	50	2
415GIS	Information Security	3	3	75	-	75	3
415ALM	Advanced Learners Course I : Combinatorics / Statistical Quality Control	2	2	50	-	Grade	Grade
		-	3	-	100	100	4*

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III:						
515M09	Core IX: Real Analysis I	6	3	25	75	100	4
515M10	Core X: Complex Analysis I	5	3	25	75	100	4
515M11	Core XI: Abstract Algebra	5	3	25	75	100	4
515M12	Core XII: Fuzzy Logic and Intuitionistic fuzzy sets	5	3	25	75	100	4
515ME1	Elective I: Programming in C (Theory & Practical)	6	3	40	60	100	4
515MS3	Part IV: Skill Based Course III : Graph Theory- III: Planar Graphs and Colouring of Graphs	3	3	75	-	75	3
	Semester VI						
	Part III:						
615M13	Core XIII: Real Analysis II	5	3	25	75	100	4
615M14	Core XIV: Complex Analysis II	5	3	25	75	100	4
615M15	Core XV: Linear Algebra	5	3	25	75	100	4
615ME2	Elective II: Operations Research	6	3	25	75	100	4
615ME3	Elective III: Computational Mathematics Laboratory (Theory & Practical)	6	3	40	60	100	4
615MS4	Part IV: Skill Based Course IV: Model Presentation (Group Project)	3	-	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V : Extension Activity	-	-	50	-	50	2
615ALM	Advanced Learners Course II : Mathematics in Insurance / Mathematical Cryptography	-	-	-	100	100	4*
Total						3500	140

Starred credits are treated as additional credits which are optional.

B.Sc. Mathematics
Semester I

Part III – Core I – ALGEBRA AND CALCULUS 115M01

[For students admitted from the academic year 2015-2016 onwards]

Preamble

65 Hours

This being the first course of the curriculum, it is framed with the basic subjects Algebra and Calculus.

This provides the students to

- acquire knowledge about the convergence and divergence criteria of the given series.
- get familiar with the applications of Binomial, Exponential and Logarithmic expansion for finding the sum of an infinite series.
- develop skills for solving the algebraic equations.
- acquire knowledge about evolute, involute of the plane curves.
- know the applications of double and triple integrals in finding the area and volume.

Unit I

(13 Hours)

Convergency and Divergency of series: Definitions and elementary results - Some general theorems concerning infinite series -Series of positive terms -Comparison tests - Convergence and Divergence of series – Cauchy’s condensation test – D’Alembert’s ratio test – Cauchy’s root test.

Note : Only Statement of the tests are included.

Book 1: Chapter 2 (Sections 8 –17)

Unit II

(13 Hours)

Binomial Theorem: Binomial Theorem (statement only) – Application of the Binomial Theorem to the summation of series. Exponential and Logarithmic series: The Exponential Theorem (statement only) –Summation – The Logarithmic series – Modification of the Logarithmic series – Series which can be summed up by the Logarithmic series.

Book 1: Chapter 3 (Sections 1,10) Chapter 4 (Sections 2, 3, 5, 6, 7 and 9)

Unit III

(13 Hours)

Theory of Equations: Transformation of Equations – Reciprocal Equation – To increase or decrease the roots of a given equation by a given quantity – Removal of terms – Descarte’s rule of signs – Horner’s method

Book1: Chapter 6 (Sections 15-17, 19, 24, 30)

Unit IV

(13 Hours)

Differential Calculus: Envelopes, Curvature of plane curves: Envelopes – Method of finding the envelope - Curvature-Cartesian formula for radius of curvature – The co- ordinates of center of curvature – Evolutes and involutes – Radius of curvature in polar co-ordinates – p-r equation.

Book2: Chapter 10 (Sections 1.1-1.4, 2.1, 2.3-2.8)

Unit V

(13 Hours)

Integral Calculus: Multiple integrals: Definition of the double integral- Evaluation of the double integral - Double integral in polar co-ordinates-Triple integrals. Beta and Gamma functions: Definitions-Convergence of $\Gamma(n)$ –

Recurrence formula of Gamma functions-Properties of Beta functions-
Relation between Beta and Gamma functions.

Book3: Chapter 5 (Sections 1, 2.1, 2.2, 3.2, 4) [problems in 2.2 & 3.2]
Chapter 7 (Sections 2.1-2.3, 3, 4, 5)

Books for study

- Book1: For Units I, II and III: T. K. Manicavachagam Pillay, T. Natarajan
and K. S. Ganapathy, Algebra Volume I,
S.Viswanathan (printers and publishers) Pvt.,
Ltd.,Eleventh Revised Edition, Reprint –2009.
- Book 2: For Unit IV : S.Narayanan and T.K. Manicavachagam
Pillay, Calculus (Major) Volume I,
S.Viswanathan (Printers and Publishers) Pvt.,
Ltd., Eighteenth Edition, 2009.
- Book 3: For Unit V : S. Narayanan and T. K. Manicavachagam
Pillay, Calculus volume II(Integral calculus),
S.Viswanathan (Printers and Publishers) Pvt.,
Ltd., Eighteenth Revised Edition, 2009.

Books for Reference

1. P.Kandasamy, K.Thilagavathy, Mathematics for B.Sc Br-I, First Semester, Volume I,
S.Chand & Company Ltd, First Edition, 2004.
 2. Shanthi Narayanan, Differential Calculus, Shayambal Charitable Trust, 1987.
 3. Shanthi Narayanan, Integral Calculus, S. Chand & Co, 1987.
- Course Designed by : A.ANIS FATHIMA
Course Reviewed by : N.RAJESWARI
Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics Semester I

Part III – Core II – DIFFERENTIAL EQUATIONS AND

LAPLACE TRANSFORMS

115M02

[For students admitted from the academic year 2015 – 2016 onwards]

Preamble

65 Hours

This course is introduced in the curriculum since Differential equations play an important role in physical system of science, engineering and social sciences

- The Laplace transforms are widely adopted by scientists and engineers as an efficient tool for solving linear differential equations.
- The topics included in the course help the students
- To interpret the physical systems in terms of differential equation
- To master the various methods of solving a variety of differential equations.

Unit I

(13 Hours)

Differential Equations: Differential equations of the first order: Equations of the first order, but of higher degree: Equations solvable for dy/dx - Equations solvable for y -Equations solvable for x (particular cases of 5.2) - Clairaut's form- Extended form of Clairaut's

Equations - Equations that do not contain x explicitly-Equations that do not contain y explicitly-Equations homogeneous in x and y.

Chapter 1 (Sections 5.1-5.5,6.1,6.2,7.1-7.3)

Unit II

(13 Hours)

Linear Differential Equations with constant coefficients:Solving $(d^n y / dx^n) + a_1 (d^{n-1} y / dx^{n-1}) + a_2 (d^{n-2} y / dx^{n-2}) + \dots + a_n y = X$, when X is of the form $e^{ax} V$, V is function of x.-Linear differential equations with variable coefficients-Equations reducible to the linear homogeneous equation.

Chapter 2 (Sections 4(d), 8, 9)

Unit III

(13 Hours)

Simultaneous Differential Equations: Simultaneous equations of the first order and first

degree - Solutions of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Methods for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Simultaneous

linear differential equations with constant coefficients.

Chapter 3 (Sections 1-4, 6).

Unit IV

(13 Hours)

Partial Differential Equations: Derivation of Partial Differential Equations- Different integrals of Partial differential equations (definition only) – Standard types of first order equations - Lagrange's equation.

Chapter 4 (Sections 1-3, 5, 6)

Unit V

(13 Hours)

The Laplace Transforms: Definition-Results from the definition-Laplace transforms of periodic functions – Some general theorems - Evaluation of certain integrals using Laplace transforms- The inverse Laplace transforms-Solving second order differential equations with constant coefficients using Laplace transforms.

Chapter 5 (Sections 1 – 8)

Book for study

S.Narayanan and T.K.Manicavachagom Pillay, Calculus (Major) Volume III,

S.Viswanathan(Printers and Publishers) Pvt.Ltd,Reprint 2012.

Books for Reference

3. Ervin Kreyszig, Advanced Engineering Mathematics, Wiley Eastern Ltd., 8th edition, 2006.

4. George .F.Simmons, Differential Equations with applications and Historical notes, McGrawHill,Inc, 2nd Edition 1991.

Course Designed by : B.KALAISELVI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester II

Part III-Core III-ANALYTICAL GEOMETRY 215M03

[For students admitted from the academic year 2015– 2016 onwards]

Preamble

65 Hours

The primary objectives of introducing this course in the curriculum are

- to understand the mathematical representation of the geometrical figures
- to give a training for visualizing ideas in two and three dimensions
- to expose the students to apply these concepts in the advanced level subjects like Differential geometry, Mechanics, Fluid mechanics etc.
- to give an indepth knowledge in three dimensional figures to understand graphic concepts.

Unit I (13 Hours)

Polar coordinates Chapter 10

Unit II (13 Hours)

Planes: First degree equation-Equations of planes – General form of the equation of a plane passing through (x_1, y_1, z_1) – Equations of different planes –

Intercept form of equation of a plane – coplanarity of three lines through a point – Loci related to x, y, z intercepts – Equation $P + \lambda P' = 0$.

Chapter 3(Sections 3.1-3.5)

Unit III (13 Hours)

Straight Lines: Equations of a straight line – Equations of the line of intersection of two planes – Conditions for various situations of a line with reference to a plane – Coplanarity of two straight lines – Shortest distance between two skew lines – Equations of the common perpendicular – Feet of the common perpendicular.

Chapter 4(Sections 4.1 – 4.3, 4.6, 4.9 – 4.11)

Unit IV (13 Hours)

Sphere: Equation of a sphere - Standard equation of a sphere – Sphere on a given diameter - Results based on properties of a sphere - Tangent plane to a sphere-Loci related to x, y, z intercepts (continued) – Equations of a circle – Centre and radius of a circle – Family of spheres through a circle – Touching spheres – Point of contact of touching spheres.

Chapter 5 (Sections 5.1-5.5.2)

Unit V (13 Hours)

Cone and Cylinder: Cone – Right Circular cone – Equation of a general cone – Surface represented by a homogeneous equation - Equation obtained by homogenizing – Nature of a Quadric cone with vertex at the origin_ Intersection of a cone by a plane through the vertex – General second degree cone.

Chapter 6(Sections 6.1 – 6.5)

Books for study

1. P.Duraipandian, Kayalal Pachaiyappa, Analytical Geometry (2-D), Muhil Publishers, 2010.
2. P.Duraipandian, Kayalal Pachaiyappa, Analytical Geometry (3-D), Muhil Publishers, 2009.

Books for Reference

3. A text book of Analytical Geometry (Part I-Two Dimensions), T.K.Manickavasagam Pillai, T.Natarajan, S.Viswanathan (printers and publishers), Pvt.,Ltd., 2010.
4. Analytical Geometry (Three dimensional) by T.K.Manickavasagam Pillai and others, Viswanathan Publications, 2010.

Course Designed by : V.PANKAJAM

Course Reviewed by : B.KALAISELVI

Course Checked by :A.R.THILAGAVATHI

B.Sc. Mathematics

Semester II

Part III-Core IV - NUMERICAL METHODS

215M04

[For students admitted from the academic year 2015-2016 onwards]

Preamble

65 Hours

The study of Numerical Methods has become very important due to the wide spread use of these methods by scientists and engineers.

This course is designed in such a way that

- it develops the problem solving skills of the students .
- it provides confidence and motivation to solve problems with higher degree of complexity.

Unit I

(13 Hours)

The solution of Numerical algebraic and Transcendental equations: The Bisection method – Regula-Falsi method – Newton-Raphson method. Solution of Simultaneous Linear Algebraic Equations: Introduction – Gauss-Elimination Method – Gauss-Jordan elimination method – Iterative methods – Gauss- Jacobi method – Gauss-Seidel method of iteration.

Chapter 3 (Sections 3.1.1,3.3,3.4) Chapter 4 (Sections 4.1,4.2, 4.2.1,4.7-4.9)

Unit II

(13 Hours)

Finite differences:First difference-Express any value of y in term of y_n and the backward differences of y_n – Differences of a polynomial –Factorial polynomial – Error propagation in a difference table. Interpolation(for Equal Intervals): Introduction – Linear Interpolation or method of proportional parts – Gregory-Newton forward Interpolation formula – Gregory-Newton backward Interpolation Formula.

Chapter 5 (Sections 5.1-5.5) Chapter 6 (Sections 6.1-6.3)

Unit III

(13 Hours)

Central Difference Interpolation formulae (For Equal Intervals):

Central differences and central difference table-Central difference interpolation formula-Gauss's forward interpolation formula – Gauss's backward interpolation formula – Stirling's formula –Bessel's formula.

Chapter 7 (Sections 7.1-7.6)

Unit IV

(13 Hours)

Interpolation With Unequal Intervals: Introduction – Divided differences – Properties of divided differences – Relation between divided differences and forward differences – Theorem: Newton's interpolation formula for unequal intervals – Deduction: Deduce Gregory Newton interpolation forward formula for equal intervals – Lagrange's interpolation formula (for unequal intervals).

Chapter 8 (Sections 8.1-8.7)

Unit V

(13 Hours)

Numerical differentiation and Integration: Introduction – Newton's forward difference formula to get the derivative – Newton's backward difference formula to compute the derivative – Derivative using Stirling's formula – Caution – To find maxima and minima of the function given the tabular values. Numerical Integration: Introduction – A general

Quadrature formula for equidistant ordinates – Trapezoidal rule – Simpson's one-third rule – Simpson's three-eighths rule.

Chapter 9 (Sections 9.1-9.9, 9.13 and 9.14).

Book for study

Dr.P.Kandasamy, Dr. K.Thilagavathy, Dr. K.Gunavathi, Numerical Methods, S.Chand & Company limited, Third Revised Edition Reprint(2010).

Books for Reference

1. Dr.M.K.Venkataraman, Numerical Methods in Science and Engineering, National Publishing company, fifth edition, 1995.
2. H.C.Saxena, Finite differences and Numerical Analysis, S.Chand & Company limited, New Delhi, 2001.

Course Designed by : P.PADMAVATHI

Course Reviewed by : R.ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester III

Part III – Core V – VECTOR CALCULUS AND FOURIER SERIES

315M05

[For students admitted from the academic year 2015 - 2016 onwards]

Preamble

35 hours

This course enables the students

- to gain a thorough knowledge of the fundamentals of vector calculus and their applications in fields like physics and fluid dynamics
- to apply Fourier concepts in the field of image processing

Unit I

(8 Hours)

Gradient: Scalar and Vector point functions-Level Surfaces-Directional derivative of a scalar point function-Gradient of a scalar point function-Gradient of sum and product of functions-Gradient of $f(r)$.

Chapter 2: (Section 2.1-2.6).

Unit II

(7 Hours)

Divergence & curl: Divergence and curl of a vector point function-Solenoidal and irrotational vectors-Theorems on divergence and curl-Laplacian operator-Divergence and curl of a gradient-Divergence and curl of a curl-Divergence and curl of $f(r)\vec{r}$ -Scalar potential.

Chapter 3: (Section 3.1-3.5).

Unit III

(8 Hours)

Integral Theorems: Integral Theorems – Green's theorem in the plane – Gauss' divergence theorem – Stoke's theorem.

Chapter 4: (Section 6.1- 6.4).

Unit IV

(6 Hours)

Fourier series: Fourier series - Even and odd functions.

Chapter 1: (pages 96-135).

Unit V

(6 Hours)

Fourier series: Half - range series – Half - range sine series – Half - range cosine series, Change of interval.

Chapter 1: (pages 135-154).

Books for study:

For Units I, II and III : Vector Analysis, P.Duraipandian,
KayalalPachaiyappa,MuhilPublishers,
Revised Edition 2009.

For Units IV & V : Mathematics for B.Sc. . Branch-I, Volume – IV,
P.Kandasamy, K.Thilagavathi, S.Chand& Company
Limited, First Edition 2005.

Books for reference:

1. Vector Analysis, DipakChatterjee, PHI Learning Private Limited, Second Edition, 2009
2. S.Narayanan and T.K.ManicavachagomPillay, Calculus (Major) Volume III, S.Viswanathan (Printers and Publishers) Pvt.Ltd, Reprint 2012.

Course Designed by :A.ANIS FATHIMA

Course Reviewed by :N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester III

Part III –Core VI– STATICS

315M06

[For students admitted from the academic year 2015-2016 onwards]

Preamble

50 Hours

This course dealing with the conditions for lack of motion under given forces is introduced in the curriculum in order

- to provide a strong foundation in understanding the concepts of mechanics.
- to know the various aspects of the forces on a particle and on a rigid body.

Unit I

(10 Hours)

Force: Newton's laws of motion – Forces – Resultant of two forces on a particle –Resultant of three forces related to a triangle acting at a point – Resultant of several forces acting on a particle. Equilibrium of a particle : Equilibrium of a particle – Equilibrium of a particle under three forces – Equilibrium of a particle under several forces .

Chapter 2 (Sections 2.1(2.1.1) – 2.2) Chapter 3 (Sections 3.1)

Unit II

(10 Hours)

Forces on a rigid body : Moment of a force- Moment of a force about a line-Scalar moment-Equivalent (or equipolent) systems of forces-Parallel forces-Point of application of resultant of many parallel forces-Varignon's theorem-Parallel forces at the vertices of a triangle-Forces along the sides of a triangle.

Chapter 4: (Sections 4.1,4.3- 4.5)

Unit III

(10 Hours)

Forces on a rigid body : Couples-Moment of a couple- Arm and axis of a couple –Resultant of several coplanar forces – Moment of a certain couple as an area –Couples in a parallel planes – Resultant of a couple and a force – Equation of the line of action of the resultant – Sum of the moments about an arbitrary point.

Chapter 4: (Sections 4.6- 4.8)

Unit IV

(10 Hours)

Force : Newton's laws of motion : Types of forces. A specific reduction of forces: Problems involving frictional forces.

Chapter 2: (Section 2.1(2.1.2))Chapter 5: (Section 5.2) (Excluding Section 5.2.1)

Unit V (10 Hours)

Centre Of Mass : Centre of mass- Centre of gravity – Finding mass centre - Finding mass centre(not using integration) - Finding mass centre using integration – Mass centre of a nonhomogeneous solid.

Chapter 6: (Section 6.1(6.1.1),6.2(6.2.1 – 6.2.3))

Book for Study

P. Duraipandian, LaxmiDuraipandian, MuthamizhJayapragasam, Mechanics,
S. Chand & Company Ltd., Reprint 2010.

Books for Reference

1. M.K. Venkataraman, Statics, Agasthiar book deport, Fifth edition 1984.
2. K.ViswanathaNaik, M.S.Kasi, Statics, Emerald publishers 2001

Course Designed by :B.KALAISELVI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester III

Part IV-Skill Based Course I: Graph Theory- I

INTRODUCTORY CONCEPTS

315MS1

[For students admitted from the academic year 2015-2016 onwards]

Preamble

35 Hours

Skill based learning enables the student to remember more effectively when they can use skills to access, process and express their knowledge. Graph theory is an area of mathematics which finds wide applications in real life. This course provides all the fundamentals required to develop the skills of applications of graph theory in real life.

Unit I

(7 Hours)

Graphs: Graphs and Sub graphs – Vertex Degrees – Paths and Cycles.

Chapter 2(Sections 2.1-2.3)

Unit II

(7Hours)

Graphs: Regular and bipartite graphs. Eulerian and Hamiltonian Graphs:

Exploring and Travelling.

Chapter 2(Sections 2.4) Chapter 3(Sections 3.1)

Unit III

(7 Hours)

Eulerian and Hamiltonian Graphs: Eulerian Graphs-Hamiltonian Graphs.

Chapter 3(Sections 3.2, 3.3)

Unit IV

(7 Hours)

Digraphs: Digraphs and Sub digraphs- Vertex Degrees- Paths and Cycles.

Chapter 4(Sections 4.1-4.3)

Unit V

(7 Hours)

Matrix Representations: Adjacency Matrices- Walks in graphs and Digraphs- Incidence Matrices.

Chapter 5(Sections 5.1-5.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007

Books for Reference

1. Frank Harary, Graph Theory, Narosa Publishing House, New Delhi, Tenth Reprint 2001.
2. John Clark, Derek Allan Holton, A First Look at Graph Theory, Allied Publishers Ltd, Reprint 1995.
3. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice – Hall of India Private Ltd, New Delhi 2005.
4. Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin Heidelberg, 2005.

Course Designed by : N.JEYANTHI
Course Reviewed by : N.RAJESWARI
Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester IV

Part III- Core VII – DISCRETE MATHEMATICS 415M07

[For students admitted from the academic year 2015-2016 onwards]

Preamble

38 Hours

Discrete Mathematics, the study of finite systems is important, as the computer age has advanced. This course facilitates the students

- to develop the ability to perceive, to formulate and to solve mathematical problems related to finite systems in engineering and computer science.
- to gain confidence in applying the ideas to solve practical problems in the areas like switching theory, coding theory, artificial intelligence etc.,
- to understand the background necessary for the interpretation of finite Mathematical systems.

Unit I

(8 Hours)

Mathematical logic: Introduction-Statements and Notation. Connectives: Negation Conjunction – Disjunction – Statement formulas and truth tables – Conditional and Biconditional – Well-formed Formulas – Tautologies – Equivalence of formulas – Duality law – Tautological Implications – Formulas with Distinct Truth Tables.

Chapter 1 (Sections 1.1, 1.2(1.2.1-1.2.4, 1.2.6-1.2.12))

Unit II

(8 Hours)

Mathematical logic: Normal forms: Disjunctive normal forms – Conjunctive normal forms – Principal disjunctive normal forms – Principal conjunctive normal forms – Ordering and uniqueness of normal forms. Set theory: Relations and ordering: Partial ordering – Partially ordered set: Representation and Associated Terminology.

Chapter 1 (Sections 1.3(1.3.1-1.3.5)), Chapter 2 (Sections 2.3(2.3.8, 2.3.9))

Unit III

(7 Hours)

Algebraic Structures: Semigroups and monoids: Definitions and Examples – Homomorphism of semigroups and monoids – Subsemigroups and submonoids.

Chapter 3 (Section 3.2)

Unit IV

(8 Hours)

Lattices and Boolean Algebra: Introduction: Lattices as partially ordered sets: Definition and Examples – Some properties of lattices – Lattices as Algebraic systems – Sublattices, Direct

Product, and Homomorphism – Some Special Lattices. Boolean Algebra: Definition and Examples.

Chapter 4(Sections 4.1, 4.2(4.2.1))

Unit V

(7 Hours)

Lattices and Boolean Algebra: Boolean Functions: Boolean Forms and Free Boolean Algebras – Values of Boolean Expressions and Boolean Functions.

Representation and Minimization of Boolean functions: Representation of Boolean functions.

Chapter 4(Sections 4.3, 4.4(4.4.1))

Book for study

J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw-Hill Edition- 1997, 38th Reprint 2010.

Books for Reference

1. T.Veerarajan, Discrete Mathematics with Graph Theory and Combinatorics, Tata McGraw-Hill, New Delhi, Fifth Reprint, 2008.
2. N.Ch.S.N.Iyengar, V.M.Chandrasekaran, K.A.Venkatesh, P.S. Arunachalam, Discrete Mathematics, Vikas Publishing House Pvt Ltd, Second Reprint, 2008.
3. Prof.V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan, Discrete Mathematics (For B.E. Computer Science and Engineering), A.R. Publications (New Revised Edition, June 2008).
4. Bernard Kolman , Robert C. Busby and Sharon Ross , Discrete Mathematical Structures, Prentice Hall of India Pvt Ltd, Sixth Printing (Third Edition), 1998.

Course Designed by : P.JAYALAKSHMI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester IV

Part III Core VIII Dynamics

415M08

[For students admitted from the academic year 2015-2016 onwards]

Preamble

50 Hours

Dynamics is one among the two branches of Mechanics and deals with the study of solid bodies in motion. This course is introduced in the curriculum in order

- to train the students to visualize the physical phenomena in mathematical terms.
- to have a deep knowledge about the motion of particles under the influence of various forces like gravitational force, central force, impulsive force etc.,
- to provide a good foundation for the students to take up any advanced course in mechanics and all related fields.

Unit I

(10 Hours)

Kinematics: Basic units – Velocity – Velocity of particle describing a circle – Resultant velocity – Acceleration – Rectilinear motion – Rectilinear motion with a constant acceleration – Coplanar motion – Velocity and acceleration in a coplanar motion – Angular velocity – Relative angular velocity.

Chapter 1 (Sections 1.1 - 1.4)(excluding Section 1.2.3)

Unit II (10 Hours)

Rectilinear motion under varying force: Simple harmonic motion – Projection of a particle having a uniform circular motion – Composition of two simple harmonic motions of same period – S.H.M along a horizontal line – S.H.M along a vertical line.

Chapter 12 (Sections 12.1 – 12.3)

Unit III (10 Hours)

Projectiles: Forces on a projectile – Displacement as a combination of vertical and horizontal displacements – Nature of trajectory – Results pertaining to the motion of a projectile – Maximum horizontal range for a given velocity – Two trajectories with a given speed and range – Projectile projected horizontally – Projectile projected on an inclined plane – Maximum range on an inclined plane.

Chapter 13 (Sections 13.1 , 13.2)

Unit IV (10 Hours)

Impact: Conservation of linear momentum(principle only) – Impact of spheres – Laws of impact – Impact of two smooth spheres – Direct impact of two smooth spheres – Impact of a smooth sphere on a plane – Direct impact of a smooth sphere on a plane – Oblique impact of a smooth sphere on a plane – Oblique impact of two smooth spheres.

Chapter 14 (Sections 14.2 – 14.5)

Unit V (10 Hours)

Central orbits: General orbits – Central orbit – Differential equation of a central orbit – Laws of a central force – Methods to find the central orbits – Conic as a central orbit – Kepler's Laws of planetary motion.

Chapter 16 (Sections 16.1-16.3)

Book for Study

P. Duraipandian, LaxmiDuraipandian, MuthamizhJayapragasam, Mechanics, S. Chand & Company Ltd., Reprint 2010.

Books for Reference

1. A.V. Dharmapadam, Dynamics, S. ViswanathanPvt Ltd., 2006.
2. S. Narayanan, Dynamics, S. Chand & Company Ltd., 16th revised edition 1986.
3. Dr.M.K. Venkataraman, Dynamics, Agasthiar publications, 12th edition 2006.

Course Designed by :N.RAJESWARI

Course Reviewed by : B.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester IV

Part III–Allied IV -MATHEMATICAL STATISTICS 415AM4

[For students admitted from the academic year 2015-2016 onwards]

Preamble 75 Hours

Mathematical Statistics is widely employed as a highly valuable tool in the analysis of problems in natural, physical and social sciences.

The topics included in the syllabus help the students

- to know about the random variables and their different distributions
- to understand about the characteristics of distributions
- to determine different sampling distributions

Unit I (15 Hours)

Random variables: Function of a random variable – Two dimensional random variable –Definitions- Marginal probability distribution – Conditional probability distribution – Independent random variable.

Chapter 2(Pages 2.13 - 2.35)

Unit II (15 Hours)

Variance: Tchebechev's Inequality. Moments and Moment Generating Function. Conditional Expectation.

Chapter 4(Pages 4.21 – 4.26), Chapter 5 and Chapter 7

Unit III (15 Hours)

Correlation.

Chapter 8(Pages 8.1-8.61)

Unit IV (15 Hours)

Normal Distribution. Uniform Distribution. Exponential Distribution. Gamma Distribution. Beta Distribution.

Chapter 16, 17,18,19,20

Unit V (15 Hours)

Sampling Distribution - Chi Square, t, F Distribution.

Chapter 22.

Book for Study

P.R. Vittal, Mathematical Statistics, Margham Publications, First Edition, 2010.

Books for Reference

1. S.C. Gupta and V.K.Kapoor, Fundamentals of Mathematical statistics, Sultan Chand & Company, Eleventh Edition, 2002.
2. Robert V.Hogg & Allen T. Craig, Introduction to Mathematical statistics, Fifth Edition, Pearson Education.

Course Designed by : V.PANKAJAM

Course Reviewed by : A.ANIS FATHIMA

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester IV

Part IV-Skill Based Course II: GRAPH THEORY-II

PATHS AND TREES

415MS2

[For students admitted from the academic year 2015-2016 onwards]

Preamble 35 Hours

This being the second course in skill based learning provides the students with thinking skills and active learning at the same time as knowledge is acquired. It also provides a platform to learn the skill of analyzing the real world problems.

Unit I (7 Hours)

Tree Structures: Mathematical Properties of Trees – Spanning Trees – Rooted Trees.

Chapter 6(Sections 6.1 – 6.3)

Unit II (7 Hours)

Counting Trees : Counting Labeled Trees – Counting Binary Trees.

Chapter 7(Sections 7.1, 7.2)

Unit III (7 Hours)

Greedy Algorithms: Minimum Connector Problem – Travelling Salesman

Problem.

Chapter 8(Sections 8.1, 8.2)

Unit IV

(7 Hours)

Path Algorithms: Fleury's Algorithm – Shortest Path Algorithm.

Chapter 9(Sections 9.1, 9.2)

Unit V

(7 Hours)

Paths and Connectivity: Connected Graphs and Digraphs – Menger's Theorem for Graphs-Some analogues of Menger's theorem.

Chapter 10(Sections 10.1-10.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Books for Reference

1. Frank Harary, Graph Theory, Narosa Publishing House, New Delhi, Tenth Reprint 2001.
2. John Clark, Derek Allan Holton, A First Look at Graph Theory, Allied Publishers Ltd, Reprint 1995.
3. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice – Hall of India Private Ltd, New Delhi 2005.
4. Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin Heidelberg, 2006.

Course Designed by : N.JEYANTHI

Course Reviewed by : N.RAJESWAR

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester IV

Advanced Learners Course I – STATISTICAL QUALITY

CONTROL

415ALM

[For students admitted from the academic year 2015-2016 onwards]

Preamble

Many decisions on matters related to quality are called for in manufacturing. In making such decisions it is desirable to examine the relative economy of the alternatives under consideration. The techniques of statistical quality control give a useful contribution to such economy studies.

Unit I

Directions for simple \bar{X} and R charts: Setting up and operating control charts for \bar{X} and R-checklist of necessary steps in using \bar{X} and R charts. The control chart for fraction rejected: Some practical limitations of control charts for variables- control charts for attributes – the control chart for fraction rejected-the binomial as a probability law that determines the fluctuations of fraction rejected-control limits for the p chart.

Chapter 2 (Sections 2.1, 2.2)

Chapter 6 (Sections 6.1 – 6.5)

Unit II

The Control Chart for Fraction Rejected: Problems introduced by variable subgroup size-checklist of necessary steps in connection with control chart for fraction rejected – sensitivity

of the p chart – non product applications of p and np charts – p charts are not suitable for all data on fraction rejected – problems.

Chapter 6 (Sections 6.6- 6.10)

Unit III

The Control Chart for Nonconformities :The place of the c chart in statistical process control – distinction between a nonconforming article and a nonconformity – limits for the c charts are based on the Poisson distribution – the combination of Poisson distribution – conditions favorable to the economic use of the control chart for nonconformities – adaptations of the c chart to variations in the area of opportunity for a nonconformity – probability limits for c and u charts

– the u chart for nonconformities per multiple units – listing individual nonconformities on the form containing a c or u chart – the introduction of a control chart may motivate quality improvement – classification of nonconformities and their weighting - q charts for quality scores and d charts for demerit classifications – use of $3\sqrt{c}$ for approximate calculation of control limits in situations involving the Binomial Distribution.

Chapter 7 (Sections 7.1 – 7.13)

Unit IV

Some Fundamental Concepts in Scientific Sampling: Lot-by-Lot Acceptance Using Single Sampling by Attributes – OC Curve of an Ideal Sampling Plan – The Indexing of Acceptance Plans by a Single Point on the OC Curve – Average Outgoing Quality and AOQL – Double Sampling –Choosing a Sampling Plan to Minimize Average Total Inspection – Multiple and Sequential Sampling – Randomness in Acceptance Sampling – Problems.

Chapter 11 (Sections 11.4 – 11.11)

Unit V

An AQL System for Lot-by-Lot Acceptance Sampling by Attributes: some decisions made in the original establishment of the AQL as a quality standard – some aspects of the master tables reproduced from the ABC standard – determining the sample size code letter – OC curves under normal, tightened, and reduced inspection – single, double and multiple sampling plans in AQL systems – classification of defects – the formation of inspection lots – acceptance based on numbers of defects – a systematic record of quality history is an important aspect of statistical acceptance procedures – selecting an acceptance plan for an isolated lot – importance of AOQL values in sampling plans based on the AQL – problems.

Chapter 12 (Sections 12.3 – 12.13)

Book for study

Eugene L.Grant, Richard S.Leavenworth, Statistical Quality Control, McGraw-Hill Company, Seventh Edition, 1996.

Book for Reference

S.C.Gupta, V.K.Kapoor, Fundamentals of Applied Statistics, Sultan Chand & Sons, Reprint 2003.

Course Designed by : N.RAJESWARI

Course Reviewed by : R.ANGELJOY

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester VI

Elective II – OPERATIONS RESEARCH

615ME2

[For students admitted from the academic year 2015-2016 onwards]

Preamble

65 Hours

Operations Research seeks the determination of the best course of action of a decision problem under the restriction of limited resources.

The prime objectives for introducing this course are:

- To give practical training in converting a managerial decision making problem to a linear programming problem.
- To gain knowledge on techniques for solving linear programming problem.
- To develop logical reasoning in sequencing in a network to trace the shortest route.
- To develop knowledge in basic techniques to deal with inventory and replacement of equipments.

Unit I

(13 Hours)

Linear Programming Problem: Graphical solution and Extension: Introduction – Graphical solution method– Some exceptional cases – General linear programming problem – Canonical and standard forms of L.P.P.

Linear programming- Simplex method: Introduction – Fundamental properties of solutions – The computational procedure – Use of artificial variables.

Chapter 3 (Sections 3.1 – 3.5), Chapter 4 (Sections 4.1 – 4.4)

Unit II

(13 Hours)

Duality in Linear Programming: Introduction – General Primal – Dual pair – Formulating a dual problem – Primal – Dual pair in matrix form – Duality and Simplex method – Dual Simplex method. Transportation Problem: Introduction – LP formulation of the transportation problem - Existence of Solution in T.P - Duality in transportation problem - The transportation table - Loops in transportation tables - Triangular basis in a T.P - Solution of a transportation problem - Finding an initial basic feasible solution – Test for optimality – Economic Interpretation of u_j 's and v_j 's - Degeneracy in transportation problem – Transportation algorithm [MODI method] Assignment Problem: Introduction – Mathematical formulation of the problem – Solution Methods of Assignment Problem.

Chapter 5 (Sections 5.1- 5.4, 5.7, 5.9), Chapter 10 (Sections 10.1 – 10.13)

Chapter 11 (Sections 11.1 – 11.3)

Unit III

(13 Hours)

Games and Strategies: Introduction – Two-person zero-sum games – Some basic terms – The Maximin–Minimax principle – Games without saddle points – Mixed strategies – Graphic solution of $2 \times n$ and $m \times 2$ games .

Chapter 17 (Sections 17.1 – 17.6)

Unit IV

(13 Hours)

Inventory Control I: Introduction – Types of Inventories – Reasons for carrying Inventories - The inventory decisions – Objectives of Scientific Inventory Control - Costs associated with inventories – Factors affecting inventory control – An Inventory Control Problem – The Concept of EOQ - Deterministic inventory problems with No shortages – Deterministic inventory problems with shortages – Problems of EOQ with Price Breaks.

Chapter 19 (Sections 19.1 – 19.12)

Unit V

(13 Hours)

Network Scheduling by PERT/CPM: Introduction- Network: Basic Components - Logical Sequencing - Rules of Network Construction - Concurrent Activities - Critical path analysis - Probability considerations in PERT - Distinction between PERT and CPM.

Chapter 25 (Sections 25.1 - 25.8)

Note: Statement of the theorems and algorithms are included.

Book for study

Kanti Swarup, P.K Gupta, Man Mohan, Operations Research, Sultan Chand & Sons, New Delhi, Fifteenth Edition, Reprint 2010.

Books for Reference

3. J.K.Sharma, Operations Research: Theory and Applications, MacMillan India Ltd, Second Edition, 2003.
4. Hamdy A. Taha, Operations Research: An Introduction, Macmillan Publishing Company, Eighth Edition, 2008.

Course Designed by : P.JAYALAKSHMI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics
Semester wise Distribution with Scheme of Examination
[For the students admitted during the academic year 2014-2015 & onwards]

Sem	Course	Credits	Duration of Exam(ESE) (Hrs)	Marks		Total
				CIA	ESE	
I	Part I: Language I	3	3	25	75	100
	Part II: English I	3	3	25	75	100
	Part III:					
	Core I: Algebra and Calculus	4	3	25	75	100
	Core II: Differential Equations and Laplace Transforms	4	3	25	75	100
	Allied I : Physics I	4	3	15	60	75
	Allied Physics Practical	-	-	-	-	-
	Part IV: Environmental Studies	2	-	50	-	50
II	Part I: Language II	3	3	25	75	100
	Part II: English II	3	3	25	75	100
	Part III:					
	Core III: Analytical Geometry	4	3	25	75	100
	Core IV: Numerical Methods	4	3	25	75	100
	Allied II: Physics II	4	3	15	60	75
	Allied Physics Practical	2	3	20	30	50
	Part IV: Value Education	2	-	50	-	50
	Advanced Learner's Course I (ALC I): Combinatorics	3*	3	-	100	100
III	Part I: Language III	3	3	25	75	100
	Part II: English III	3	3	25	75	100
	Part III:					
	Core V: Trigonometry, Vector Calculus and Fourier Series	4	3	25	75	100
	Core VI: Statics	4	3	25	75	100
	Allied III: Principles of Accountancy	5	3	25	75	100
	Part IV: Non Major Elective	2	-	75	-	75
	Skill Based Course: Graph Theory- I	3	-	100	-	100

Sem	Course	Credits	Duration of Exam(ESE) Hrs	Marks		Total
				CIA	ESE	
IV	Part I: Language IV	3	3	25	75	100
	Part II: English IV	3	3	25	75	100
	Part III:					
	Core VII: Operations Research	4	3	25	75	100
	Core VIII: Dynamics	4	3	25	75	100
	Allied IV: Mathematical Statistics	5	3	25	75	100
	Part IV: General Awareness	2	-	75	-	75
	Skill Based Course: Graph Theory- II	3	-	100	-	100
	ALC II: Statistical Quality Control	3*	3	-	100	100
	Part V: Extension Activity	1	-	50	-	50
V	Part III:					
	Core IX: Real Analysis I	4	3	25	75	100
	Core X: Abstract Algebra	4	3	25	75	100
	Core XI: Discrete Mathematics	4	3	25	75	100
	Core XII: Fuzzy Logic and Intuitionistic fuzzy sets	4	3	25	75	100
	Elective I: Programming in C	3	3	25	75	100
	Elective I : Programming in C- Practical	2	3	20	30	50
	Part IV: Skill Based Course : Graph Theory- III	3	-	100	-	100
VI	Part III:					
	Core XIII: Real Analysis II	4	3	25	75	100
	Core XIV: Complex Analysis	4	3	25	75	100
	Core XV: Linear Algebra	4	3	25	75	100
	Elective II- Mathematical Cryptography	5	3	25	75	100
	Elective III: Computational Mathematics Laboratory	3	3	25	75	100
	Elective III: Computational Mathematics Laboratory - Practical	2	3	20	30	50
	Part IV: Skill Based Course IV: Model Presentation (Group Project)	3	-	100	-	100
	ALC III: Mathematics in Insurance	3*	3	-	100	100

Total Credits 140

B.Sc. Mathematics/ Mathematics (CA)
Semester I

Part III – Core I – ALGEBRA AND CALCULUS 114M01/114D01
(For students admitted during the academic year 2014-2015 and onwards)
75 Hours

Preamble

This being the first course of the curriculum, it is framed with the basic subjects Algebra and Calculus. This provides the students to

- acquire knowledge about the convergence and divergence criteria of the given series.
- get familiar with the applications of Binomial, Exponential and Logarithmic expansion for finding the sum of an infinite series.
- develop skills for solving the algebraic equations.
- acquire knowledge about evolute, involute of the plane curves.
- know the applications of double and triple integrals in finding the area and volume.

Module I

(15 Hours)

Convergency and Divergency of series: Definitions and elementary results – Some general theorems concerning infinite series – Series of positive terms – Comparison tests – Convergence and Divergence of series – Cauchy's condensation test – D'Alembert's ratio test – *Cauchy's root test.

Note : Only Statement of the tests are included.

Book 1: Chapter 2 (Sections 8 –17)

Module II

(15 Hours)

Binomial Theorem: Binomial Theorem (statement only) – Application of the Binomial Theorem to the summation of series. Exponential and Logarithmic series: The Exponential Theorem (statement only) – *Summation – The Logarithmic series – Modification of the Logarithmic series – Series which can be summed up by the Logarithmic series.

Book 1: Chapter 3 (Sections 1,10) Chapter 4 (Sections 2, 3, 5, 6, 7 and 9)

Module III

(15 Hours)

Theory of Equations: Transformation of Equations – Reciprocal Equation – To increase or decrease the roots of a given equation by a given quantity – *Removal of terms – Descarte's rule of signs – Horner's method of finding the roots of the given equation.

Book1: Chapter 6 (Sections 15-17, 19, 24, 30)

Module IV

(15 Hours)

Differential Calculus: Envelopes, Curvature of plane curves: Envelopes – Method of finding the envelope – Curvature-Cartesian formula for radius of curvature – The co-ordinates of center of curvature – Evolutes and involutes – *Radius of curvature in polar co-ordinates – p-r equation.

Book2: Chapter 10 (Sections 1.1-1.4, 2.1, 2.3-2.8)

Module V

(15 Hours)

Integral Calculus: Multiple integrals: Definition of the double integral-Evaluation of double integral - Double integral in polar co-ordinates-Triple integrals.

Change of variables: Jacobian—Change of variables in the case of two variables-

Change of variables in the case of three variables -Transformation from Cartesian to polar, spherical polar co-ordinates. Improper integrals: Beta and Gamma functions: Definitions-Convergence of $\Gamma(n)$ –Recurrence formula of Gamma functions-Properties of Beta functions- *Relation between Beta and Gamma functions.

Book3: Chapter 5 (Sections 1, 2.1, 2.2, 3.2, 4) [problems in 2.2 & 3.2]

Chapter 6 (Sections 1.1, 1.2, 2.1 - 2.4)

Chapter 7 (Sections 2.1-2.3, 3, 4, 5)

Books for study

Book1: For Modules I, II and III: T. K. Manicavachagam Pillay, T. Natarajan
and K. S. Ganapathy, Algebra Volume I,
S.Viswanathan (printers and publishers) Pvt.,
Ltd.,Eleventh Revised Edition, Reprint –2009.

Book 2: For Module IV : S.Narayanan and T.K. Manicavachagam
Pillay, Calculus (Major) Volume I,
S.Viswanathan (Printers and Publishers) Pvt.,
Ltd., Eighteenth Edition, 2009.

Book 3: For Module V : S. Narayanan and T. K. Manicavachagam
Pillay, Calculus volume II(Integral calculus),
S.Viswanathan (Printers and Publishers) Pvt.,
Ltd., Eighteenth Revised Edition, 2009.

Books for Reference

1. P.Kandasamy, K.Thilagavathy, Mathematics for B.Sc Br-I, First Semester, Volume I, S.Chand & Company Ltd, First Edition, 2004.
2. Shanthi Narayanan, Differential Calculus, Shayambal Charitable Trust, 1987.
3. Shanthi Narayanan, Integral Calculus, S. Chand & Co, 1987.

Course Designed by : N.RAJESWARI
Course Reviewed by : M.THAMILSELVI
Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)
Semester I

Part III – Core II – DIFFERENTIAL EQUATIONS AND

LAPLACE TRANSFORMS 114M02/114D02

[For students admitted during the academic year 2014 – 2015 and onwards]
65 Hours

Preamble

This course is introduced in the curriculum since

- Differential equations play an important role in physical system of science, engineering and social sciences
- The Laplace transforms are widely adopted by scientists and engineers as an efficient tool for solving linear differential equations.

The topics included in the course help the students

- To interpret the physical systems in terms of differential equation
- To master the various methods of solving a variety of differential equations.

Module I (13 Hours)

Differential Equations: Differential equations of the first order: Equations of the first order, but of higher degree: Equations solvable for dy/dx - Equations solvable for y -Equations solvable for x (particular cases of 5.2) - Clairaut's form- *Extended form of Clairaut's Equations - Equations that do not contain x explicitly-Equations that do not contain y explicitly-Equations homogeneous in x and y .

Chapter 1 (Sections 5.1-5.5,6.1,6.2,7.1-7.3)

Module II (13 Hours)

Linear Differential Equations with constant coefficients:Solving $(d^n y/dx^n) + a_1 (d^{n-1}y/dx^{n-1}) + a_2 (d^{n-2}y/dx^{n-2}) + \dots + a_n y = X$, when X is of the form $e^{ax}V$, V is function of x .-Linear differential equations with variable coefficients-*Equations reducible to the linear homogeneous equation.

Chapter 2 (Sections 4(d), 8, 9)

Module III (13 Hours)

Simultaneous Differential Equations: Simultaneous equations of the first order and first

degree - Solutions of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Methods for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - * Simultaneous

linear differential equations with constant coefficients.

Chapter 3 (Sections 1-4, 6).

Module IV (13 Hours)

Partial Differential Equations: Derivation of Partial Differential Equations- Different integrals of Partial differential equations (definition only) – Standard types of first order equations - *Lagrange's equation.

Chapter 4 (Sections 1-3, 5, 6)

Module V (13 Hours)

The Laplace Transforms: Definition-Results from the definition-Laplace transforms of periodic functions – Some general theorems - *Evaluation of certain integrals using Laplace

transforms- The inverse Laplace transforms-Solving second order differential equations with constant coefficients using Laplace transforms-Solving systems of differential equations using Laplace transforms.

Chapter 5 (Sections 1 – 9)

Book for study

S.Narayanan and T.K.Manicavachagom Pillay,Calculus (Major) VolumeIII,
S.Viswanathan(Printers and Publishers) Pvt.Ltd,Reprint 2012.

Books for Reference

5. Ervin Kreyszig, Advanced Engineering Mathematics, Wiley Eastern Ltd.,
8th edition, 2006.
6. George .F.Simmons, Differential Equations with applications and Historical
notes, Mc Graw Hill,Inc, 2nd Edition 1991.

Course Designed by : B.KALAISELVI

Course Reviewed by : P.JAYALAKSHMI

Course Checked by :A.R.THILAGAVATHI

B.Sc. Mathematics

Semester III

Part IV –Non – Major Elective- BASIC MATHEMATICS

FOR COMPETITIVE EXAMINATIONS 314NMC

[For students admitted during the academic year 2014-2015 & onwards]

25 Hours

Preamble

The syllabus of this course has been framed to cover all topics in quantitative aptitude required for competitive examinations like Bank P.O., and Railways etc.

The syllabus helps the students

- to equip them with as much knowledge on all topics as is desirable from the point of view of brilliant success in the competitive examinations.
- to familiarize with different types of tests conducted by various examining bodies
- to sharpen the basic knowledge in mathematics and to increase the speed of its application through regular practice.

Module I (5 Hours)

Decimal fractions – Simplification – Number series.

Chapters(3,4,39)

Module II (5 Hours)

Problems on Ages – Percentage – Profit and loss.

Chapters(8,10,11)

Module III (5 Hours)

Ratio and proportion – Partnership

Chapters(12,13)

Module IV (5 Hours)

Time and work - Time and distance - Problems on trains.

Chapters (15,17,18)

Module V (5 Hours)

Simple interest – Compound interest – True discount.

Chapters (21,22,25)

Book for Study

Objective Arithmetic – R.S. Aggarwal, S.Chand & Company LTD, Reprint 2009.

Books for Reference

1. Quick Arithmetic -Ashish Aggarwal, Sultan Chand &Company Ltd,Second edition 2007.
2. Quantitative Aptitude for Competitive examinations, Abhijit Guha, Tata McGraw –Hill Publishing Company Ltd, Third edition.

Course Designed by : P.JAYALAKSHMI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/Mathematics (CA)**Semester III****Part IV-Skill Based Course : Graph Theory- I****INTRODUCTORY CONCEPTS****314MS1/314DS1****(For students admitted during the academic year 2014-2015 and onwards)****38 Hours****Preamble:**

Skill based learning enables the student to remember more effectively when they can use skills to access, process and express their knowledge. Graph theory is an area of mathematics which finds wide applications in real life. This course provides all the fundamentals required to develop the skills of applications of graph theory in real life.

Module I**(8 Hours)**

Graphs: Graphs and Sub graphs – Vertex Degrees – Paths and Cycles.

Chapter 2(Sections 2.1-2.3)

Module II**(7Hours)**

Graphs: Regular and bipartite graphs. Eulerian and Hamiltonian Graphs: Exploring and Travelling.

Chapter 2(Sections 2.4) Chapter 3(Sections 3.1)

Module III**(8 Hours)**

Eulerian and Hamiltonian Graphs: Eulerian Graphs-Hamiltonian Graphs.

Chapter 3(Sections 3.2, 3.3)

Module IV**(7 Hours)**

Digraphs: Digraphs and Sub digraphs- Vertex Degrees- Paths and Cycles.

Chapter 4(Sections 4.1-4.3)

Module V**(8 Hours)**

Matrix Representations: Adjacency Matrices- Walks in graphs and Digraphs- Incidence Matrices.

Chapter 5(Sections 5.1-5.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Books for Reference

1. Frank Harary, Graph Theory, Narosa Publishing House, New Delhi, Tenth Reprint 2001.
2. John Clark,Derek Allan Holton, A First Look at Graph Theory, Allied Publishers Ltd,Reprint 1995.

3. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice – Hall of India Private Ltd, New Delhi 2005.
4. Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin Heidelberg, 2005.

Course Designed by : N.JEYANTHI
 Course Reviewed by : N.RAJESWARI
 Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics
Semester IV

Part III-Core VII– OPERATIONS RESEARCH 414M07

[For students admitted during the academic year 2014-2015 and onwards]

65 Hours

Preamble

Operations Research seeks the determination of the best course of action of a decision problem under the restriction of limited resources.

The prime objectives for introducing this course are:

- To give practical training in converting a managerial decision making problem to a linear programming problem.
- To gain knowledge on techniques for solving linear programming problem.
- To develop logical reasoning in sequencing in a network to trace the shortest route.
- To develop knowledge in basic techniques to deal with inventory and replacement of equipments.

Module I

(13 Hours)

Linear Programming Problem: Graphical solution and Extension: Introduction – *Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and standard forms of L.P.P.

Linear programming- Simplex method: Introduction – Fundamental properties of solutions – The computational procedure – Use of artificial variables.

Chapter 3 (Sections 3.1 – 3.5), Chapter 4 (Sections 4.1 – 4.4)

Module II

(13 Hours)

Duality in Linear Programming: Introduction – General Primal – Dual pair – Formulating a dual problem – Primal – Dual pair in matrix form – Duality and Simplex method – Dual Simplex method. Transportation Problem: Introduction – LP formulation of the transportation problem - Existence of Solution in T.P - Duality in transportation problem - The transportation table - Loops in transportation tables - Triangular basis in a T.P - Solution of a transportation problem - Finding an initial basic feasible solution – Test for optimality – Economic Interpretation of u_j 's and v_j 's - Degeneracy in transportation problem – Transportation algorithm [MODI method] Assignment Problem: Introduction – *Mathematical formulation of the problem – Solution Methods of Assignment Problem.

Chapter 5 (Sections 5.1- 5.4, 5.7, 5.9), Chapter 10 (Sections 10.1 – 10.13)

Chapter 11 (Sections 11.1 – 11.3)

Module III

(13 Hours)

Games and Strategies: Introduction – Two-person zero-sum games – Some basic terms – The Maximin – Minimax principle – Games without saddle points – Mixed strategies – *Graphic solution of $2 \times n$ and $m \times 2$ games .

Chapter 17 (Sections 17.1 – 17.6)

Module IV

(13 Hours)

Inventory Control I: Introduction – Types of Inventories – Reasons for carrying Inventories - The inventory decisions – Objectives of Scientific Inventory Control - Costs associated with inventories – Factors affecting inventory control – An Inventory Control Problem – The Concept of EOQ - Deterministic inventory problems with No shortages – Deterministic inventory problems with shortages – Problems of EOQ with Price Breaks.

Chapter 19 (Sections 19.1 – 19.12)

Module V

(13 Hours)

Network Scheduling by PERT/CPM: Introduction- Network: Basic Components - Logical Sequencing - Rules of Network Construction - Concurrent Activities - Critical path analysis - Probability considerations in PERT - * Distinction between PERT and CPM.

Chapter 25 (Sections 25.1 - 25.8)

Note: Statement of the theorems and algorithms are included.

Book for study

Kanti Swarup, P.K Gupta, Man Mohan, Operations Research, Sultan Chand & Sons, New Delhi, Fifteenth Edition, Reprint 2010.

Books for Reference

1.J.K.Sharma, Operations Research: Theory and Applications, MacMillan India Ltd, Second Edition, 2003.

2.Hamdy A. Taha, Operations Research: An Introduction, Macmillan Publishing Company, Eighth Edition, 2008.

Course Designed by : P.JAYALAKSHMI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester IV

Part III –Core VIII/XI– DYNAMICS

414M08/414D11

[For students admitted during the academic year 2014-2015 & onwards]

52 Hours

Preamble

Dynamics is one among the two branches of Mechanics and deals with the study of solid bodies in motion. This course is introduced in the curriculum in order

- to train the students to think about physical phenomena in mathematical terms.
- to have a deep knowledge about the motion of particles under the influence of various forces like gravitational force, central force, impulsive force etc.,
- to provide a good foundation for the students to take up any advanced course in mechanics and all related fields.

Module I

(11 Hours)

Kinematics: Basic units – Velocity – Velocity of particle describing a circle – Resultant velocity – Relative velocity – Acceleration – Rectilinear motion – Rectilinear motion with a constant acceleration – Coplanar motion – Velocity and acceleration in a coplanar motion – Angular velocity – *Relative angular velocity.

Chapter 1 (Sections 1.1 - 1.4)

Module II**(10 Hours)**

Rectilinear motion under varying force: Simple harmonic motion – Projection of a particle having a uniform circular motion – *Composition of two simple harmonic motions of same period – S.H.M along a horizontal line – S.H.M along a vertical line.

Chapter 12 (Sections 12.1 – 12.3)

Module III**(11 Hours)**

Projectiles: Forces on a projectile – Displacement as a combination of vertical and horizontal displacements – Nature of trajectory – Results pertaining to the motion of a projectile – Maximum horizontal range for a given velocity – Two trajectories with a given speed and range – Projectile projected horizontally – Projectile projected on an inclined plane – *Maximum range on an inclined plane.

Moment of Inertia: Moment of Inertia – Perpendicular and parallel axes theorems.

Chapter 13 (Sections 13.1 , 13.2), Chapter 17 (Section 17.1)

Module IV**(10 Hours)**

Impact: Conservation of linear momentum(principle only) – Impact of spheres – Laws of impact – Impact of two smooth spheres – *Direct impact of two smooth spheres – Impact of a smooth sphere on a plane – Direct impact of a smooth sphere on a plane – Oblique impact of a smooth sphere on a plane – Oblique impact of two smooth spheres.

Chapter 14 (Sections 14.2 – 14.5)

Module V**(10 Hours)**

Central orbits: General orbits – Central orbit – Differential equation of a central orbit – Laws of a central force – Methods to find the central orbits – Conic as a central orbit – *Kepler's Laws of planetary motion.

Chapter 16 (Sections 16.1-16.3)

Book for Study

P. Duraipandian, Laxmi Duraipandian, Muthamizh Jayapragasam, Mechanics,
S. Chand & Company Ltd., Reprint 2010.

Books for Reference

1. A.V. Dharmapadam, Dynamics, S. Viswanathan Pvt Ltd., 2006.
2. S. Narayanan, Dynamics, S. Chand & Company Ltd., 16th revised edition 1986.
4. Dr.M.K. Venkataraman, Dynamics, Agasthiar publications, 12th edition 2006.

Course Designed by : B.KALAISELVI

Course Reviewed by : M.THAMILSELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester IV

Part IV-Skill Based Course : GRAPH THEORY-II

PATHS AND TREES 414MS2/414DS2

(For students admitted during the academic year 2014-2015 and onwards)

38 Hours

Preamble:

This being the second course in skill based learning provides the students with thinking skills and active learning at the same time as knowledge is acquired. It also provides a platform to learn the skill of analyzing the real world problems.

Module I**(8 Hours)**

Tree Structures: Mathematical Properties of Trees – Spanning Trees – Rooted Trees.

Chapter 6(Sections 6.1 – 6.3)

Module II (8 Hours)

Counting Trees: Counting Labeled Trees – Counting Binary Trees.

Chapter 7(Sections 7.1, 7.2)

Module III (8 Hours)

Greedy Algorithms: Minimum Connector Problem – Travelling Salesman Problem.

Chapter 8(Sections 8.1, 8.2)

Module IV (7 Hours)

Path Algorithms: Fleury's Algorithm – Shortest Path Algorithm.

Chapter 9(Sections 9.1, 9.2)

Module V (7 Hours)

Paths and Connectivity: Connected Graphs and Digraphs – Menger's Theorem for Graphs- Some analogues of Menger's theorem.

Chapter 10(Sections 10.1-10.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Books for Reference

1. Frank Harary, Graph Theory, Narosa Publishing House, New Delhi, Tenth Reprint 2001.
2. John Clark, Derek Allan Holton, A First Look at Graph Theory, Allied Publishers Ltd, Reprint 1995.
3. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice – Hall of India Private Ltd, New Delhi 2005.
4. Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin Heidelberg, 2006.

Course Designed by : N.JEYANTHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester V

Part III – Core X/XIII– ABSTRACT ALGEBRA 514M10/514D13

[For students admitted during the academic year 2014-2015 and onwards]

65 Hours

Preamble

Abstract Algebra enables one to reinterpret the result of classical algebra giving them greater unity and generality. This course has been introduced in the curriculum in order

- ❖ to introduce different algebraic structures like groups, rings and fields
- ❖ to gain deep knowledge in the structure preserving mappings like homomorphism, isomorphism etc...,

Module I (13 Hours)

Preliminary Notions: Mappings – *The integers(unique factorization theorem – statement only) Group Theory: Sub groups – Simple problems.

Chapter 1 (sections 1.2, 1.3), Chapter 2: (Section 2.4)

Module II**(13 Hours)**

Group theory: *A Counting principle – Normal subgroups and quotient groups – Homomorphisms – Simple problems.

Chapter 2(Sections 2.5 – 2.7)

Module III**(13 Hours)**

Group theory: Automorphisms – Cayley's theorem – *Permutation groups – Simple problems.

Chapter 2(Sections 2.8– 2.10)

Module IV**(13 Hours)**

Ring Theory: Definitions and examples of rings – Some special cases of rings – *Homomorphisms – Ideals and quotient rings – Simple problems.

Chapter 3(Sections 3.1 – 3.4)

Module V**(13 Hours)**

Ring Theory: More ideals and quotient rings – The field of quotients of an integral domain – *Euclidean rings – Simple problems.

Chapter 3(Sections 3.5 – 3.7)

Book for study

I.N. Herstein, Topics in Algebra, Second Edition, Wiley Eastern limited, (2007)

Books for Reference

3. P.B.Bhattacharya, S.k.Jain, S.R.Nagpoul, Basic Abstract Algebra, Second Edition, Cambridge University press, Reprint 2004.
4. John B. Fraleigh, A First Course in Abstract in Algebra, Fifth printing 2003, Addition Wesley Publishing Company.

Course Designed by : N.JEYANTHI

Course Reviewed by : M.THAMILSELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics**Semester V****Part III –Core XII-FUZZY LOGIC AND INTUITIONISTIC FUZZY****SETS****514M12****[For students admitted during the academic year 2014-2015 and onwards]****65 Hours****Preamble**

The course on fuzzy logic and intuitionistic fuzzy sets focuses on soft computing which is a powerful means for obtaining solutions to problems quickly, yet accurately and acceptable. It is designed

- To introduce the concept of soft computing to the students.
- To take up research projects in these areas.
- To enable the students to apply the soft computing methodologies in their fields of work.

Fuzzy Logic**Module I****(13 Hours)**

Fuzzy Set Theory : Fuzzy versus Crisp - Crisp sets - Fuzzy sets - *Crisp relations - Fuzzy relations.

Book 1 : Chapter 6

Module II**(13 Hours)**

Fuzzy Systems: *Crisp Logic - Predicate Logic - Fuzzy Logic - Fuzzy Rule based system - Defuzzification Methods - Applications.

Book 1 : Chapter 7

Hybrid Systems**Module III****(13 Hours)**

Fuzzy Associative Memories: FAM - An Introduction - Single Association FAM - Fuzzy Hebb FAMs - FAM Involving a Rule Base - *FAM Rules With Multiple Antecedents/Consequents - Applications.

Book 2 : Chapter 14

Intuitionistic fuzzy sets**Module IV****(13 Hours)**

Intuitionistic fuzzy sets: Definition of the concept of an Intuitionistic fuzzy sets- An Example - Operations and Relations over Intuitionistic fuzzy sets. Properties - Intuitionistic fuzzy sets of a Certain Level.

Book 2: Chapter 1 (Sections 1.1 – 1.3)

Module V**(13 Hours)**

Intuitionistic fuzzy sets: Cartesian Products over Intuitionistic fuzzy sets.
Intuitionistic fuzzy Relations - “Necessity” and “Possibility” Operators on Intuitionistic fuzzy sets - Topological Operators over Intuitionistic fuzzy sets.
Book 2: Chapter 1 (Sections 1.4 – 1.6)

Books for Study

Book 1: For Modules I-III : S.Rajasekaran, and G.A.Vijayalakshmi Pai, Neural Networks, Fuzzy Logic, and Genetic Algorithm : Synthesis and Applications, Prentice-Hall of India Private Ltd, New Delhi, 2010.

Book 2: For Modules IV, V : Krassimir T.Atanassov, Intuitionistic fuzzy sets. Theory and Applications, Physica- Verlag Heidelberg, New York,1999.

Books for Reference

1. Timothy, J.Ross, Fuzzy Logic with Engineering Applications, McGraw Hill, 1997.
2. Dr.Valluru.B.Rao, Hayagriva.V.Rao, C++ Neural Networks and Fuzzy Logic, BPB Publications, Second Edition, 1996.

Course Designed by : R.ANGEL JOY

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester V

Part III Elective I – PROGRAMMING IN C

510ME1

(For students admitted during the academic year 2014 – 2015 and onwards)

50 Hours

Preamble:

The study of Programming Languages has inevitably become a part and parcel of life. The Programming Language C finds a wide variety of applications in the development of software. This course is designed

- To encourage economy of expression in its application areas

- To provide the students with all the fundamental concepts of the C language .
- To improve the logical thinking while developing programs.

Module I (10 Hours)

Constants, Variables and Data types: Introduction – Character set – C tokens – Keywords and Identifiers – Constants – Variables – Data types – Declaration of variables – Declaration of storage class – Assigning values to variables – Defining symbolic constants – Declaring a variable as constant – Declaring a variable as Volatile. Operators and Expressions: Introduction – *Arithmetic operators – *Relational operators – *Logical operators – *Assignment operators – *Increment and decrement operators – *Conditional operator – Bitwise operators – Special operators – Arithmetic expressions – Evaluation of expressions – Precedence of Arithmetic operators – Some computational problems – Type conversions in expressions – Operator precedence and associativity – Mathematical functions.
Chapter 2(Sections 2.1-2.13) ,Chapter 3(Sections 3.1-3.16)

Module II (10 Hours)

Managing Input and Output operations : Introduction – Reading a Character – Writing a Character – Formatted Input – Formatted Output. Decision making and Branching: Introduction – Decision making with IF statement – *Simple IF statement – *The IF...ELSE statement – Nesting of IF...ELSE statements – The ELSE IF ladder – The Switch statement – The ?: operator – The GOTO statement.
Chapter 4(Sections 4.1-4.5),Chapter 5(Sections 5.1-5.9)

Module III (10 Hours)

Decision making and looping : Introduction – *The WHILE statement – *The DO statement – The FOR statement – Jumps in loops. Arrays: Introduction – One- dimensional arrays – Declaration of One- dimensional arrays –Initialization of One- dimensional arrays – Two-dimensional arrays – Initializing Two- dimensional arrays – Multi - dimensional arrays.
Chapter 6(Sections 6.1-6.5) Chapter 7(Sections 7.1-7.7)

Module IV (10 Hours)

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – Arithmetic operations on characters –Putting strings together – Comparison of two strings – *String handling functions. User-Defined functions : Introduction – Need for user defined functions – A multi-function program – Elements of user defined functions – Definition of functions – Return values and their types – Function calls – Function declaration – Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns a value – Functions that return multiple values.
Chapter 8(Sections 8.1-8.8) ,Chapter 9(Sections 9.1-9.14)

Module V (10 Hours)

User – Defined functions : Nesting of functions – Recursion – Passing arrays to functions – Passing strings to functions – The scope, visibility and lifetime of variables. Structures and Unions: Introduction – Defining a Structure – Declaring Structure variables – Accessing Structure members – Structure Initialization – Copying and Comparing Structure variables - Operations on Individual members - Arrays of Structures – *Arrays within Structures – Structures within Structures – Structures and Functions – Unions.
Chapter 9(Sections 9.15-9.19) , Chapter 10(Sections 10.1-10.12)

Book for Study

E.Balagurusamy, Programming in ANSI 'C', McGraw Hill Education Private Limited, Sixth Edition, Fifth reprint 2013.

Books for Reference

1. Henry Mullish and Herbert L. Cooper, The Spirit of 'C' – An Introduction to modern Programming, Jaico publishing house 2006.
2. Harvey Deitel & Paul J. Deitel, C: How to program, Pearson Education Inc, 6th Edition 2010.

**Part III Elective I – PROGRAMMING IN C - PRACTICAL 510MEP
(For students admitted during the academic year 2014 – 2015 and onwards)****List of Programs (25 Hours)**

1. Finding sum, average, standard deviation for a given set of numbers.
2. Printing Fibonacci series.
3. Prime number checking.
4. Finding roots of a Quadratic Equation.
5. Finding the product of two matrices.
6. Finding the factorial of a number using recursion.
7. Finding whether a string is PALINDROME or not.
8. Arranging strings in alphabetical order.
9. Counting tabs, number of lines, characters and blank spaces in a given text.
10. Reading and Printing personal information using structures.

Course Designed by : P.PADMAVATHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)**Semester V****Part IV-Skill Based Course : Graph Theory - III****PLANAR GRAPHS AND COLOURING OF GRAPHS 514MS3/514DS3**

(For students admitted during the academic year 2014-2015 and onwards)

Preamble: 38 Hours

This course provides opportunities for skills development including team work, independent enquiry, self-evaluation, problem solving and critical/creative thinking.

The case studies enable the students to visualize and comprehend the practical applications and to build their own models depicting for graph theory applications.

Module I (7 Hours)

Planarity: Planar graphs – Euler's formula

Chapter 11(Sections 11.1,11.2)

Module II (7 Hours)

Planarity: Cycle Method for Planarity Testing – Kuratowski's Theorem – Duality.

Chapter 11(Sections 11.3-11.5)

Module III (8 Hours)

Vertex Colourings and Decompositions: Vertex Colourings – Algorithm for

Vertex Colouring – Vertex Decompositions.

Chapter 12(Sections 12.1-12.3)

Module IV**(8 Hours)**

Edge Colourings and Decompositions : Edge Colourings – Algorithm for Edge Colouring
Edge Decompositions.

Chapter 13(Sections 13.1-13.3)

Module V**(8 Hours)**

Case Studies : Four Cubes Problem – Knight's Tour Problem – Gray Codes – Rotating Drum
Problem – Ranking in Tournaments – Interval Graphs.

Chapter 2 (Section 2.5), Chapter 3 (Section 3.4), Chapter 4 (Section 4.5)

Chapter 5 (Section 5.4) (Specified case Studies only)

***Proof of the theorems are not included.**

Book for Study

Graphs And Applications – An Introductory Approach, Joan M.Aldous and Robin J.Wilson,
Springer – First Indian Reprint 2007.

Books for Reference

1. Frank Harary, Graph Theory, Narosa Publishing House, New Delhi, Tenth Reprint 2001.
2. John Clark, Derek Allan Holton, A First Look at Graph Theory, Allied Publishers
Ltd, Reprint 1995.
3. Narsingh Deo, Graph Theory with Applications to Engineering and Computer
Science, Prentice – Hall of India Private Ltd, New Delhi 2005.
4. Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin
Heidelberg, 2005.

Course Designed by : N.JEYANTHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester VI

Part III-Core XV/XVIII-LINEAR ALGEBRA 614M15/614D18

[For students admitted during the academic year 2014-15 and onwards]

Preamble**65 Hours**

The prime objectives of this course are

- To introduce a new algebraic structure, vector space and its concepts like linear dependence, basis, dimension etc., which have wide applications in many branches of mathematics.
- To highlight the differences between the vector space and the algebraic structures groups and rings.
- To introduce many types of matrices which are useful for representing problems in an efficient way.
- To infer the relationship between the linear transformation in vector spaces and matrices.

Module I**(13 Hours)**

Vector spaces and Modules: Elementary basic concepts – Linear Independence
and basis - *Simple problems.

Book 1: Chapter 4 (Sections 4.1, 4.2)

Module II**(13 Hours)**

Vector spaces and modules: Dual spaces – Inner product spaces - *Simple problems.

Book 1: Chapter 4 (Sections 4.3, 4.4)

Module III (13 Hours)

Linear Transformations: The Algebra of Linear Transformations – Characteristic Roots - *Matrices – Simple problems.

Book 1: Chapter 6 (Sections 6.1 to 6.3)

Module IV (13 Hours)

Linear Transformations: Hermitian, Unitary and Normal Transformations - *Simple problems. Book 1: Chapter 6 (Sections 6.10)

Module V (13 Hours)

Matrices: Symmetric and Skew-symmetric matrices - *Hermitian and Skew-Hermitian matrices – Orthogonal and Unitary matrices.

Linear Transformations of Vector spaces: Characteristic roots and Characteristic vectors of a square matrix.

Book 2: Chapter 1 (Sections 1.7 to 1.9) Chapter 3 (Section 3.9)

Books for study

Book 1: For Modules I to IV: I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd, Second Edition, 2007.

Book 2: For Module V : R. Balakrishnan and N. Ramabhadran, A Text Book of Modern Algebra, Vikas Publishing House Pvt Ltd, Third Edition, 1979.

Books for Reference

1. Surjeet Singh and Qazi Zameerudin, Modern Algebra, Vikas Publishing

House, Third Edition, 1979.

2. R.S. Aggarwal, A Text book in Modern Algebra, S.Chand and company Ltd, New Delhi, 1996.

Course Designed by: S.KALAISELVI

Course Reviewed by: P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester VI /V

Part III-Elective II - MATHEMATICAL CRYPTOGRAPHY

614ME2 /512DE1

[For candidates admitted during the academic year 2014-2015 and onwards]

75 Hours

Preamble

Information security has gained practical importance due to the rapid growth of electronic communication. Cryptography helps us to solve the problems in information security. The syllabus is framed with two main objectives.

- To make the students understand the significance of number theory in Cryptography and theoretical Computer Science.
- To give them the basic knowledge in Cryptography.

Module I (15 Hours)

An introduction to Cryptography: Simple substitution ciphers - *Divisibility and greatest common divisors - Modular arithmetic - Prime numbers, unique factorization and finite fields - Powers and primitive roots in finite fields - Symmetric and asymmetric ciphers.

Chapter 1 (Sections 1.1-1.5,1.7)

Module II**(15 Hours)**

Discrete Logarithms and Diffie Hellman: The birth of public key cryptography- The discrete logarithm problem - Diffie Hellman key exchange - The Elgamal public key cryptosystem - A collision algorithm for the DLP - *The Chinese remainder theorem - The Pohlig - Hellman algorithm.

Chapter 2 (Sections 2.1-2.4, 2.7-2.9))

Module III**(15 Hours)**

Integer factorization and RSA: Euler's formula and roots modulo pq - The RSA public key cryptosystem - Primality testing - Pollard's $p-1$ factorization algorithm. - *Factorization via difference of squares.

Chapter 3 (Sections 3.1-3.2, 3.4 -3.6)

Module IV**(15 Hours)**

Integer factorization and RSA: Smooth numbers and sieves - The index calculus and discrete logarithms - Quadratic residues and quadratic reciprocity - *Probabilistic encryption.

Chapter 3(Sections 3.7-3.10)

Module V**(15 Hours)**

Elliptic curves and Cryptography: Elliptic curves-Elliptic curves over finite fields - The Elliptic curve discrete logarithmic problem - Elliptic curve cryptography - *Lenstra's elliptic curve factorization algorithm.

Chapter 5(Sections 5.1-5.4,5.6)

Note: Simple problems only.

Book for Study

Jeffrey Hoffstein, Jill Pipher, Joseph H.Silverman, "An introduction to Mathematical Cryptography", Springer Undergraduate texts in mathematics, First Indian reprint 2011.

Books for Reference

1. Neal Koblitz, "A Course in Number Theory and Cryptography" – Graduate texts in Mathematics Springer – Second Edition, 2002 – Reprint.
2. Ivan Niven and Herbert S.Zuckerman, "An Introduction to Theory of Numbers "Wiley Eastern Ltd.,third Edition,1991 - Reprint.
3. Hans Delfs and Helmut knebl, "Introduction to Cryptography Principles and Applications" – Springer 2002.
4. N.Harini, C.K.Shyamala, Dr.T.R.Padmanabhan, " Cryptography and Security" – Wiley-India, 1st Edition 2011.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester VI

Elective III - COMPUTATIONAL MATHEMATICS LABORATORY

614ME3

[For candidates admitted during the academic year 2014-2015 and onwards]

Preamble**50 Hours**

MATLAB is a scientific and technical computing software packages which is versatile and used widely by Scientists, Engineers and Mathematicians.

This course is designed

- to aid the students in solving problems with ease
- to sharpen the skills of computing

Module I

(10 Hours)

Introduction to MATLAB: Introduction - Starting and ending MATLAB Session - Matlab Environment - Help Feature - *Types of files -Platform - Search Path - Some useful MATLAB Commands - Summary. Constants, Variables and Expressions: Introduction - Character set - Data types - Constants and Variables - Operators - Hierarchy of Operations - Built-in Functions- Assignment Statement - Illustrative Programs - Summary. Vectors and Matrices: Introduction - Scalars and Vectors - Entering data in matrices - Line continuation- Matrix subscripts/indices.

Chapter 1(Sections 1.1 – 1.9), Chapter 2(Sections 2.1 – 2.10),

Chapter 3(Sections 3.1 – 3.5)

Module II

(10 hours)

Vectors and Matrices: Multi-dimensional matrices and arrays -Matrix manipulations - Generation of special matrices - Some useful commands related to matrices - Matrix and Array operations - Functions with array inputs - Structure arrays -Cell arrays - Creating Some useful commands of structures and cells - Summary. Polynomials: Introduction - Entering a Polynomial - Polynomial evaluation - Roots of a Polynomial - Polynomial addition and subtraction - *Polynomial multiplication - Polynomial division - Formulation of Polynomial equation - Characteristic Polynomial of a matrix - Polynomial differentiation - Polynomial integration - Polynomial curve fitting - Evaluation of Polynomial with matrix arguments - Summary.

Chapter 3(Sections 3.6 – 3.15), Chapter 4(Sections 4.1 – 4.14)

Module III

(10 hours)

Input-Output statements: Introduction - Data input - *Interactive inputs - Reading/Storing file data - Output commands- Low-level input-output functions -Summary. MATLAB Graphics: Introduction - Two-dimensional plots -Multiple plots -Style options - legend command - subplots - specialized two-dimensional plots .

Chapter 5(Sections 5.1 - 5.7) Chapter 6(Sections 6.1 – 6.7)

Module IV

(10 hours)

MATLAB Graphics: Three-dimensional plots - Summary. Control structures: Introduction - *Loops -Branches control structures -Summary. Writing programs and functions: Introduction - MATLAB Editor - Opening the editor - Editor main menu - Tool bar - MATLAB programming- Function sub programs.

Chapter 6 (Sections 6.8, 6.9), Chapter 7 (Sections 7.1 – 7.4),

Chapter 8 (Sections 8.1 – 8.4)

Module V

(10 hours)

Writing Programs and Functions: Some Illustrative Examples - Types of Functions - Function Handles - *Errors and Warnings - MATLAB Debugger. Ordinary Differential Equations and Symbolic Mathematics.

Chapter 8(Sections 8.5 – 8.10), Chapter 9(Sections 9.1 - 9.4)

Book for Study

Raj Kumar Bansal, Ashok Kumar Goel, Manoj Kumar Sharma, MATLAB and its applications in Engineering, Version 7.5, Pearson Education, 2009.

Books for Reference

1. Duane Hanselman, Bruce Littlefield *Mastering MATLAB 7*, Dorling Kindersly (India) Pvt Ltd, Pearson, Seventh impression 2011,
2. Rudra Pratap, Getting started with MATLAB 7 – A Quick introduction for Scientists and Engineers. Oxford university press. Ed. 2006.

Elective III - COMPUTATIONAL MATHEMATICS LABORATORY- PRACTICAL

614MEP

[For candidates admitted during the academic year 2014-2015 and onwards]

List of Programs

(25 hours)

11. Solving a system of linear Equations.
 12. Arithmetic operations on arrays.
 13. Drawing 2D and 3D plots.
 14. Finding derivatives and integrals of polynomials.
 15. Creating a structure for an employee data base containing employee code, name, designation and salary.
 16. A function subprogram to calculate the compound interest, given the initial amount, time period of deposit, rate of interest and time of compounding.
 17. Program to process the applications for admission to an engineering college and to list the candidates eligible for admission based on the following conditions:
 - (a) Marks in Maths ≥ 60
 - (b) Marks in Physics ≥ 55
 - (c) Marks in Chemistry ≥ 55
 - (d) Total marks ≥ 180
 18. Program to reverse the digits of a number having minimum three digits.
 19. Program to solve first order Ordinary Differential Equations.
 20. Program to solve set of Simultaneous Differential Equations.
- Course Designed by : N.RAJESWARI
Course Reviewed by : S.KALAISELVI
Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/Mathematics(CA) Semester VI

Part IV-Skill Based Course IV MODEL PRESENTATION 614MS4/614DS4 (For students admitted during the academic year 2014-2015 and onwards)

Preamble

This Course is unique in the sense that it enables the students to understand the theoretical concepts and to apply them to construct models in their area of study.
This course is carried out as group project, thus enabling the student to learn to work as a team.

B.Sc. Mathematics
Semester wise Distribution with Scheme of Examination
[For the students admitted during the academic year 2012-2013 & onwards]

Sem	Course	Credits	Duration of Exam(ESE) (Hrs)	Marks		Total
				CIA	ESE	
I	Part I: Language I	3	3	25	75	100
	Part II: English I	3	3	25	75	100
	Part III:					
	Core I: Algebra and Calculus	4	3	25	75	100
	Core II: Differential Equations and Laplace Transforms	4	3	25	75	100
	Allied I : Physics I	4	3	15	60	75
	Allied Physics Practical	-	-	-	-	-
	Part IV: Environmental Studies	2	-	50	-	50
II	Part I: Language II	3	3	25	75	100
	Part II: English II	3	3	25	75	100
	Part III:					
	Core III: Analytical Geometry	4	3	25	75	100
	Core IV: Numerical Methods	4	3	25	75	100
	Allied II: Physics II	4	3	15	60	75
	Allied Physics Practical	2	3	20	30	50
	Part IV: Value Education	2	-	50	-	50
	Advanced Learner's Course I (ALC I): Combinatorics	3*	3	-	100	100
III	Part I: Language III	3	3	25	75	100
	Part II: English III	3	3	25	75	100
	Part III:					
	Core V: Trigonometry, Vector Calculus and Fourier Series	4	3	25	75	100
	Core VI: Statics	4	3	25	75	100
	Allied III: Principles of Accountancy	5	3	25	75	100
	Part IV: Non Major Elective Skill Based Course: Graph Theory- I	2	-	75	-	75
		3	-	100	-	100

Sem	Course	Credits	Duration of Exam(ESE) Hrs	Marks		Total
				CIA	ESE	
IV	Part I: Language IV	3	3	25	75	100
	Part II: English IV	3	3	25	75	100
	Part III:					
	Core VII: Operations Research	4	3	25	75	100
	Core VIII: Dynamics	4	3	25	75	100
	Allied IV: Mathematical Statistics	5	3	25	75	100
	Part IV: General Awareness	2	-	75	-	75
	Skill Based Course: Graph Theory- II	3	-	100	-	100
	ALC II: Statistical Quality Control	3*	3	-	100	100
	Part V: Extension Activity	1	-	50	-	50
V	Part III:					
	Core IX: Real Analysis I	4	3	25	75	100
	Core X: Abstract Algebra	4	3	25	75	100
	Core XI: Discrete Mathematics	4	3	25	75	100
	Core XII: Fuzzy Logic and Neural Networks	4	3	25	75	100
	Elective I: Programming in C	3	3	25	75	100
	Elective I : Programming in C- Practical	2	3	20	30	50
	Part IV: Skill Based Course : Graph Theory- III	3	-	100	-	100
VI	Part III:					
	Core XIII: Real Analysis II	4	3	25	75	100
	Core XIV: Complex Analysis	4	3	25	75	100
	Core XV: Linear Algebra	4	3	25	75	100
	Elective II- Mathematical Cryptography	5	3	25	75	100
	Elective III: Computational Mathematics Laboratory	3	3	25	75	100
	Elective III: Computational Mathematics Laboratory - Practical	2	3	20	30	50
	Part IV: Skill Based Course IV: Model Presentation (Group Project)	3	-	100	-	100
	ALC III: Mathematics in Insurance	3*	3	-	100	100
Total Credits		140				

Starred credits are treated as additional credits which are optional.

Non-Major Elective offered by the Department – Basic Mathematics for Competitive Examinations.

B.Sc. Mathematics/ Mathematics (C.A)
Semester I

Part III – Core I – ALGEBRA AND CALCULUS **112M01/112D01**
[For students admitted during the academic year 2012 – 2013 and onwards] 75 Hours

Preamble

This being the first course of the curriculum, it is framed with the basic subjects Algebra and Calculus.

This provides the students to

- acquire knowledge about the convergence and divergence criteria of the given series.
- get familiar with the applications of Binomial, Exponential and Logarithmic expansion for finding the sum of an infinite series.
- develop skills for solving the algebraic equations.
- acquire knowledge about evolute, involute of the plane curves.
- know the applications of double and triple integrals in finding the areas and volumes.

Module I

(15 Hours)

Convergency and Divergency of series: Definitions and elementary results – Some general theorems concerning infinite series – Series of positive terms – Comparison tests – Convergence and Divergence of series – Cauchy's condensation test – D'Alembert's ratio test – Cauchy's root test – *Raabe's test.

Note : Only Statement of the tests are included.

Book 1: Chapter 2 (Sections 8 – 20)

Module II

(15 Hours)

Binomial Theorem: Binomial Theorem (statement only) – Application of the Binomial Theorem to the summation of series.

Exponential and Logarithmic series: The Exponential Theorem (statement only) – Summation – The Logarithmic series – Modification of the Logarithmic series – Series which can be summed up by the Logarithmic series.

Book 1: Chapter 3 (Sections 1,10) Chapter 4 (Sections 2, 3, 5, 6, 7 and 9)

Module III

(15 Hours)

Theory of Equations: Transformation of Equations – Reciprocal Equation – To increase or decrease the roots of a given equation by a given quantity – *Removal of terms – Descarte's rule of signs – Horner's method of finding the roots of the given equation.

Book1: Chapter 6 (Sections 15-17, 19, 24, 30)

Module IV

(15 Hours)

Differential Calculus: Envelopes, Curvature of plane curves: Envelopes – Method of finding the envelope – Curvature-Cartesian formula for radius of curvature – The co-ordinates of center of curvature – Evolutes and involutes – *Radius of curvature in polar co-ordinates – p-r equation.

Book2: Chapter 10 (Sections 1.1-1.4, 2.1, 2.3-2.8)

Module V

(15 Hours)

Integral Calculus: Multiple integrals: Definition of the double integral-Evaluation of double integral - Double integral in polar co-ordinates-Triple integrals- *Applications of multiple integrals.

Change of variables: Jacobian—Change of variables in the case of two variables-

Change of variables in the case of three variables -Transformation from Cartesian to

polar, spherical polar co-ordinates. Improper integrals: Beta and Gamma functions: Definitions-Convergence of $\Gamma(n)$ – Recurrence formula of Gamma functions-Properties of Beta functions-Relation between Beta and Gamma functions.

Book3: Chapter 5 (Sections 1, 2.1, 2.2, 3.1, 3.2, 4, 5.1)

Chapter 6 (Sections 1.1, 1.2, 2.1 - 2.4)

Chapter 7 (Sections 2.1-2.3, 3, 4, 5)

Books for study

Book1: For Modules I, II and III: T. K. Manicavachagam Pillay, T. Natarajan
and K. S. Ganapathy, Algebra Volume I ,
S.Viswanathan (printers and publishers) Pvt., Ltd.,
Eleventh Revised Edition, Reprint –2009.

Book 2: For Module IV : S.Narayanan and T.K. Manicavachagam Pillay,
Calculus (Major) Volume I,
S.Viswanathan (Printers and Publishers) Pvt., Ltd.,
Eighteenth Edition, 2009.

Book 3: For Module V : S. Narayanan and T. K. Manicavachagam Pillay,
Calculus volume II(Integral calculus),
S.Viswanathan (Printers and Publishers) Pvt., Ltd.,
Eighteenth Revised Edition, 2009.

Books for Reference

1. P.Kandasamy, K.Thilagavathy, Mathematics for B.Sc Br-I, First Semester, Volume I, S.Chand & Company Ltd, First Edition, 2004.
2. Shanthi Narayanan, Differential Calculus, Shayambal Charitable Trust, 1987.
3. Shanthi Narayanan, Integral Calculus, S. Chand & Co, 1987.

Course Designed by : B.KALAISELVI
Course Reviewed by : P.JAYALAKSHMI
Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)
Semester I

Part III – Core II – DIFFERENTIAL EQUATIONS AND

LAPLACE TRANSFORMS 112M02/112D02

[For students admitted during the academic year 2012 – 2013 and onwards] 65 Hours

Preamble

This course is introduced in the curriculum since

- Differential equations play an important role in physical system of science, engineering and social sciences
- The Laplace transforms are widely adopted by scientists and engineers as an efficient tool for solving linear differential equations.

The topics included in the course help the students

- To interpret the physical systems in terms of differential equation
- To master the various methods of solving a variety of differential equations.

Module I **(13 Hours)**

Differential Equations: Differential equations of the first order: Equations of the first order, but of higher degree: Equations solvable for dy/dx - Equations solvable for y -Equations solvable for x (particular cases of 5.2) - Clairaut's form- *Extended form of Clairaut's Equations - Equations that do not contain x explicitly-Equations that do not contain y explicitly-Equations homogeneous in x and y .

Chapter 1 (Sections 5.1-5.5,6.1,6.2,7.1-7.3)

Module II **(13 Hours)**

Linear Differential Equations with constant coefficients:Solving $(d^n y/dx^n) + a_1 (d^{n-1}y/dx^{n-1}) + a_2 (d^{n-2}y/dx^{n-2}) + \dots + a_n y = X$, when X is of the form $e^{ax}V$, V is function of x .-Linear differential equations with variable coefficients-*Equations reducible to the linear homogeneous equations.

Chapter 2 (Sections 4(d), 8, 9)

Module III **(13 Hours)**

Simultaneous Differential Equations: Simultaneous equations of the first order and first

degree - Solutions of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Methods for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - * Simultaneous

linear differential equations with constant coefficients.

Chapter 3 (Sections 1-4, 6).

Module IV **(13 Hours)**

Partial Differential Equations: Derivation of Partial Differential Equations- Different integrals of Partial differential equations (definition only) – Standard types of first order equations - *Lagrange's equation.

Chapter 4 (Sections 1-3, 5, 6)

Module V **(13 Hours)**

The Laplace Transforms: Definition-Results from the definition-Laplace transforms of periodic functions – Some general theorems - *Evaluation of certain integrals using Laplace transforms- The inverse Laplace transforms-Solving second order differential equations

with constant coefficients using Laplace transforms-Solving systems of differential equations using Laplace transforms.

Chapter 5 (Sections 1 – 9)

Book for study

S.Narayanan and T.K.Manicavachagom Pillay,Calculus (Major) VolumeIII,
S.Viswanathan(Printers and Publishers) Pvt.Ltd, 18th edition, 2008.

Books for Reference

7. Ervin Kreyszig, Advanced Engineering Mathematics, Wiley Eastern Ltd.,
8th edition, 2006.

8. George .F.Simmons, Differential Equations with applications and Historical
notes, Mc Graw Hill,Inc, 2nd Edition 1991.

Course Designed by : B.KALAISELVI

Course Reviewed by : P.JAYALAKSHMI

Course Checked by :A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A) Semester II

Part III – Core III – ANALYTICAL GEOMETRY 212M03/212D03

[For students admitted during the academic year 2012– 2013 and onwards] 75 Hours

Preamble

The primary objectives of introducing this course in the curriculum is

- to understand the mathematical representation of the geometrical figures
- to give a training for visualizing ideas in two and three dimensions
- to expose the students to apply these concepts in the advanced level subjects like Differential geometry, Mechanics, Fluid mechanics etc.
- to give an indepth knowledge in three dimensional figures to understand graphic concepts.

Module I

(15 Hours)

Polar coordinates: Polar coordinates - Relation between polar and rectangular cartesian coordinates- Equation of a straight line- Equation of a circle - *Equation of the chord of a circle - Equation of a conic - Equation of a chord of a conic - Equations of the asymptotes of a hyperbola - Examples.

Book 1: Chapter 9

Module II

(15 Hours)

Straight Lines: Equations of a straight line-Conditions for various situations of a line- *Angle between a plane and a line - Projection of a line- Perpendicular drawn to a line- Shortest distance between two skew lines-Sums.

Book 2: Chapter 4(Sections 4.1 – 4.6, 4.11)

Module III

(15 Hours)

Sphere: Equation of a sphere-Standard equation of a sphere - Results based on the properties of a sphere - Tangent plane to a sphere-*Radical plane- Equations of a circle- Equations $S+\lambda P = 0$ and $S+\lambda S' = 0$ - Sums.

Book 2: Chapter 5

Module IV**(15 Hours)**

Cone, Cylinder And Conicoids: Cone - Equation of a cone-Cone whose vertex is at the origin – * Quadric cone with vertex at the origin - General quadric cone- Cylinder- Equation of a cylinder - Sums.

Book 2: Chapter 6(Sections 6.1 – 6.7, 6.13)

Module V**(15 Hours)**

Cone, Cylinder And Conicoids:* Quadric surfaces- Conicoids- Notation- Enveloping cone- Tangent plane- Sums.

Book 2: Chapter 6(Sections 6.8 – 6.12, 6.13)

Books for study

Book 1: For Module I: Analytical Geometry 2 Dimensional, P.Duraipandian, Laxmi Duraipandian, D.Muhilan, Emerald Publishers, Reprint 1985.

Book 2: For Modules II,III,IV & V:Analytical Geometry 3 Dimensional, P.Duraipandian, Laxmi Duraipandian, D.Muhilan, Emerald Publishers, Reprint 2006.

Books for Reference

1. A text book of Analytical Geometry (Part I-Two Dimensions), T.K.Manickavasagam Pillai , T.Natarajan,S.Viswanathan (printers and publishers), Pvt.,Ltd., 2010.
2. Analytical Geometry (Three dimensional) by T.K.Manickavasagam Pillai and others, Viswanathan Publications,2010.

Course Designed by : B.KALAISELVI

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester III

Part III – Core V/VI – TRIGONOMETRY, VECTOR CALCULUS AND

FOURIER SERIES

312M05/312D06

[For students admitted during the academic year 2012– 2013 and onwards] **52 Hours**

Preamble

This course provides the students

- to gain knowledge about expansions of trigonometric functions
- to learn about vector treatment which will help them to deal the analytical geometry problems using vector method
- to apply Fourier concepts in the field of image processing

Module I**(10****Hours)**

Expansions of $\sin^n \theta$, $\cos^n \theta$: Expansions of powers of $\sin \theta$ and $\cos \theta$ - Expansion of $\cos^n \theta$ - Expansion of $\sin^n \theta$ - Expansion of $\cos^m \theta \sin^n \theta$ - Expansions of $\cos n\theta$, $\sin n\theta$, $\tan n\theta$: *Expansions of $\cos n\theta$ and $\sin n\theta$ - Steps to expand $\cos n\theta$, $\sin n\theta$ - Expansion of $\tan n\theta$ - Expansion of $\tan(\theta_1 + \theta_2 + \dots + \theta_n)$ - Application of expansion of $\tan n\theta$ - Expansions of $\sin x$, $\cos x$, $\tan x$ in x -Series for $\cos x$ in x - Series for $\sin x$ in x - Series for $\tan x$ as far as the term x^5 .

Book 1: Chapter 2(Sections 2.1 – 2.1.3), Chapter 3(Sections 3.1-3.4.3)

Module II**(10****Hours)**

Hyperbolic functions: Hyperbolic functions - Relations between circular and hyperbolic functions- *Formulas in hyperbolic functions- Expansions of $\cosh^4 \theta$ and $\sinh^4 \theta$ - Period of a

function- Real and imaginary parts of circular functions - $\sin(\theta+i\phi)$, $\cos(\theta+i\phi)$ - $\tan(\theta+i\phi)$, $\cot(\theta+i\phi)$ - $\operatorname{cosec}(\theta+i\phi)$, $\sec(\theta+i\phi)$ - Real and imaginary parts of hyperbolic functions - Inverse hyperbolic functions and $\tan^{-1}(x + iy)$ - Implications of the relations. Logarithmic functions: Inverse function of exponential function - Values of $\operatorname{Log}(u + iv)$ - Complex index. Book 1: Chapter 4(Sections 4.1 – 4.7), Chapter 5(Sections 5.1 – 5.3).

Module III (10

Hours) Differentiation of vectors: The scalar and vector fields- Derivative of a vector- Derivative of a function of a function- *Derivative of a dot and cross product of two vectors. Gradient, Divergence and Curl: The vector differential operator $\operatorname{DEL}(\nabla)$ -The gradient-The divergence- The curl- Directional derivative- Level surface- Formulae involving ∇ - Second order Differential Operators.

Book 2: Chapters 1, 2.

Module IV (11
Hours)

Integration of Vectors: The line integral- *Surface integral- Green's theorem in the plane- Gauss's Divergence Theorem- Stoke's theorem- Further worked examples.

Book 2: Chapter 3.

Module V (11
Hours)

Fourier series: Fourier series- Even and odd functions -Half-range series: *Half-range sine series- Half-range cosine series.

Book 2: Fourier Series and its Applications: Chapter 1: Pages 96-145.

Books for Study

Book 1: For Modules I & II: Trigonometry.Duraipandian,Kayalal Pachaiyappa, Muhil Publishers, Revised Edition 2009.

Book 2: For Modules III,IV & V : Mathematics for B.Sc. Branch-I,Volume – IV, P.Kandasamy, K.Thilagavathi, S.Chand & Company Limited, First Edition 2005.

Books for Reference

1. Trigonometry, T.K.Manickavasagam Pillai and S.Narayanan,S.Viswanathan (Printers and publishers),Pvt.,Ltd.,2010.
2. Vector Analysis by P.Duraipandian and Kayalal Pachaiyappa, Muhil Publishers, Revised Edition 2009.
3. Calculus (Volume III), S.Narayanan, T.K.Manickavasagam Pillai, S.Viswanathan (printers and publishers),Pvt.,Ltd.,2010.

Course Designed by : B.KALAISELVI

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester III

Part IV –Non – Major Elective- BASIC MATHEMATICS

FOR COMPETITIVE EXAMINATIONS 312NMC

[For students admitted during the academic year 2012-2013 & onwards] 25 Hours

Preamble

The syllabus of this course has been framed to cover all topics in quantitative aptitude required for competitive examinations like Bank P.O., and Railways etc. The syllabus helps the students

- to equip them with as much knowledge on all topics as is desirable from the point of view of brilliant success in the competitive examinations.
- to familiarize with different types of tests conducted by various examining bodies
- to sharpen the basic knowledge in mathematics and to increase the speed of its application through regular practice.

Module I (5 Hours)

Decimal fractions – Simplification – Number series.
Chapters(3,4,39)

Module II (5 Hours)

Problems on Ages – Percentage – Profit and loss.
Chapters(8,10,11)

Module III (5 Hours)

Ratio and proportion – Partnership
Chapters(12,13)

Module IV (5 Hours)

Time and work - Time and distance - Problems on trains.
Chapters (15,17,18)

Module V (5 Hours)

Simple interest – Compound interest – True discount.
Chapters (21,22,25)

Book for Study

Objective Arithmetic – R.S. Aggarwal, S.Chand & Company LTD, Reprint 2009.

Books for Reference

1. Quick Arithmetic -Ashish Aggarwal, Sultan Chand &Company Ltd,Second edition 2007.
2. Quantitative Aptitude for Competitive examinations, Abhijit Guha, Tata McGraw –Hill Publishing Company Ltd, Third edition.

Course Designed by : P.PADMAVATHI

Course Reviewed by : B.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/Mathematics (C.A)

Semester III

Part IV-Skill Based Course : Graph Theory I

INTRODUCTORY CONCEPTS

312MS1/312DS1

(For students admitted during the academic year 2012-2013 and onwards) 38 Hours

Module I (8 Hours)

Graphs: Graphs and Subgraphs – Vertex Degrees – Paths and Cycles.
Chapter 2(Sections 2.1-2.3)

Module II (8 Hours)

Graphs: Regular and bipartite graphs. Eulerian and Hamiltonian Graphs: Exploring and Travelling.
Chapter 2(Sections 2.4) Chapter 3(Sections 3.1)

Module III (8 Hours)

Eulerian and Hamiltonian Graphs: Eulerian Graphs-Hamiltonian Graphs.
Chapter 3(Sections 3.2, 3.3)

Module IV (7 Hours)

Digraphs: Digraphs and Subdigraphs- Vertex Degrees- Paths and Cycles.

Chapter 4(Sections 4.1-4.3)

Module V

(7 Hours)

Matrix Representations: Adjacency Matrices- Walks in graphs and Digraphs- Incidence Matrices.

Chapter 5(Sections 5.1-5.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Books for Reference

1. Frank Harary, Graph Theory, Narosa Publishing House, New Delhi, Tenth Reprint 2001.
2. John Clark,Derek Allan Holton, A First Look at Graph Theory, Allied Publishers Ltd,Reprint 1995.
3. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science,Prentice – Hall of India Private Ltd, New Delhi 2005.
4. Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin Heidelberg, 2005.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester IV

Part III-Core VII– OPERATIONS RESEARCH

412M07

[For students admitted during the academic year 2012-2013 and onwards] 65 Hours

Preamble

Operations Research seeks the determination of the best course of action of a decision problem under the restriction of limited resources.

The prime objectives for introducing this course are:

- To give practical training in converting a managerial decision making problem to a linear programming problem.
- To gain knowledge on techniques for solving linear programming problem.
- To develop logical reasoning in sequencing in a network to trace the shortest route.
- To develop knowledge in basic techniques to deal with inventory and replacement of equipments.

Module I

(13 Hours)

Linear Programming Problem: Mathematical Formulation: Introduction- Linear Programming Problem - Mathematical formulation of the problem.

Linear Programming Problem: Graphical solution: Introduction – *Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and standard forms of L.P.P.

Linear programming: Simplex method: Introduction – Fundamental properties of solutions – The computational procedure – Use of artificial variables.

Chapter 2 (Sections 2.1-2.3), Chapter 3 (Sections 3.1 – 3.5),

Chapter 4 (Sections 4.1 – 4.4)

Module II**(13 Hours)**

Duality in Linear Programming: Introduction – General Primal – Dual pair – Formulating a dual problem – Primal – Dual pair in matrix form – Duality and Simplex method – Dual Simplex method.

Transportation Problem: Introduction – LP formulation of the transportation problem - Existence of Solution in T.P - Duality in transportation problem - The transportation table - Loops in transportation tables - Triangular basis in a T.P - Solution of a transportation problem - Finding an initial basic feasible solution – Test for optimality – Economic Interpretation of u_j 's and v_j 's - Degeneracy in transportation problem – Transportation algorithm [MODI method] Assignment Problem: Introduction – *Mathematical formulation of the problem – Solution Methods of Assignment Problem.

Chapter 5 (Sections 5.1- 5.4, 5.7, 5.9), Chapter 10 (Sections 10.1 – 10.13)

Chapter 11 (Sections 11.1 – 11.3)

Module III**(13 Hours)**

Games and Strategies: Introduction – Two-person zero-sum games – Some basic terms – The Maximin – Minimax principle – Games without saddle points – Mixed strategies – *Graphic solution of $2 \times n$ and $m \times 2$ games .

Chapter 17 (Sections 17.1 – 17.6)

Module IV**(13 Hours)**

Inventory Control: Introduction – Types of Inventories – Reasons for carrying Inventories - The inventory decisions – Objectives of Scientific Inventory Control - Costs associated with inventories – Factors affecting inventory control – An Inventory Control Problem – The Concept of EOQ - Deterministic inventory problems with No shortages – Deterministic inventory problems with shortages – Problems of EOQ with Price Breaks.

Chapter 19 (Sections 19.1 – 19.12)

Module V**(13 Hours)**

Network Scheduling by PERT/CPM: Introduction- Network : Basic Components – Logical Sequencing – Rules of Network Construction –Concurrent Activities - Critical path analysis – Probability considerations in PERT –* Distinction between PERT and CPM.

Chapter 25 (Sections 25.1 - 25.8)

Note: Statement of the theorems and algorithms are included.

Book for study

Kanti Swarup, P.K Gupta, Man Mohan, Operations Research, Sultan Chand & Sons, New Delhi, Fifteenth Edition, Reprint 2010.

Books for Reference

1.J.K.Sharma, Operations Research: Theory and Applications, MacMillan India Ltd, Second Edition, 2003.

2.Hamdy A. Taha, Operations Research: An Introduction, Macmillan Publishing Company, Eighth Edition, 2008.

Course Designed by : N.JEYANTHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester IV

Part III –Core VIII/X– DYNAMICS

412M08/412D10

[For students admitted during the academic year 2012-2013 & onwards] 52 Hours

Preamble

Dynamics is one among the two branches of Mechanics and deals with the study of solid bodies in motion. This course is introduced in the curriculum in order

- to train the students to think about physical phenomena in mathematical terms.
- to have a deep knowledge about the motion of particles under the influence of various forces like gravitational force, central force, impulsive force etc.,
- to provide a good foundation for the students to take up any advanced course in mechanics and all related fields.

Module I

(11 Hours)

Kinematics: Basic units – Velocity – Velocity of particle describing a circle – Resultant velocity – Relative velocity – Acceleration – Rectilinear motion – Rectilinear motion with a constant acceleration – Coplanar motion – Velocity and acceleration in a coplanar motion – Angular velocity – *Relative angular velocity.

Chapter 1 (Sections 1.1 - 1.4)

Module II

(10 Hours)

Rectilinear motion under varying force: Simple harmonic motion – Projection of a particle having a uniform circular motion – *Composition of two simple harmonic motions of same period – S.H.M along a horizontal line – S.H.M along a vertical line.

Chapter 12 (Sections 12.1 – 12.3)

Module III

(11 Hours)

Projectiles: Forces on a projectile – Displacement as a combination of vertical and horizontal displacements – Nature of trajectory – Results pertaining to the motion of a projectile – Maximum horizontal range for a given velocity – Two trajectories with a given speed and range – Projectile projected horizontally – Projectile projected on an inclined plane – *Maximum range on an inclined plane.

Moment of Inertia: Moment of Inertia – Perpendicular and parallel axes theorems.

Chapter 13 (Sections 13.1 - 13.2), Chapter 17 (Section 17.1)

Module IV

(10 Hours)

Impact: Impulsive force – Conservation of linear momentum(principle only) – Impact of sphere – Laws of impact – Impact of two smooth spheres – *Direct impact of two smooth spheres – Impact of a smooth sphere on a plane – Direct impact of a smooth sphere on a plane – Oblique impact of a smooth sphere on a plane – Oblique impact of two smooth spheres.

Chapter 14 (Sections 14.1 – 14.5)

Module V

(10 Hours)

Central orbits: General orbits – Central orbit – Differential equation of a central orbit – Laws of a central force – Methods to find the central orbits – Conic as a central orbit – *Kepler's Laws of planetary motion.

Chapter 16 (Sections 16.1-16.3)

Book for Study

P. Duraipandian, Laxmi Duraipandian, Muthamizh Jayapragasam, Mechanics,
S. Chand & Company Ltd., Reprint 2010.

Books for Reference

1. A.V. Dharmapadam, Dynamics, S. Viswanathan Pvt Ltd., 2006.
2. S. Narayanan, Dynamics, S. Chand & Company Ltd., 16th revised edition 1986.
5. Dr.M.K. Venkataraman, Dynamics, Agasthiar publications, 12th edition 2006.

Course Designed by : M. THAMILSELVI.

Course Reviewed by : N. RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester IV

Part IV-Skill Based Course : GRAPH THEORY

PAPER II – PATHS AND TREES

412MS2/412DS2

(For students admitted during the academic year 2012-2013 and onwards) 38 Hours

Module I (8 Hours)

Tree Structures: Mathematical Properties of Trees – Spanning Trees – Rooted Trees.

Chapter 6(Sections 6.1 – 6.3)

Module II (8 Hours)

Counting Trees: Counting Labeled Trees – Counting Binary Trees.

Chapter 7(Sections 7.1, 7.2)

Module III (8 Hours)

Greedy Algorithms: Minimum Connector Problem – Travelling Salesman Problem.

Chapter 8(Sections 8.1, 8.2)

Module IV (7 Hours)

Path Algorithms: Fleury's Algorithm – Shortest Path Algorithm.

Chapter 9(Sections 9.1, 9.2)

Module V (7 Hours)

Paths and Connectivity: Connected Graphs and Digraphs – Menger's Theorem for Graphs-

Some analogues of Menger's theorem.

Chapter 10(Sections 10.1-10.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Books for Reference

1. Frank Harary, Graph Theory, Narosa Publishing House, New Delhi, Tenth Reprint 2001.
2. John Clark, Derek Allan Holton, A First Look at Graph Theory, Allied Publishers Ltd, Reprint 1995.
3. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice – Hall of India Private Ltd, New Delhi 2005.
4. Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin Heidelberg, 2006.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester V

Part III – Core X/XIII– ABSTRACT ALGEBRA 512M10/512D13

[For students admitted during the academic year 2012-2013 and onwards] 65 Hours

Preamble

Abstract Algebra enables one to reinterpret the result of classical algebra giving them greater unity and generality. This course has been introduced in the curriculum in order

- ❖ to introduce different algebraic structures like groups, rings and fields
- ❖ to gain deep knowledge in the structure preserving mappings like homomorphism, isomorphism etc....,

Module I

(13 Hours)

Preliminary Notions: Mappings – *The integers(unique factorization theorem – statement only) Group Theory: Sub groups – Simple problems.

Chapter 1 (sections 1.2, 1.3), Chapter 2: (Section 2.4)

Module II

(13 Hours)

Group theory: *A Counting principle – Normal subgroups and quotient groups – Homomorphisms – Simple problems.

Chapter 2(Sections 2.5 – 2.7)

Module III

(13 Hours)

Group theory: Automorphisms – Cayley's theorem – *Permutation groups – Simple problems.

Chapter 2(Sections 2.8– 2.10)

Module IV

(13 Hours)

Ring Theory: Definitions and examples of rings – Some special cases of rings – *Homomorphisms – Ideals and quotient rings – Simple problems.

Chapter 3(Sections 3.1 – 3.4)

Module V

(13 Hours)

Ring Theory: More ideals and quotient rings – The field of quotients of an integral domain – *Euclidean rings – Simple problems.

Chapter 3(Sections 3.5 – 3.7)

Book for study

I.N. Herstein, Topics in Algebra, Second Edition, Wiley Eastern limited, (2007)

Books for Reference

5. P.B.Bhattacharya, S.k.Jain, S.R.Nagpoul, Basic Abstract Algebra, Second Edition, Cambridge University press, Reprint 2004.
6. John B. Fraleigh, A First Course in Abstract in Algebra, Fifth printing 2003, Addition Wesley Publishing Company.

Course Designed by : N.JEYANTHI

Course Reviewed by : M.THAMILSELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester V

Part III – Core XII- FUZZY LOGIC AND NEURAL NETWORKS 512M12

[For students admitted during the academic year 2012-2013 and onwards] 65 Hours

Preamble

The course on fuzzy logic and Neural Networks focuses on soft computing which is a powerful means for obtaining solutions to problems quickly, yet accurately and acceptable. It is designed

- ❖ To introduce the concept of soft computing to the students.

- ❖ To take up research projects in these areas.
- ❖ To enable the students to apply the soft computing methodologies in their fields of work.

Fuzzy Logic

Module I

(13 Hours)

Fuzzy Set Theory : Fuzzy versus Crisp – Crisp sets – Fuzzy sets – *Crisp relations – Fuzzy relations.

Chapter 6

Module II

(13 Hours)

Fuzzy Systems: *Crisp Logic – Predicate Logic – Fuzzy Logic – Fuzzy Rule based system – Defuzzification Methods – Applications.

Chapter 7

Hybrid Systems

Module III

(13 Hours)

Fuzzy Associative Memories: FAM – An Introduction – Single Association FAM – Fuzzy Hebb FAMs – FAM Involving a Rule Base – *FAM Rules With Multiple Antecedents/Consequents – Applications.

Chapter 14

Neural Networks

Module IV

(13 Hours)

Fundamentals of Neural Networks : Basic concepts of Neural Networks – Human Brain – Model of an Artificial Neuron – Neural Network Architectures – Characteristics of Neural Networks – Learning Methods – Taxonomy of Neural Network Architectures – *History of Neural Network Research – Early Neural Network Architectures – Some Application Domains.

Chapter 2

Module V

(13 Hours)

Backpropagation Networks: Architecture of a Backpropagation Networks – Backpropagation Learning.

Chapter 3(Sections 3.1, 3.2)

Book for Study

S.Rajasekaran, and G.A.Vijayalakshmi Pai, Neural Networks, Fuzzy Logic, and Genetic Algorithm : Synthesis and Applications, Prentice-Hall of India Private Ltd, New Delhi, 2010.

Books for Reference

3. Timothy, J.Ross, Fuzzy Logic with Engineering Applications, McGraw Hill, 1997.
4. Dr.Valluru.B.Rao, Hayagriva.V.Rao, C++ Neural Networks and Fuzzy Logic, BPB Publications, Second Edition, 1996.

Course Designed by : R.ANGEL JOY

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics

Semester V

Part III Elective I – PROGRAMMING IN C

510ME1

(For students admitted during the academic year 2010 – 2011 and onwards) 50 Hours

Preamble:

The study of Programming Languages has inevitably become a part and parcel of life. The Programming Language C finds a wide variety of applications in the development of software. This course is designed

- To encourage economy of expression in its application areas
- To provide the students with all the fundamental concepts of the C language
- To improve the logical thinking while developing programs.

Module I (10 Hours)

Constants, Variables and Data types: Introduction – Character set – C tokens – Keywords and Identifiers – Constants – Variables – Data types – Declaration of variables – Declaration of storage class – Assigning values to variables – Defining symbolic constants – Declaring a variable as constant – Declaring a variable as Volatile.

Operators and Expressions: Introduction – *Arithmetic operators – *Relational operators – *Logical operators – *Assignment operators – *Increment and decrement operators – *Conditional operators – Bitwise operators – Special operators – Arithmetic expressions – Evaluation of expressions – Precedence of Arithmetic operators – Some computational problems – Type conversions in expressions – Operator precedence and associativity – Mathematical functions.

Chapter 2(Sections 2.1-2.13) ,Chapter 3(Sections 3.1-3.16)

Module II (10 Hours)

Managing Input and Output operations : Introduction – Reading a Character – Writing a Character – Formatted Input – Formatted Output.

Decision making and Branching: Introduction – Decision making with IF statement – *Simple IF statement – *The IF...ELSE statement – Nesting of IF...ELSE statements – The ELSE IF ladder – The Switch statement – The ?: operator – The GOTO statement.

Chapter 4(Sections 4.1-4.5),Chapter 5(Sections 5.1-5.9)

Module III (10 Hours)

Decision making and looping : Introduction – *The WHILE statement – *The DO statement – The FOR statement – Jumps in loops.

Arrays: Introduction – One dimensional arrays – Declaration of One dimensional arrays – Initialization of One dimensional arrays – Two dimensional arrays – Initializing Two dimensional arrays – Multi - dimensional arrays.

Chapter 6(Sections 6.1-6.5) Chapter 7(Sections 7.1-7.7)

Module IV (10 Hours)

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – Arithmetic operations on characters – Putting strings together – Comparison of two strings – *String handling functions

User-Defined functions : Introduction – Need for user defined functions – A multi- function program – Elements of user defined functions – Definitions of functions – Return values and their types – Function calls – Function declaration – Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns a value – Functions that return multiple values.

Chapter 8(Sections 8.1-8.8) ,Chapter 9(Sections 9.1-9.14)

Module V (10 Hours)

User – Defined functions : Nesting of functions – Recursion – Passing arrays to functions – Passing strings to functions – The scope, visibility and lifetime of variables.

Structures and Unions: Introduction – Defining a Structure – Declaring Structure variables – Accessing Structure members – Structure Initialization – Copying and Comparing Structure variables – Operations on Individual members – Arrays of Structure – *Arrays within Structure – Structure within Structure – Structures and Functions – Unions.

Chapter 9(Sections 9.15-9.19) , Chapter 10(Sections 10.1-10.12)

Book for Study

E.Balagurusamy, Programming in ANSI 'C', Tata McGraw Hill publishing company, Fourth Edition, Ninth Reprint 2009.

Books for Reference

3. Henry Mullish and Herbert L. Cooper, The Spirit of 'C' – An Introduction to modern Programming, Jaico publishing house 2006.
2. Harvey Deitel & Paul J.Deitel,C:How to program,Pearson Education Inc, 6th Edition 2010.

Part III Elective I – PROGRAMMING IN C -PRACTICAL 510MEP
(For students admitted during the academic year 2010 – 2011 and onwards)

List of Programs (25 Hours)

1. Finding sum, average, standard deviation for a given set of numbers.
2. Printing Fibonacci series.
3. Prime number checking.
4. Finding roots of a Quadratic Equation.
5. Finding the product of two matrices.
6. Finding the factorial of a number using recursion.
7. Finding whether a string is PALINDROME or not.
8. Arranging strings in alphabetical order.
9. Counting tabs, number of lines, characters and blank spaces in a given text.
10. Reading and Printing personal information using structures.

Course Designed by : N.RAJESWARI

Course Reviewed by : R.ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester V

Part IV-Skill Based Course : Graph Theory III

PLANAR GRAPHS AND COLOURING OF GRAPHS 512MS3/512DS3

(For students admitted during the academic year 2012-2013 and onwards) 38 Hours

Module I (7 Hours)

Planarity: Planar graphs – Euler's formula

Chapter 11(Sections 11.1,11.2)

Module II (7 Hours)

Planarity: Cycle Method for Planarity Testing – Kuratowski's Theorem – Duality.

Chapter 11(Sections 11.3-11.5)

Module III (8 Hours)

Vertex Colourings and Decompositions: Vertex Colourings – Algorithm for Vertex Colouring – Vertex Decompositions.

Chapter 12(Sections 12.1-12.3)

Module IV**(8 Hours)**

Edge Colourings and Decompositions : Edge Colourings – Algorithm for Edge Colouring
Edge Decompositions.

Chapter 13(Sections 13.1-13.3)

Module V**(8 Hours)**

Case Studies : Four Cubes Problem – Knight's Tour Problem – Gray Codes – Rotating Drum
Problem – Ranking in Tournaments – Interval Graphs.

Chapter 2 (Section 2.5), Chapter 3 (Section 3.4), Chapter 4 (Section 4.5)

Chapter 5 (Section 5.4) (Specified case Studies only)

***Proof of the theorems are not included.**

Book for Study

Graphs And Applications – An Introductory Approach, Joan M.Aldous and Robin J.Wilson,
Springer – First Indian Reprint 2007.

Books for Reference

1.Frank Harary, Graph Theory, Narosa Publishing House, New Delhi,Tenth Reprint 2001.

2.John Clark,Derek Allan Holton, A First Look at Graph Theory, Allied Publishers
Ltd,Reprint 1995.

3.Narsingh Deo, Graph Theory with Applications to Engineering and Computer
Science,Prentice – Hall of India Private Ltd, New Delhi 2005.

4.Dieter Jungnickel, Graphs, Networks And Algorithms, Springer – Verlag Berlin
Heidelberg, 2005.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/Mathematics(CA)

Semester VI/V

Part III-Elective II/I - MATHEMATICAL CRYPTOGRAPHY 610ME2/512DE1

[For candidates admitted during the academic year 2010-2011 and onwards] 75 Hours

Preamble

Information security has gained practical importance due to the rapid growth of electronic communication. Cryptography helps us to solve the problems in information security. The syllabus is framed with two main objectives.

- To make the students understand the significance of number theory in Cryptography and theoretical Computer Science.
- To give them the basic knowledge in Cryptography.

Module I**(15 Hours)**

An introduction to Cryptography: Simple substitution ciphers- *Divisibility and greatest common divisors- Modular arithmetic- Prime numbers, unique factorization and finite fields- Powers and primitive roots in finite fields- Symmetric and asymmetric ciphers.

Chapter I (Sections 1.1-1.5,1.7)

Module II**(15 Hours)**

Discrete Logarithms and Diffie Hellman: The birth of public key cryptography- THE discrete logarithm problem- Diffie Hellman key exchange- The Elgamal public key cryptosystem-A collision algorithm for the DLP- *The Chinese remainder theorem- The Pohlig-Hellman algorithm.

Chapter 2(Sections 2.1-2.4, 2.7-2.9))

Module III**(15 Hours)**

Integer factorization and RSA: Euler's formula and roots modulo pq -The RSA public key cryptosystem-Implementation and security issues -Primality testing- Pollard's p-1 factorization algorithm. -*Factorization via difference of squares.

Chapter 3(Sections 3.1-3.6)

Module IV**(15 Hours)**

Integer factorization and RSA:Smooth numbers and sieves - The index calculus and discrete logarithms -Quadratic residues and quadratic reciprocity-*Probabilistic encryption.

Chapter 3(Sections 3.7-3.10)

Module V**(15 Hours)**

Elliptic curves and Cryptography: Elliptic curves-Elliptic curves over finite fields-The Elliptic curve discrete logarithmic problem-Elliptic curve cryptography-*The evolution of public key cryptography-Lenstra's elliptic curve factorization algorithm.

Chapter 5(Sections 5.1-5.4,5.6)

Note: Simple problems only

Book for Study

Jeffrey Hoffstein, Jill Pipher, Joseph H.Silverman, "An introduction to Mathematical Cryptography", Springer Undergraduate texts in mathematics, First Indian reprint 2011.

Books for Reference

- 1.Neal Koblitz, "A Course in Number Theory and Cryptography" – Graduate texts in Mathematics Springer – Second Edition, 2002 – Reprint.
- 2.Ivan Niven and Herbert S.Zuckerman, "An Introduction to Theory of Numbers "Wiley Eastern Ltd.,third Edition,1991 - Reprint.
- 3.Hans Delfs and Helmut knebl, "Introduction to Cryptography Principles and Applications" – Springer 2002.
- 4.N.Harini, C.K.Shyamala, Dr.T.R.Padmanabhan, " Cryptography and Security" – Wiley- India, 1st Edition 2011.

Course Designed by : S.KALAISELVI

Course Reviewed by : N. RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics**Semester VI****Elective III - COMPUTATIONAL MATHEMATICS LABORATORY 610ME3**

[For candidates admitted during the academic year 2011-2012 and onwards] 50 Hours

Module I**(10 Hours)**

Introduction to MATLAB: Introduction - Starting and ending MATLAB Session - MATLAB ENVIRONMENT - HELP FEATURE -*Types of files -Platform – Search Path – Some useful MATLAB Commands – Summary.

Constants, Variables and Expressions: Introduction - Character set - Data types – Constants and Variables –Operators – Hierarchy of Operations – Built-in Functions- Assignment Statement – Illustrative Programs – Summary. Vectors and Matrices: Introduction - Scalars and Vectors –Entering data in matrices – Line continuation- Matrix subscripts/indices..

Chapter 1(Sections 1.1 – 1.9), Chapter 2(Sections 2.1 – 2.10),Chapter 3(Sections 3.1 – 3.5)

Module II**(10 hours)**

Vectors and Matrices: Multi-dimensional matrices and arrays –Matrix manipulations – Generation of special matrices – Some useful commands related to matrices – Matrix and

Array operations - Functions with array inputs – Structure arrays –Cell arrays – Creating Some useful commands of structures and cells – Summary.

Polynomials: Introduction – Entering a Polynomial – Polynomial evolution – Roots of a Polynomial – Polynomial addition and subtraction – *Polynomial multiplication – Polynomial division – Formulation of Polynomial equation – Characteristic Polynomial of a matrix – Polynomial differentiation – Polynomial integration – Polynomial curve fitting – Evaluation of Polynomial with matrix arguments – Summary.

Chapter 3(Sections 3.6 – 3.15), Chapter 4(Sections 4.1 – 4.14)

Module III (10 hours)

Input-Output statements: Introduction – Data input –*Interactive inputs - Reading/Storing file data - Output commands– Low-level input-output functions –Summary.

MATLAB Graphics: Introduction – Two-dimensional plots –Multiple plots –Style options – legend command – subplots – specialized two-dimensional plots .

Chapter 5(Sections 5.1 - 5.7) Chapter 6(Sections 6.1 – 6.7)

Module IV (10 hours)

MATLAB Graphics: Three-dimensional plots - Summary. Control structures: Introduction – *Loops -Branches control structures -Summary. Writing programs and functions:

Introduction – MATLAB Editor – Opening the editor – Editor main menu – Tool bar – MATLAB programming– Function sub programs.

Chapter 6(Sections 6.8, 6.9),Chapter 7(Sections7.1 – 7.4), Chapter 8(Sections 8.1 – 8.4)

Module V (10 hours)

Writing Programs and Functions: Some Illustrative Examples – Types of Functions – Function Handles –*Errors and Warnings - MATLAB Debugger. Ordinary Differential Equations and Symbolic Mathematics.

Chapter 8(Sections 8.5 – 8.10), Chapter 9(Sections 9.1 - 9.4)

Book for Study

Raj Kumar Bansal, Ashok Kumar Goel, Manoj Kumar Sharma, MATLAB and its applications in Engineering, Version 7.5, Pearson Education, 2009.

Books for Reference

1.Duane Hanselman, Bruce Littlefield Mastering MATLAB 7, Dorling Kindersly (India) Pvt Ltd,

Pearson , Seventh impression 2011,

2.Rudra Pratap , Getting started with MATLAB 7 – A Quick introduction for Scientists and Engineers. Oxford university press. Ed. 2006.

**Elective III - COMPUTATIONAL MATHEMATICS LABORATORY –
PRACTICAL 610MEP**

[For candidates admitted during the academic year 2011-2012 and onwards]

List of Programs (25 hours)

21. Solving a system of linear Equations.
22. Arithmetic operations on arrays.
23. Drawing 2D and 3D plots.
24. Finding derivatives and integrals of polynomials.
25. Creating a structure for an employee data base containing employee code, name, designation and salary.
26. A function subprogram to calculate the compound interest, given the initial amount, time period of deposit, rate of interest and time of compounding.

27. Program to process the applications for admission to an engineering college and to list the candidates eligible for admission based on the following conditions:

- (a) Marks in Maths ≥ 60
- (b) Marks in Physics ≥ 55
- (c) Marks in Chemistry ≥ 55
- (d) Total marks ≥ 180

28. Program to reverse the digits of a number having minimum three digits.

29. Program to solve first order Ordinary Differential Equations.

30. Program to solve set of Simultaneous Differential Equations.

Course Designed by : N.RAJESWARI
Course Reviewed by : S.KALAISELVI
Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/Mathematics(CA)

Semester VI

Part IV-Skill Based Course IV MODEL PRESENTATION 612MS4/612DS4

(For students admitted during the academic year 2012-2013 and onwards)

Preamble

This Course is unique in the sense that it enables the students to understand the theoretical concepts and to apply them to construct Models in their area of study.

This course is carried out as group project, thus enabling the student to learn to work as a team.

Curriculum Design
SRI G.V.G. VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Mathematics
M.Sc Mathematics
Scheme of Examination – CBCS Pattern

[For the Students admitted from the academic year 2017-18 onwards]

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
17MM01	Semester I Core I : Algebra	6	3	25	75	100	4
17MM02	Core II : Real Analysis	6	3	25	75	100	4
17MM03	Core III :Ordinary Differential Equations	6	3	25	75	100	4
17MM04	Core IV : Optimization Techniques I	5	3	25	75	100	4
17MME1/ 17MME2	Elective I: Number Theory / Differential Geometry	6	3	25	75	100	4
17MM05	Semester II Core V : Complex Analysis	5	3	25	75	100	4
17MM06	Core VI : Partial Differential Equations	6	3	25	75	100	4
17MM07	Core VII :Numerical Analysis	6	3	25	75	100	4
17MM08	Core VIII :Optimization Techniques II	5	3	25	75	100	4
17MME3/ 17MME4	Elective II : Control Theory/ Stochastic differential Equations	6	3	25	75	100	4
17MGCS	Cyber Security	2	2	-	-	Grade	Grade
17MMA1/ 17MMA2	Advanced Learners Course I: L ^A T _E X Practicals / Statistical Methods	-	-	-	100	100	4*
17MM09	Semester III Core IX : Topology	6	3	25	75	100	4
17MM10	Core X : Classical Mechanics	6	3	25	75	100	4
17MM11	Core XI : Programming with C++	3	3	25	75	100	4
17MMCP	Programming with C++ Practical	3	3	40	60	100	4
17MM12	Core XII : Mathematical Modelling	5	3	25	75	100	4
17MME5/ 17MME6	Elective III : Graph Theory / Fuzzy Topology	6	3	25	75	100	4
17MMIS	Internship /Summer School/Sports Training	-	-	50	-	50	2

	Semester IV						
17MM13	Core XIII : Mathematical Methods	6	3	25	75	100	4
17MM14	Core XIV : Functional Analysis	6	3	25	75	100	4
17MM15	Core XV : Fluid Dynamics	6	3	25	75	100	4
17MME7/ 17MME8	Elective IV : Special Functions/ Operator Theory	6	3	25	75	100	4
17MMPV	Project and Viva-Voce	-	-	-	-	200	8
17MMA3/ 17MMA4	Advanced Learners Course II : Mathematical Biology / Subject viva voce	-	-	-	100	100	4*
Total						2250	90

Starred credits are treated as additional credits which are optional.

M. Sc Mathematics

Semester I

Core I-ALGEBRA

17MM01

[For students admitted from the academic year 2017-2018 and onwards]

65 Hours

This Course is introduced in the curriculum to expose the students to learn concepts in Abstract and Linear Algebra with the following objectives:

- To study the advanced concepts in abstract and linear algebra which have wider applications in Higher analysis, Theory of numbers, Geometry etc., with the inclusion of Ring theory, Field theory etc in the syllabi.
- To realize the importance of Sylow's theorem and the fundamental theorem of Galois theory which speak more about the relation between the order of a group, its subgroups, prime numbers, fixed field of automorphisms of a field and splitting field.
- To understand about the interplay between the Algebras of linear transformations and the matrix theory.

Unit I **(13 Hours)**

Group Theory: Another Counting Principle – Sylow's Theorem – Direct Products.
Chapter 2 (Sections 2.11 – 2.13)

Unit II **(13Hours)**

Ring Theory: Polynomial Rings – Polynomials over the Rational Field –
Polynomial Rings over Commutative Rings.
Chapter 3 (Sections 3.9 – 3.11)

Unit III **(13 Hours)**

Fields: Extension Fields-Roots of Polynomials – More about Roots.
Chapter 5 (Sections 5.1, 5.3, 5.5)

Unit IV **(13 Hours)**

Fields: The Elements of Galois Theory
Chapter 5 (Section 5.6)

*** UnitV** **(13 Hours)**

Vector Spaces and Modules: Modules. Selected Topics: Finite Fields
Chapter 4 (Section 4.5) Chapter 7 (Section 7.1)

Book for study

I.N.Herstein, Topics in Algebra, Wiley Eastern Limited, Second Edition, Reprint 2015.

Books for Reference

1. John B.Fraleigh, A first course in Abstract Algebra, Addison-Wesley Publishing Company, Tenth printing, 2003.
2. Surjeet singh and Qazi Zameeruddin, Modern Algebra, Vikas Publishing house Private Limited, Third Edition, 2005.

Course Designed by : B.KALAISELVI
Course Reviewed by : N.JEYANTHI
Course checked by : S.KALAISELVI

M.Sc Mathematics

Semester I

Core II – REAL ANALYSIS

17MM02

[For students admitted from the academic year 2017-2018 and onwards] 65 Hours

This course is introduced in the curriculum to provide the generalization of the study of derivatives to higher dimensional spaces with the following objectives

- to extend the mean value theorem and Taylor's formula for higher dimensional spaces which have many applications in optimization theory.
- to study the Lebesgue integrals and General Lebesgue measure essential to solve problems in modern mathematics.

Unit I

(13 Hours)

Multivariable Differential calculus: Introduction – The directional derivative – Directional derivatives and continuity – The total derivative – The total derivative expressed in terms of partial derivatives – An application to complex-valued functions – The matrix of a linear function – The Jacobian matrix – The chain rule – Matrix form of the chain rule – The Mean-value theorem for differentiable functions – A sufficient condition for differentiability – A sufficient condition for equality of mixed partial derivatives

Book I: Chapter 12 : Sections (12.1 – 12.13)

Unit II

(13 Hours)

Lebesgue Measure: Introduction – Outer measure – Measurable sets and Lebesgue measure – A nonmeasurable set – Measurable functions – Littlewood's three Principles.

Book II: Chapter 3 : Sections (1 - 6)

*Unit III

(13 Hours)

The Lebesgue Integral : The Riemann Integral – The Lebesgue integral of a bounded function over a set of finite measure – The integral of a nonnegative function – The general Lebesgue integral – Convergence in measure.

Book II: Chapter 4: Sections (1 - 5)

Unit IV

(13 Hours)

Differentiation and Integration : Differentiation of monotone functions – Functions of bounded variation – Differentiation of an integral – Absolute Continuity.

Book II : Chapter 5 : Sections(1 - 4)

Unit V

(13 Hours)

Measure and Integration : Measure spaces – Measurable functions – General Convergence Theorems – Signed measure – The Radon - Nikodym Theorem.

Book II: Chapter 11 : Sections (1,2,4 - 6)

Books for Study

Book I: For Unit I : Tom M.Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, Second Edition, Twentieth Reprint – 2002.

Book II: For Units II- V : H.L.Royden, Real Analysis, PHI Learning Private Limited Third Edition, Reprint 2009.

Books for Reference

- 1.G.de.Barra, Measure Theory and Integration, Wiley Eastern Limited, 1981.
2. Inder K.Rana, An Introduction to measure and Integration, Narosa Publishing House, 2005.

Course Designed by : A.R.THILAGAVATHI

Course Reviewed by : N.JEYANTHI

Course Checked by : S.KALAISELVI

M.Sc Mathematics**Semester I****Core III – ORDINARY DIFFERENTIAL EQUATIONS****17MM03**

[For students admitted from the academic year 2017-2018 and onwards] 65 Hours

This course is introduced with the following objectives

- to formulate differential equations related to real world problems
- to study various types of equations and the methods of solving them.
- to study the qualitative properties of solutions.

Unit I**(13 Hours)**

Linear Differential Equations of Higher Order: Introduction – Higher Order Equations – A Modelling Problem – Linear Independence – Equations with Constant coefficients – Equations with Variable coefficients – Wronskian – Variation of Parameters – Some Standard Methods – Method of Laplace Transforms.

Chapter 2: Sections (2.1 – 2.10)

Unit II**(13 Hours)**

Solutions in Power Series: Introduction – Second Order Linear Equations with Ordinary Points – Legendre Equation and Legendre Polynomials – Second Order Equation with Regular Singular Point – Properties of Bessel Functions.

Chapter 3: Sections(3.1 – 3.5)

Unit III*(13 Hours)**

Systems of Linear Differential Equations: Introduction – Systems of First Order Equations – Model for Arms Competition between Two Nations – Existence and Uniqueness Theorem – Fundamental Matrix – Non-homogeneous Linear systems – Linear systems with Constant coefficients – Linear systems with Periodic Coefficients.

Chapter 4: Sections (4.1 – 4.8)

Unit IV (13 Hours)
 Existence and Uniqueness of Solutions: Introduction – Preliminaries – Successive Approximations – Picard’s Theorem – Some Examples – Continuation and Dependence on Initial Conditions – Existence of Solutions in the Large – Existence and Uniqueness of Solutions of Systems – Fixed point Method.
 Chapter 5: Sections (5.1 – 5.9)

Unit V (13 Hours)
 Boundary Value Problems: Introduction – Sturm – Liouville Problem – Green’s Function – Application of Boundary Value Problems(BVP) – Picard’s Theorem.
 Chapter 7: Sections (7.1 – 7.5)

Book for study

S. G. Deo, V.Lakshmikantham,V. Raghavendra ,Text book of Ordinary Differential Equations, Tata McGraw-Hill Education Private Ltd, New Delhi, Second Edition,18th Reprint – 2012.

Books for Reference

1. Earl.A.Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall of India Pvt., Ltd., - 1987.
2. Robert H. Martin. Jr., Ordinary Differential Equations, McGraw-Hill Book Company, Second Printing – 1985.

Course Designed by : N.JEYANTHI
 Course Reviewed by : S.KALAISELVI
 Course Checked by : S.KALAISELVI

M.Sc. Mathematics

Semester I

Core IV – OPTIMIZATION TECHNIQUES I

17MM04

[For students admitted from the academic year 2017-2018 and onwards] 50 Hours

This course is introduced with the following objectives

- comprehend the modeling of real life situations
- locate the best or optimal solution to a problem.
- enable the students to take quick and effective decisions in various walks of life.
- apply the techniques of optimization in appropriate situations

Unit I (10 Hours)

Duality: Definition of the Dual Problem-Primal-Dual Relationships-Additional Simplex Algorithms: Dual simplex algorithm- Integer Linear programming: Integer programming Algorithms: Cutting - Plane Algorithm.

Chapter 4 (Sections 4.1, 4.2,4.4.1) Chapter 9 (Section 9.2(9.2.2))

Unit II (10 Hours)

Advanced linear programming: Simplex method fundamentals – Revised simplex method.
 Chapter 7(Sections 7.1,7.2)

Unit III (10 Hours)

Network Models : Scope and Definition of Network models - Minimal Spanning Tree Algorithm – Shortest - Route Problem : Examples of the Shortest Route Applications – Shortest -Route Algorithms-Maximal Flow Model.

Chapter 6(Sections 6.1,6.2,6.3(6.3.1,6.3.2),6.4)

Unit IV (10 Hours)

Deterministic Dynamic Programming : Recursive Nature of Computations in DP – Forward and Backward Recursion – Selected DP Applications : Knapsack / Flyaway/Cargo –Loading Model-Work-Force size Model- Equipment Replacement Model- Investment Model– Problem of Dimensionality.

Chapter 10 (Sections 10.1 – 10.3(10.3.1-10.3.4),10.4)

***Unit V (10 Hours)**

Deterministic Inventory Models: General Inventory Model – Static Economic Order Quantity (EOQ) Models – Dynamic EOQ Models:Set up model.

Chapter 11 (Sections 11.1 ,11.3,11.4.2)

Book for study

Hamdy A.Taha, Operations Research – An Introduction, Pearson Education Inc Limited, Eighth Edition, 2008.

Books for Reference

1. Frederick S. Hillier, Gerald J.Lieberman,- Introduction to Operations Research, McGraw-Hill Book Company, Eighth Edition 2007.
2. Wayne.L.Winston, Operations Research-Applications and Algorithms,Thomson Asia.Pvt Ltd, Fourth edition, 2003.

Course Designed by : N.RAJESWARI

Course Reviewed by : P.JAYALAKSHMI

Course Checked by : S.KALAISELVI

M.Sc. Mathematics

Semester I

Elective I – NUMBER THEORY

17MME1

[For students admitted from the academic year 2017-2018 and onwards] 65 Hours

The content of the course Number Theory, the great attraction of Mathematicians in the recent years is designed with the following objectives

- to convert all the problems of modern mathematics into the problems of Number theory.
- to improve the problem solving skills using the concepts of the Congruences, Diophantine equations
- to know the applications in Cryptography and Network security
- to help the students to understand and attempt the new problems with more insight

Unit I (13 Hours)

Divisibility : Introduction – Divisibility – Primes. Congruences : Congruences – Solutions of congruences

Chapter 1 (Sections 1.1 – 1.3) Chapter 2 (Sections 2.1 – 2.2)

Unit II (13 Hours)

Congruences : Congruence of Degree 1- The function $\phi(n)$ – Congruences of Higher Degree – Prime Power Moduli- Prime Modulus

Chapter 2 (Sections 2.3 – 2.7)

Unit III**(13 Hours)**

Congruences : Congruences of Degree two, Prime modulus – Power Residues. Quadratic Reciprocity: Quadratic Residues – Quadratic Reciprocity – The Jacobi symbol.

Chapter 2 (Sections 2.8 – 2.9) Chapter 3 (Sections 3.1 – 3.3)

Unit IV*(13 Hours)**

Some Functions of Number Theory: Greatest Integer Function – Arithmetic Functions – The Moebius Inversion Formula – The multiplication of Arithmetic Functions – Recurrence functions.

Chapter 4 (Sections 4.1 – 4.5)

Unit V**(13 Hours)**

Some Diophantine Equations: Diophantine Equations-The equation $ax + by = c$ – Positive Solutions – Other Linear equations – The equation $x^2 + y^2 = z^2$ – The equation $x^4 + y^4 = z^2$ – Sums of four and five squares – Waring's problems – Sum of fourth powers – Sum of two squares – The equation $4x^2 + y^2 = n$ – The equation $ax^2 + by^2 + cz^2 = 0$ – Binary Quadratic Forms – Equivalence of Quadratic Forms.

Chapter 5 (Sections 5.1 – 5.14)

Book for Study

Ivan Niven and Herbert S. Zuckerman, An Introduction to Theory of Numbers, Wiley Eastern Ltd, Third Edition, 1991 Reprint.

Books for Reference:

- 1.T.M. Apostol, Introduction to Analytic Number Theory, Springer International Student Edition, Narosa Publishing House, Seventh Reprint 2010.
2. David M.Burton, Elementary Number Theory, University Press, 2008.

Course Designed by : S.KALAISELVI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : S.KALAISELVI

M.Sc Mathematics**Semester II****Core V - COMPLEX ANALYSIS****17MM05**

[For students admitted from the academic year 2017-2018 and onwards] 65 Hours

This course is introduced with the following objectives

- to impart knowledge and understanding in the advanced topics such as Normal families, Conformal mappings and Elliptic functions.
- to help the students to take up research activities in the field of complex analysis.

Unit I**(13 Hours)**

Complex Integration: Fundamental Theorems: Line Integrals – Rectifiable Arcs – Line Integrals as Functions of Arcs – Cauchy's Theorem for a Rectangle – Cauchy's Theorem in a Disk. Harmonic Functions: Definition and Basic Properties – The Mean -value Property – Poisson's Formula – Schwarz's Theorem.

Chapter 4 Sections (1.1-1.5, 6.1-6.4)

Unit II**(13 Hours)**

Series and Product Developments: Partial fractions and Factorization: Partial Fractions – Infinite Products – Canonical Products – The Gamma function.

Entire functions : Jensen's Formula .

.....Chapter 5 Sections (2.1-2.4, 3.1)

Unit III (13 Hours)

Series and Product Developments: Normal Families : Equicontinuity – Normality and Compactness – Arzela's Theorem – Families of Analytic Functions –The Classical Definition. Conformal mapping. Dirichlet's Problem: The Riemann Mapping Theorem: Statement and Proof- Boundary Behavior – Use of the Reflection Principle – Analytic Arcs. Chapter 5 Sections (5.1- 5.5) Chapter 6 Sections (1.1- 1.4)

Unit IV (13 Hours)

Conformal Mapping. Dirichlet's Problem: A Closer Look at Harmonic Functions: Functions with the Mean-value Property – Harnack's Principle. The Dirichlet Problem: Subharmonic Functions – Solution of Dirichlet's Problem. Chapter 6 Sections (3.1, 3.2, 4.1, 4.2)

*** Unit V (13 Hours)**

Elliptic Functions: Simply Periodic Functions: Representation by Exponentials – The Fourier Development – Functions of Finite Order. Doubly Periodic Functions: The Period Module – Unimodular Transformations – The Canonical Basis – General Properties of Elliptic Functions. The Weierstrass Theory: The Weierstrass \wp -function – The Functions $\zeta(z)$ and $\sigma(z)$ - The Differential Equation. Chapter 7 Sections (1.1-1.3, 2.1-2.4, 3.1-3.3).

Book for study

Lars. V. Ahlfors, Complex analysis, McGraw-Hill Education India Private Limited, New Delhi, Third Edition, Second Reprint 2013.

Books for Reference

1. Serge Lang, Complex Analysis, Springer-Verlag New York, Third Edition 1993.
2. Walter Rudin, Real and Complex analysis, McGraw Hill Book Company, 7th reprint 2009.

Course Designed by : B.KALAISELVI
 Course Reviewed by : N.JEYANTHI
 Course Checked by : S.KALAISELVI

M.Sc Mathematics**Semester II****Core VI- PARTIAL DIFFERENTIAL EQUATIONS 17MM06**

[For students admitted from the academic year 2017-2018 and onwards] 75 Hours

This course is designed with the following objectives:

- Provide an exposure to the various concepts of partial differential equations with the underlying principles.
- Comprehend the categories of partial differential equations, their characteristics and solutions.
- Learn different techniques of solving partial differential equations and thereby interpret the solutions.
- To help the students to understand the wide range of applications with ample illustrations.

Unit I (15 Hours)

Mathematical Models: Classical Equations – The Vibrating String – The Vibrating Membrane-Conduction of heat in solids-The Gravitational Potential. Classification of Second – Order Linear Equations: Second – Order equations in Two Independent Variables –

Canonical forms – Equations with Constant Coefficients – General Solutions – Summary and Further Simplification – Exercises.

Chapter 3 Sections (3.1 – 3.3, 3.5, 3.6) Chapter 4 Sections (4.1 – 4.6)

Unit II

(15 Hours)

The Cauchy Problem and Wave Equations : The Cauchy Problem – Homogeneous Wave Equations – Initial Boundary – Value Problems – Equations with Non homogeneous Boundary Conditions – Vibration of Finite String with Fixed Ends – Non homogeneous Wave Equations – Solution of the Goursat Problem – Exercises.

Chapter 5 Sections (5.1, 5.3 – 5.7, 5.9, 5.12)

***Unit III**

(15 Hours)

Method of Separation of Variables: Introduction – Separation of Variables – The Vibrating String Problem – Existence and Uniqueness of Solution of the Vibrating String Problem – The Heat Conduction Problem – Existence and Uniqueness of Solution of the Heat Conduction Problem – The Laplace and Beam Equations – Nonhomogeneous Problems – Exercises.

Chapter 7 Sections (7.1 – 7.9)

Unit IV

(15 Hours)

Boundary – Value Problems and Applications : Boundary –Value Problems – Maximum and Minimum Principles – Uniqueness and Continuity Theorems –Dirichlet Problem for a Circle –Dirichlet Problem for a Circular Annulus – Neumann Problem for a Circle – Dirichlet Problem for a Rectangle – Dirichlet Problem Involving the Poisson Equation –The Neumann Problem for a Rectangle – Exercises.

Chapter 9 Sections (9.1 – 9.10)

Unit V

(15 Hours)

Green's Functions and Boundary-Value Problems : Introduction – The Dirac Delta Function – Properties of Green's Functions – Method of Green's Functions – Dirichlet's Problem for the Laplace Operator – Dirichlet's Problem for the Helmholtz Operator – Method of Images – Method of Eigenfunctions

Chapter 11 Sections (11.1 – 11.8)

Book for study

Tyn Myint – U Lokenath Debnath, Linear Partial Differential Equations for Scientists and Engineers, Birkhauser, Fourth Edition, Third Indian Reprint 2013.

Books for reference:

- 1.Ian.N.Sneddon, Elements of Partial Differential Equations, Dover Publications, 1st Edition-2006.
- 2.J.B.Doshi, Differential Equations for Scientists and Engineers, Narosa Publishing House, 2010.

Course Designed by : N.RAJESWARI

Course Reviewed by : B.KALAISELVI

Course Checked by : S.KALAISELVI

M.Sc. Mathematics

Semester II

Core VII – NUMERICAL ANALYSIS

17MM07

[For students admitted from the academic year 2017-2018 and onwards]

75 Hours

The objectives of introducing this course are:

- To expose the students to various numerical methods available for solving algebraic and differential equations.
- To help the students to develop their skills in numerical computation.
- To expose the students to problems in physical and management sciences and in engineering.

Unit I (15 Hours)

Solution of Linear Systems $AX = B$: Upper-Triangular Linear Systems – Gaussian Elimination and Pivoting – Triangular Factorization – Iterative Methods for Linear Systems. Chapter 3 (Sections 3.3 – 3.6)

Unit II (15 Hours)

Interpolation and Polynomial Approximation : Chebyshev Polynomials (Optional) – Pade Approximations. Curve Fitting : Least-Squares Line – Methods of Curve Fitting – Interpolation By Spline Functions . Chapter 4 (Sections 4.5 - 4.6) Chapter 5 (Sections 5.1 – 5.3).

Unit III (15 Hours)

Solution of Differential Equations : Euler's Method – Heun's Method – Taylor Series Method – Runge-Kutta Methods – Predictor- Corrector Methods. Chapter 9 (Sections 9.2 – 9.6).

Unit IV (15 Hours)

Solution of Partial Differential Equations: Hyperbolic Equations – Parabolic Equations – Elliptic Equations. Chapter 10 (Sections 10.1 – 10.3).

***Unit V (15 Hours)**

Eigen values and Eigenvectors : Homogeneous Systems: Eigenvalue Problem – Power Method – Jacobi's Method – Eigenvalues of Symmetric Matrices. Chapter 11 (Sections 11.1 – 11.4).

Note: Simple problems that can be done manually and using calculator are only included- Programs are excluded.

Book for Study

Numerical Methods Using MATLAB, John. H.Mathews, Kurtis D. Fink, PHI Learning Private Limited, New Delhi,Fourth Edition- 2012.

Books for Reference

- 1.M.K.Jain, S.R.K.Iyengar and R.K. Jain, Numerical methods for Scientific and engineering Computation, New Age International (P) Limited, Fourth Edition, 2003, Reprint 2004.
- 2.Curtis F.Gerald and Parick O.Wheatley, Applied Numerical Analysis, Pearson Education Pvt. Ltd., Sixth Edition, Fourth Indian reprint 2005.
- 3.R.G. Stanton, Numerical Methods for Science and Engineering, Prentice Hall of India Private Ltd, 1985.

Course Designed by : R.ANGEL JOY

Course Reviewed by: N.RAJESWARI

Course checked by : S.KALAISELVI

M.Sc. Mathematics
Semester II
Core VIII –OPTIMIZATION TECHNIQUES II **17MM08**

[For students admitted from the academic year 2017-2018 and onwards] **65 Hours**

Objectives of this course are:

- To specialize in inventory management, that forms the basis of supply chain management
- To specialize in queuing concepts that has wide applications like processor scheduling etc.

Unit I **(13 Hours)**

Probabilistic Inventory Models: Continuous Review Models – Single – Period Models- Multiperiod Model.

Chapter 14(Sections 14.1-14.3)

Unit II **(13 Hours)**

Queuing Systems : Elements of a Queuing Model – Role of Exponential Distribution – Pure Birth and Death Models (Relationship Between the Exponential and Poisson Distributions) – Generalized Poisson Queuing Model

Chapter 15 (Sections 15.2 – 15.5)

Unit III **(13 Hours)**

Specialized Poisson Queues: Steady state Measures of Performance-Single server models– Multiple server model-Machine servicing model.

Chapter 15 (Sections 15.6.1 – 15.6.4)

Unit IV **(13 Hours)**

Game Theory: Optimal solution of Two Person Zero –sum-games – Solution of Mixed Strategy Games.

Markov Chains: Definition of a Markov Chain – Absolute and n-step transition probabilities- Classification of States.

Chapter 13(Sections 13.4.1-13.4.2) Chapter 17(Sections 17.1-17.3)

Unit V **(13 Hours)**

Classical Optimization Theory: Unconstrained Problems – Constrained Problems – Equality constraints-Inequality constraints – Karush-Kuhn-Tucker (KKT) Conditions

Chapter 18(Sections 18.1.1, 18.2.1,18.2.2)

Book for study

Hamdy A.Taha, Operations Research – An Introduction, Pearson Education Inc Limited, Eighth Edition, 2008

Books for Reference

1. G.Srinivasan, Operations Research- Principles and Applications PHI Learning Private Limited, Second printing, 2008
2. Wayne.L.Winston, Operations Research-Applications and Algorithms, Thomson Asia. Pvt Ltd, Fourth edition, 2003.

Course Designed by : P.JAYALAKSHMI

Course Reviewed by : N.RAJESWARI

Course Checked by : S.KALAISELVI

**M.Sc Mathematics
Semester II**

Elective II -CONTROL THEORY

17MME3

[For students admitted from the academic year 2017-2018 and onwards]

75 Hours

The objectives of this course are

- to model any system based on physical law
- to identify a system based on physical law
- to analyze the controllability and stability of the system
- to synthesize the control input and apply it to the system

Unit I

(15Hours)

Observability: Linear systems – Nonlinear systems - Exercises.
Chapter 2

Unit II

(15 Hours)

Controllability: Linear systems – Nonlinear systems – Exercises [problems related to the Given topics].
Chapter 3 (Sections 3.1 – 3.2, 3.5)

Unit III

(15 Hours)

Stability: Linear systems – Perturbed Linear Systems - Nonlinear Systems – Exercises.
[Problems related to the given topics].
Chapter 4 (Sections 4.1-4.3, 4.5)

Unit IV

(15 Hours)

Stabilizability: Stabilization via Linear Feedback control – The Controllable Subspace– Stabilization with Restricted Feedback - Exercises
Chapter 5

***Unit V**

(15 Hours)

Optimal control: Linear Time Varying Systems – Linear Time Invariant Systems – Nonlinear Systems - Exercises.
Chapter 6

Book for Study

K.Balachandran and J.P.Dauer, Elements of Control Theory, Narosa Publishing House, New Delhi, Second Edition 2012.

Books for Reference

- 1.Naresh K.Sinha, Control Systems, New Age International Limited, Publishers, Third Edition, 1998.
- 2.Robert H.Martin,Jr , Ordinary Differential Equations, International Student Edition Mc GrawHill Book Company, New Delhi,2nd Printing – 1985.
- 3.A.C.King , J.Billingham and S.R. Otto, Differential Equations Linear, Non-Linear, Ordinary, Partial , Cambridge University Press (2003), First South Asian Edition, 2005

Course Designed by : R.ANGEL JOY

Course Reviewed by : P.JAYALAKSHMI

Course Checked by : A.R.THILAGAVATHI

Curriculum Design
SRI G.V.G. VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Mathematics
M.Sc Mathematics
 Scheme of Examination – CBCS Pattern
 [For the Students admitted from the academic year 2015-16 onwards]

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
15MM01	Semester I Core I : Algebra	6	3	25	75	100	4
15MM02	Core II : Real Analysis	6	3	25	75	100	4
15MM03	Core III : Ordinary Differential Equations	6	3	25	75	100	4
15MM04	Core IV : Optimization Techniques I	5	3	25	75	100	4
15MME1	Elective I: Number Theory	6	3	25	75	100	4
15MM05	Semester II Core V : Complex Analysis	5	3	25	75	100	4
15MM06	Core VI : Partial Differential Equations	6	3	25	75	100	4
15MM07	Core VII : Numerical Analysis	6	3	25	75	100	4
15MM08	Core VIII : Optimization Techniques II	5	3	25	75	100	4
15MME2	Elective II : Control Theory	6	3	25	75	100	4
15MMIS	Internship	-	-	50	-	50	2
15MGCS	Cyber Security	2	2	50	-	Grade	Grade
15MMA1/ 15MMA2	Advanced Learners Course I: Fuzzy Set Theory and its Applications / Mathematical Modelling	-	-	-	100	100	4*
15MM09	Semester III Core IX : Topology	6	3	25	75	100	4
15MM10	Core X : Classical Mechanics	6	3	25	75	100	4
15MM11	Core XI : Programming with C++	3	3	25	75	100	4
15MMCP	Programming with C++ Practical	3	3	40	60	100	4
15MM12	Core XII : Statistical Methods	5	3	25	75	100	4
15MME3	Elective III : Graph Theory	6	3	25	75	100	4

	Semester IV						
15MM13	Core XIII : Mathematical Methods	6	3	25	75	100	4
15MM14	Core XIV : Functional Analysis	6	3	25	75	100	4
15MM15	Core XV : Fluid Dynamics	6	3	25	75	100	4
15MME4	Elective IV : Special Functions	6	3	25	75	100	4
15MMPV	Project and Viva-Voce	-	-	-	-	200	8
15MMA3/	Advanced Learners Course II: Operator	-	-	-	100	100	4*
15MMA4	Theory / Differential Geometry						
Total						2250	90

Starred credits are treated as additional credits which are optional.

M.Sc Mathematics
Semester I
Core I-ALGEBRA

15MM01

[For students admitted from the academic year 2015-2016 onwards]

Preamble

65 Hours

This Course is introduced in the curriculum to expose the students to learn concepts in Abstract and Linear Algebra with the following objectives:

- To study the advanced concepts in abstract and linear algebra which have wider applications in Higher analysis, Theory of numbers, Geometry etc., with the inclusion of Ring theory, Field theory etc in the syllabi.
- To realize the importance of Sylow's theorem and the fundamental theorem of Galois theory which speak more about the relation between the order of a group, its subgroups, prime numbers, fixed field of automorphisms of a field and splitting field.
- To understand about the interplay between the Algebras of linear transformations and the matrix theory.

Unit I

(13 Hours)

Group Theory: Another Counting Principle – Sylow's Theorem – Direct Products.
Chapter 2 (Sections 2.11 – 2.13)

Unit II

(13 Hours)

Ring Theory: Polynomial Rings – Polynomials over the Rational Field – Polynomial Rings over Commutative Rings.
Chapter 3 (Sections 3.9 – 3.11)

Unit III

(13 Hours)

Fields: Extension Fields-Roots of Polynomials – More about Roots.
Chapter 5 (Sections 5.1, 5.3, 5.5)

Unit IV

(13 Hours)

Fields: The Elements of Galois Theory
Chapter 5 (Section 5.6)

*** Unit V**

(13 Hours)

Vector Spaces and Modules: Modules. Selected Topics: Finite Fields
Chapter 4 (Section 4.5) Chapter 7 (Section 7.1)

Book for study

I.N.Herstein, Topics in Algebra, Wiley Eastern Limited, Second Edition, Reprint2014.

Books for Reference

1. John B. Fraleigh, A first course in Abstract Algebra, Addison-Wesley Publishing Company, Tenth printing, 2003.
2. Surjeet Singh and Qazi Zameeruddin, Modern Algebra, Vikas Publishing house Private Limited, Third Edition, 2005.

Course Designed by : B.KALAISELVI
Course Reviewed by : N.JEYANTHI
Course checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics
Semester I
Core II- REAL ANALYSIS

15MM02

[For students admitted from the academic year 2015 – 2016 onwards]

Preamble

65 Hours

This course provides the generalization of

- the study of derivatives to higher dimensional spaces.
- the concepts like area and volume to measure.

This paper facilitates the students to

- extend the mean value theorem and Taylor's formula for higher dimensional spaces which have many applications in optimization theory.
- study the Lebesgue integrals and General Lebesgue measure essential to solve problems in modern mathematics.

Unit I

(13 Hours)

Multivariable Differential calculus: Introduction – The directional derivative – Directional derivatives and continuity – The total derivative – The total derivative expressed in terms of partial derivatives – An application to complex-valued functions – The matrix of a linear function – The Jacobian matrix – The chain rule – Matrix form of the chain rule – The mean value theorem for differentiable functions – A sufficient condition for differentiability – A sufficient condition for equality of mixed partial derivatives

Book I: Chapter 12 (Sections 12.1 – 12.13)

Unit II

(13 Hours)

Lebesgue Measure: Introduction – Outer measure – Measurable sets and Lebesgue measure – A nonmeasurable set – Measurable functions – Littlewood's three Principles.

Book II: Chapter 3 (Sections 1 - 6)

*Unit III

(13 Hours)

The Lebesgue Integral : The Riemann Integral – The Lebesgue integral of a bounded function over a set of finite measure – The integral of a nonnegative function – The general Lebesgue integral – Convergence in measure.

Book II: Chapter 4 (Sections 1 - 5)

Unit IV

(13 Hours)

Differentiation and Integration : Differentiation of monotone functions – Functions of bounded variation – Differentiation of an integral – Absolute Continuity.

Book II : Chapter 5 (Sections 1 - 4)

Unit V (13 Hours)

Measure and Integration : Measure spaces – Measurable functions – General convergence Theorems – Signed measure – The Radon - Nikodym Theorem.

Book II: Chapter 11 (Sections 1,2,4 - 6)

Books for Study

Book I: For Unit I : Tom M.Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, Second Edition, Twentieth Reprint – 2002.

Book II: For Units II- V : H.L.Royden, Real Analysis, Pearson Education Pte. Ltd, Third Edition, Second Indian Reprint, 2004.

Books for Reference

1.G.de.Barra, Measure Theory and Integration, Wiley Eastern Limited, 1981.

2. Inder K.Rana, An Introduction to measure and Integration, Narosa Publishing House, 2005.

Course Designed by : A.R.THILAGAVATHI
Course Reviewed by : N.JEYANTHI
Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics

Semester I

Core III – ORDINARY DIFFERENTIAL EQUATIONS 15MM03

[For students admitted from the academic year 2015-2016 onwards]

Preamble 65 Hours

The study of differential equations and the solutions are important

- since many phenomena in Science, Engineering and Social Sciences are interpreted in terms of differential equations.

This course facilitates the students

- to formulate differential equations.
- to study various types of equations and the methods of solving them.
- to study the qualitative properties of solutions.

Unit I (13 Hours)

Linear Differential Equations of Higher Order: Introduction – Higher Order Equations – A Modelling problem – Linear Independence – Equations with constant coefficients – Equations with Variable coefficients – Wronskian – Variation of parameters – Some Standard Methods – Method of Laplace Transforms.

Chapter 2 (Sections 2.1 – 2.10)

Unit II (13 Hours)

Solutions in Power Series: Introduction – Second Order Linear Equations with Ordinary Points – Legendre Equations and Legendre Polynomials – Second Order Equations with Regular Singular Point – Properties of Bessel Functions.

Chapter 3 (Sections 3.1 – 3.5)

***Unit III (13 Hours)**

Systems of Linear Differential Equations: Introduction – Systems of First Order Equations – Model for Arms Competition between Two Nations – Existence and Uniqueness Theorem –

Fundamental Matrix – Non-homogeneous Linear systems – Linear systems with constant coefficients – Linear systems with periodic coefficients.

Chapter 4 (Sections 4.1 – 4.8)

Unit IV

(13 Hours)

Existence and Uniqueness of Solutions: Introduction – Preliminaries – Successive Approximations – Picard's Theorem – Some Examples – Continuation and Dependence on Initial conditions – Existence of solutions in the Large – Existence and Uniqueness of solutions of systems – Fixed point method.

Chapter 5 (Sections 5.1 – 5.9)

Unit V

(13 Hours)

Boundary Value Problems: Introduction – Sturm – Liouville Problem – Green's Function – Application of Boundary Value Problems – Picard's Theorem.

Chapter 7 (Sections 7.1 – 7.5)

Book for study

S. G. Deo, V. Lakshmikantham, V. Raghavendra, Text book of Ordinary Differential Equations, Tata McGraw-Hill Publishing Company Ltd, New Delhi, Second Edition, 16th Reprint – 2010.

Books for Reference

1. Earl A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall of India Pvt., Ltd., - 1987.
2. Robert H. Martin, Jr., Ordinary Differential Equations, McGraw-Hill Book Company, Second Printing – 1985.

Course Designed by : N. JEYANTHI

Course Reviewed by : S. KALAISELVI

Course Checked by : A. R. THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc. Mathematics

Semester I

Core IV –OPTIMIZATION TECHNIQUES I

15MM04

[For students admitted from the academic year 2015-2016 onwards]

Preamble

50 Hours

The systematic methodology developed for Operations Research study deals with problems involving conflicting multiple objectives, policies and alternatives.

The objectives of this course are

- To locate the best or optimal solution to a problem.
- To sharpen the student's brain in making quick decisions in administrative situations.

Unit I

(10 Hours)

Duality: Definition of the Dual Problem-Primal-Dual Relationships- Dual simplex algorithm- Integer Linear programming: Integer programming Algorithms: Cutting - Plane Algorithm.

Chapter 4 (Sections 4.1, 4.2, 4.4.1) Chapter 9 (Section 9.2(9.2.2))

***Unit II**

(10 Hours)

Advanced linear programming: Simplex method fundamentals – Revised simplex method.

Chapter 7(Sections 7.1,7.2)

Unit III (10 Hours)

Network Models: Scope and Definition of Network models-Minimal Spanning Tree Algorithm – Shortest - Route Problem : Examples of the Shortest Route Applications Shortest -Route Algorithms.
Chapter 6(Sections 6.1,6.2,6.3(6.3.1,6.3.2))

Unit IV (10 Hours)

Deterministic Dynamic Programming : Recursive Nature of Computations in DP – Forward and Backward Recursion – Selected DP Applications – Problem of Dimensionality.
Chapter 10 (Sections 10.1 – 10.3(10.3.1-10.3.3),10.4)

Unit V (10 Hours)

Deterministic Inventory Models: General Inventory Model – Static Economic Order Quantity (EOQ) Models – Dynamic EOQ Models:Set up model.
Chapter 11 (Sections 11.1 ,11.3,11.4.2)

Book for study

Hamdy A.Taha,Operations Research–An Introduction, Pearson Education Inc Limited, Eighth Edition, 2008.

Books for Reference

- 1.Frederick S. Hillier, Gerald J.Lieberman,- Introduction to Operations Research, McGraw-Hill Book Company, Eighth Edition 2007.
- 2.Wayne.L.Winston,Operations Research-Applications and Algorithms, Thomson Asia. Pvt Ltd, Fourth edition, 2003.

Course Designed by : P.PADMAVATHI

Course Reviewed by : R.ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics

Semester I

Elective I – NUMBER THEORY

15MME1

[For students admitted from the academic year 2015 –2016 onwards]

Preamble 65 Hours

Number Theory, the great attraction of Mathematicians in the recent years is introduced in the curriculum due to

- Its wide applications in cryptography and network security.
- Its potentiality to convert all the problems of modern mathematics into the problems of Number theory.
- The topics included in the present syllabus such as Congruences ,Diophantine equations and continued fractions provides ample opportunities for the students to practice the problem solving skills.
- Help the students to understand and attempt the new problems with more insight

Unit I (13 Hours)

Divisibility : Introduction – Divisibility – Primes. Congruences : Congruences – Solutions of congruences

Chapter 1 (Sections 1.1 – 1.3) Chapter 2 (Sections 2.1 – 2.2)

Unit II**(13 Hours)**

Congruences : Congruence of Degree 1- The function $\phi(n)$ – Congruences of Higher Degree – Prime Power Moduli- Prime Modulus

Chapter 2 (Sections 2.3 – 2.7)

Unit III**(13 Hours)**

Congruences : Congruences of Degree two, Prime modulus – Power Residues. Quadratic Reciprocity: Quadratic Residues – Quadratic Reciprocity – The Jacobi symbol.

Chapter 2 (Sections 2.8 – 2.9) Chapter 3 (Sections 3.1 – 3.3)

Unit IV*(13 Hours)**

Some Functions of Number Theory: Greatest Integer Function – Arithmetic Functions – The Moebius Inversion Formula – The multiplication of Arithmetic Functions – Recurrence functions.

Chapter 4 (Sections 4.1 – 4.5)

Unit V**(13 Hours)**

Some Diophantine Equations: Diophantine Equations-The equation $ax + by = c$ – Positive Solutions – Other Linear equations – The equation $x^2 + y^2 = z^2$ – The equation $x^4 + y^4 = z^2$ – Sums of four and five squares .

Chapter 5 (Sections 5.1 – 5.7)

Book for Study

Ivan Niven and Herbert S. Zuckerman, An Introduction to Theory of Numbers, Wiley Eastern Ltd, Third Edition, 1991 Reprint

Books for Reference:

1. T.M. Apostol, Introduction to Analytic Number Theory, Springer International Student Edition, Narosa Publishing House, Seventh Reprint 2010.
2. David M. Burton, Elementary Number Theory, University Press, 2008.

Course Designed by : S.KALAISELVI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

**M.Sc Mathematics
Semester II**

Core V - COMPLEX ANALYSIS**15MM05**

[For students admitted from the academic year 2015-2016 onwards]

Preamble**65 Hours**

This paper provides a transition from under graduate elementary results to post- graduate advanced topics. The two reasons for including this course in the curriculum are:

- to impart knowledge and understanding in the advanced topics such as Normal families, Conformal mappings and Elliptic functions.
- to help the students to take up research activities in the field of complex analysis.

Unit I**(13 Hours)**

Complex Integration: Fundamental Theorems: Line Integrals – Rectifiable Arcs – Line Integrals as Functions of Arcs – Cauchy's Theorem for a Rectangle – Cauchy's Theorem in a Disk. Harmonic Functions: Definition and Basic Properties – The Mean -value property – Poisson's formula – Schwarz's theorem.

Chapter 4 (Sections 1.1-1.5, 6.1-6.4)

Unit II (13 Hours)

Series and Product Developments: Partial fractions and Factorization: Partial Fractions – Infinite Products–Canonical Products–The Gamma function.

Entire functions :Jensen's Formula .

Chapter 5 (Sections 2.1-2.4, 3.1)

Unit III (13 Hours)

Series and Product Developments: Normal Families : Equicontinuity – Normality and Compactness – Arzela's Theorem – Families of Analytic Functions –The Classical Definition. Conformal mapping. Dirichlet's Problem: The Riemann Mapping Theorem: Statement and Proof- Boundary Behavior – Use of the Reflection Principle – Analytic Arcs.

Chapter 5 (Sections 5.1- 5.5) Chapter 6 (Sections 1.1- 1.4)

Unit IV (13 Hours)

Conformal Mapping. Dirichlet's Problem: A Closer Look at Harmonic Functions: Functions with the Mean value Property – Harnack's Principle. The Dirichlet Problem: Subharmonic Functions – Solution of Dirichlet's Problem.

Chapter 6 (Sections 3.1, 3.2, 4.1, 4.2)

*** Unit V (13 Hours)**

Elliptic Functions: Simply Periodic Functions. Representation by Exponentials – The Fourier Development – Functions of Finite Order. Doubly Periodic Functions: The Period Module – Unimodular Transformations – The Canonical Basis – General Properties of Elliptic Functions.The Weierstrass Theory:The Weierstrass p -function – The Functions $\zeta(z)$ and $\sigma(z)$ - The Differential Equation.

Chapter 7 (Sections 1.1-1.3, 2.1-2.4, 3.1-3.3).

Book for study

Lars. V.Ahlfors, Complex analysis, McGraw-Hill Book Company, Third Edition, 8th printing 1987.

Books for Reference

1.Serge Lang, Complex Analysis, Springer-Verlag New York, Third Edition 1993.

2.Walter Rudin, Real and Complex analysis, McGraw Hill Book Company, 7th reprint 2009.

Course Designed by : B.KALAISELVI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics

Semester II

Core VI- PARTIAL DIFFERENTIAL EQUATIONS 15MM06

[For students admitted from the academic year 2015–2016 onwards]

Preamble 65 Hours

The theory of Partial Differential Equations is one of the most important fields of mathematics since

- it is a linchpin of almost all physical systems.
- it has many applications in Engineering, Physics and other Sciences.

The present course material prescribed provides the students

- all important concepts with the underlying principles.
- a wide range of applications with ample illustrations.

Unit I

(13 Hours)

Mathematical Models: Classical Equations – The Vibrating String – The Vibrating Membrane-conduction of heat in solids-The gravitational potential. Classification of Second – Order Linear Equations: Second – Order equations in Two Independent Variables – Canonical forms – Equations with Constant Coefficients – General Solutions – Summary and Further Simplification – Exercises.

Chapter 3 Sections (3.1 – 3.3, 3.5, 3.6) Chapter 4 Sections (4.1 – 4.6)

Unit II

(13 Hours)

The Cauchy Problem and Wave Equations : The Cauchy problem – Homogeneous Wave Equations – Initial Boundary – Value Problems – Equations with Non homogeneous Boundary Conditions – Vibration of Finite String with Fixed Ends – Non homogeneous Wave Equations – Solution of the Goursat Problem – Exercises.

Chapter 5 Sections (5.1, 5.3 – 5.7, 5.9, 5.12)

***Unit III**

(13 Hours)

Method of Separation of Variables: Introduction – Separation of Variables – The Vibrating String Problem – Existence and Uniqueness of Solution of the Vibrating String Problem – The Heat Conduction Problem – Existence and Uniqueness of Solution of the Heat Conduction Problem – The Laplace and Beam Equations – Nonhomogeneous problems – Exercises.

Chapter 7 Sections (7.1 – 7.9)

Unit IV

(13 Hours)

Boundary – Value Problems and Applications : Boundary –Value Problems – Maximum and Minimum Principles – Uniqueness and Continuity Theorems –Dirichlet Problem for a Circle –Dirichlet Problem for a Circular Annulus – Neumann Problem for a Circle – Dirichlet Problem for a Rectangle – Dirichlet Problem Involving the Poisson Equation –The Neumann Problem for a Rectangle – Exercises.

Chapter 9 Sections (9.1 – 9.10)

Unit V

(13 Hours)

Green's Function and Boundary-Value Problems : Introduction – The Dirac Delta Function Properties of Green's Functions – Method of Green's Functions – Dirichlet's Problem for the Laplace Operator – Dirichlet's Problem for the Helmholtz Operator – Method of Images – Method of Eigenfunctions

Chapter 11 Sections (11.1 – 11.8)

Book for study

Tyn Myint – U Lokenath Debnath, Linear Partial Differential Equations for Scientists and Engineers, Birkhauser , Fourth Edition ,First Indian Reprint 2009.

Books for reference:

1. Ian.N.Sneddon, Elements of Partial Differential Equations, Dover Publications, I Edition-2006.
2. J.B.Doshi, Differential Equations for Scientists and Engineers, Narosa Publishing House, 2010.

Course Designed by : N.RAJESWARI

Course Reviewed by : B.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

**M.Sc. Mathematics
Semester II**

Core VII – NUMERICAL ANALYSIS

15MM07

[For students admitted from the academic year 2015 –2016 onwards]

Preamble

65 Hours

The rapid development of high speed digital computers and the increasing desire for numerical answers to applied problems have led to the enhanced demands in the courses dealing with the methods and techniques of numerical analysis.

The objectives of introducing this course are:

- To expose the students to the various numerical methods available for solving algebraic and differential equations.
- To help the students to develop their skills in numerical computation.
- To expose the students to problems in physical and management sciences and in engineering.

Unit I

(13 Hours)

Solution of Linear Systems $AX = B$: Upper-Triangular Linear Systems – Gaussian Elimination and Pivoting – Triangular Factorization – Iterative Methods for Linear Systems.

Chapter 3 (Sections 3.3 – 3.6)

Unit II

(13 Hours)

Interpolation and Polynomial Approximation : Chebyshev Polynomials (Optional) – Pade Approximations. Curve Fitting : Least-Squares Line – Methods of Curve Fitting – Interpolation By Spline Functions .

Chapter 4 (Sections 4.5 - 4.6) Chapter 5 (Sections 5.1 – 5.3).

Unit III

(13 Hours)

Solution of Differential Equations : Euler's Method – Heun's Method –Taylor Series Method – Runge-Kutta Methods – Predictor- Corrector Methods.

Chapter 9 (Sections 9.2 – 9.6).

Unit IV

(13 Hours)

Solution of Partial Differential Equations: Hyperbolic Equations – Parabolic Equations – Elliptic Equations.

Chapter 10 (Sections 10.1 – 10.3).

***Unit V**

(13Hours)

Eigen values and Eigenvectors : Homogeneous Systems: Eigen value Problem – Power Method – Jacobi's Method – Eigenvalues of Symmetric Matrices.

Chapter 11 (Sections 11.1 – 11.4).

Note: Simple problems that can be done manually and using calculator are only included- Programs are excluded.

Book for Study

Numerical Methods Using MATLAB, John. H.Mathews, Kurtis D. Fink, Pearson Prentice Hall, Fourth Edition- 2012.

Books for Reference

1. M.K.Jain, S.R.K.Iyengar and R.K. Jain, Numerical methods for Scientific and engineering Computation, New Age International (P) Limited, Fourth Edition, 2003, Reprint 2004.
2. Curtis F.Gerald and Parick O.Wheatley, Applied Numerical Analysis, Pearson Education Pvt.Ltd., Sixth Edition, Fourth Indian reprint 2005.
3. R.G. Stanton, Numerical Methods for Science and Engineering, Prentice Hall of India Private Ltd, 1985.

Course Designed by : R.ANGEL JOY

Course Reviewed by: N.RAJESWARI

Course checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

**M.Sc. Mathematics
Semester II**

Core VIII –OPTIMIZATION TECHNIQUES II 15MM08

[For students admitted from the academic year 2015-2016 onwards]

Preamble **50 Hours**

This course is a continuation of the course I in Semester I: In this course probabilistic concepts used in Optimization are dealt with.

It enables the student

- To specialize in inventory management, that forms the basis of supply chain management
- To specialize in queuing concepts that has wide applications like processor scheduling etc.

Unit I **(10 Hours)**

Probabilistic Inventory Models: Continuous Review Models – Single – Period Models.
Chapter 14(Sections 14.1,14.2)

Unit II **(10 Hours)**

Queuing Systems : Elements of a Queuing Model – Role of Exponential Distribution – Pure Birth and Death Models (Relationship Between the Exponential and Poisson Distributions) – Generalized Poisson Queuing Model
Chapter 15 (Sections 15.2 – 15.5)

Unit III **(10 Hours)**

Specialized Poisson Queues: Steady state measures of Performance –Single server models–Multiple server model-Machine servicing model.
Chapter 15 (Sections 15.6.1 – 15.6.4)

***Unit IV** **(10 Hours)**

Game Theory:Optimal solution of Two Person Zero sum games – Solution of MixedStrategy Games.
Chapter 13(Sections 13.4.1-13.4.2)

Unit V **(10 Hours)**

Classical Optimization Theory: Unconstrained Problems – Constrained Problems

-Equality constraints-Inequality constraints–Karush-Kuhn-Tucker(KKT)Conditions
Chapter 18(Sections 18.1.1, 18.2.1,18.2.2)

Book for study

Hamdy A.Taha, Operations Research – An Introduction, Pearson Education Inc
Limited, Eighth Edition, 2008

Books for Reference

1. G.Srinivasan, Operations Research- Principles and Applications PHI Learning
Private Limited, Second printing, 2008
2. Wayne.L.Winston, Operations Research-Applications and
Algorithms, Thomson Asia. Pvt Ltd, Fourth edition, 2003.

Course Designed by : P.PADMAVATHI

Course Reviewed by : R,ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester II

Elective II-CONTROL THEORY

15MME2

[For students admitted from the academic year 2015-2016 onwards]

Preamble

65 Hours

The field of control theory is at the forefront of the creative interplay of mathematics, engineering and computer science. Drawing from these disciplines, control theory brings powerful theoretical results to bear upon advanced techniques.

The objectives of this course are

- to model any system based on physical law
- to identify a system based on physical law
- to analyze the controllability and stability of the system
- to synthesize the control input and apply it to the system

Unit I

(13 Hours)

Observability: Linear systems – Nonlinear systems.Exercises.
Chapter 2

Unit II

(13 Hours)

Controllability:Linear systems–Nonlinear systems–
Exercises[problems related to the Given topics].
Chapter 3 (Sections 3.1 – 3.2, 3.5)

Unit III

(13 Hours)

Stability: Linear systems – Perturbed Linear systems - Nonlinear systems –
Exercises.[Problems related to the given topics].
Chapter 4 (Sections 4.1-4.3, 4.5)

Unit IV

(13 Hours)

Stabilizability: Stabilization via Linear feedback control – The controllable
subspace – Stabilization with restricted feedback - Exercises
Chapter 5

***Unit V**

(13 Hours)

Optimal control:Linear time varying systems – Linear time invariant systems–
Nonlinear systems - Exercises.
Chapter 6

Book for Study

K.Balachandran and J.P.Dauer Elements of Control Theory, Narosa Publishing House, New Delhi, Second Edition 2012.

Books for Reference

1. Naresh K.Sinha, Control Systems, New Age International Limited, Publishers, Third Edition, 1998.
2. Robert H.Martin,Jr , Ordinary Differential Equations, International Student Edition Mc GrawHill Book Company, New Delhi,2nd Printing – 1985.
3. A.C.King , J.Billingham and S.R. Otto, Differential Equations Linear, Non-Linear, Ordinary, Partial , Cambridge University Press (2003), First South Asian Edition, 2005
Course Designed by : R.ANGEL JOY
Course Reviewed by : P.JAYALAKSHMI
Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc. Mathematics**Semester II****Internship****15MMIS**

[For students admitted from the academic year 2015-2016 onwards]

The students have to select a school and take up teaching practice for a period of two weeks to enhance their teaching ability and submit a report.

M.Sc. Mathematics**Semester III****Core IX– TOPOLOGY****15MM09**

[For students admitted from the academic year 2015-2016 onwards]

Preamble**65 Hours**

Topology is one of the basic disciplines of pure mathematics and concerns more on logical precision. It is qualitative mathematics and formerly known as analysis of situation. The objectives of the course are

- to lay foundation for further study in Algebraic Topology.
- to understand modern pure mathematics.
- to make use of ideas and methods in Topology to analysis and Geometry.

Unit I**(13 Hours)**

Topological Spaces and Continuous Functions: Topological spaces – Basis for a Topology – The Order Topology – The Product Topology on $X \times Y$ – The Subspace Topology – Closed Sets and Limit Points – Continuous Functions

Chapter 2 (Sections 12-18)

Unit II**(13 Hours)**

Topological Spaces and Continuous Functions: The Metric Topology
Connectedness and Compactness : Connected Spaces – Connected Subspaces of the Real Line – Components and Local Connectedness.

Chapter 2 (Sections 20) Chapter 3 (Sections 23-25)

Unit III*(13 Hours)**

Connectedness and Compactness: Compact Spaces – Compact Subspaces of the Real Line – Limit point Compactness.

Countability and Separation Axioms: The Countability Axioms – The Separation Axioms – Normal Spaces.

Chapter 3 (Sections 26 – 28) Chapter 4 (Sections 30 – 32)

Unit IV

(13 Hours)

Countability and Separation Axioms: The Urysohn Lemma – The Urysohn Metrization Theorem – The Tietze Extension Theorem.

The Tychonoff Theorem: The Tychonoff Theorem – The Stone-Cech Compactification.

Chapter 4 (Sections 33 – 35) Chapter 5 (Sections 37 – 38)

Unit V

(13 Hours)

Metrization Theorems and Paracompactness: Local finiteness – The Nagata - Smirnov Metrization Theorem – Paracompactness – The Smirnov Metrization Theorem.

Chapter 6 (Sections 39 – 42)

Note : Exclude supplementary Exercises.

Book for study

James R. Munkres, Topology, Pearson Education Inc, Second Edition, 2011.

Books for Reference

1. J. Dugundji, Topology, Universal Book Stall, New Dehi, 1975.
2. George F. Simmons, Topology and Modern Analysis, McGraw Hill Book Company, 13th Reprint 2010.

Course Designed by : S.KALAISELVI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc. Mathematics

Semester III

Core X – CLASSICAL MECHANICS

15MM10

[For students admitted from the academic year 2015 –2016 onwards]

Preamble

65 Hours

This subject attracts the interest of Mathematicians since the solutions of Physical problems are derived using Mathematical procedures. The syllabus is a compact package of intellectually satisfying areas of dynamical theory.

The study offers the students an opportunity:

- to become acquainted with Mathematical technologies and procedures which are useful in other fields of physics.
- to acquire knowledge in solving Mechanical problems.
- to understand and appreciate the working of objects like motion of planets, motion of rockets etc.,

Unit I

(13 Hours)

Introductory Concepts: The Mechanical System – Generalized Co-ordinates – Constraints – Virtual Work – Energy and Momentum.

Chapter 1 : (Sections 1.1 – 1.5)

Unit II**(13 Hours)**

Lagrange's Equations: Derivation of Lagrange's Equations – Examples – Integrals of the Motion.

Chapter 2 : (Sections 2.1 – 2.3)

Unit III**(13 Hours)**

Hamilton's Equations: Hamilton's principle – Hamilton's Equations – Other variational Principles – Phase space.

Chapter 4: (Sections 4.1 – 4.4)

*** Unit IV****(13 Hours)**

Hamilton – Jacobi theory: Hamilton's Principal function – The Hamilton Jacobi equation – Separability.

Chapter 5 : (Sections 5.1 – 5.3)

Unit V**(13 Hours)**

Canonical Transformations: Differential forms and generating functions – Special transformations – Lagrange and Poisson brackets.

Chapter 6 : (Sections 6.1 – 6.3)

Book for study

Donald T. Greenwood, Classical Dynamics, Prentice Hall of India Private Ltd, 1985.

Books for Reference

1. Herbert Goldstein, Classical Mechanics, Second Edition – Addison Wesley Publishing company, 1988.
2. John L. Synge and Byron A. Griffith – Principles of Mechanics – International Student Edition – McGraw Hill – Koga Kusha Ltd, 1970.

Course Designed by : P.PADMAVATHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics**Semester III****Core XI - PROGRAMMING WITH C++****15MM11****[For students admitted from the academic year 2015-2016 onwards]****Preamble****45 Hours**

C++ is a Versatile Object Oriented Programming language suitable for virtually any programming task like development of compilers, databases and communication systems.

It has become a necessity to learn this language since

- it has become a general purpose language.
- it is easy, yet powerful to handle large Programs.

This course is offered to

- empower the software developing skills of the student.
- solve any complex real life problems with ease using computers.

Unit I**(9 Hours)**

Tokens, Expressions and Control Structures: Introduction-Tokens - Keywords -Identifiers and Constants - Basic data Types - User-Defined Data Types. Derived data types -

Symbolic constants - Type Compatibility –Declaration of variables – Dynamic initialization of Variables - Reference Variables – Operators in C++ - Scope Resolution Operator - Member Dereferencing Operators - Memory Management Operators – Manipulators - Typecast Operator - Expressions and their Types – Special Assignment Expressions – Implicit Conversions – Operator. Overloading – Operator Precedence – Control Structures. Chapter 3: (Sections 3.1 – 3.24).

Unit II

(9 Hours)

Functions in C++: Introduction – The Main Function – Function prototyping Call by Reference – Return by reference – Inline functions – Default arguments – const Arguments Function overloading – Friend and Virtual Functions – Math Library Functions. Classes and Objects: Introduction – C Structures Revisited – Specifying a Class –Defining Member Functions – A C++ Program with Class – Making an Outside Function Inline – Nesting of Member Functions – Private Member Functions– Arrays within a Class – Memory allocation for Objects – Static Data Members – Static Member Functions –Arrays of Objects– Objects as Function Arguments – Friendly Functions – Returning Objects – constant Member functions – Pointers to Members – Local classes.

Chapter 4 (Sections 4.1 – 4.11) Chapter 5 (Sections 5.1 – 5.19)

***Unit III**

(9Hours)

Constructors and Destructors : Introduction - Constructors – Parameterized Constructors – Multiple Constructors in a Class - Constructors with Default Arguments – Dynamic Initialization of Objects – Copy constructor – Dynamic Constructors –Constructing Two-Dimensional Arrays – const Objects - Destructors. Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading - Overloading Unary Operators –Overloading Binary Operators – Overloading Binary Operators using Friends- Manipulation of Strings Using Operators– Rules for Overloading Operators

Chapter 6(Sections 6.1 – 6.11) Chapter 7(Sections 7.1 – 7.7)

Unit IV

(9 Hours)

Inheritance: Extending Classes: Introduction – Defining Derived Classes –Single Inheritance – Making a Private Member Inheritable–Multilevel Inheritance –Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes–Nesting of Classes. Pointers, Virtual Functions and Polymorphism: Introduction – Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual functions

Chapter 8(Sections 8.1 – 8.12) Chapter 9 (Sections 9.1 - 9.7)

Unit V

(9 Hours)

Working with Files : Introduction – Classes for File Stream Operations – Opening and Closing a File – Detecting End-of-File – More about Open()- File modes – File Pointers and their Manipulations - Sequential Input and Output Operations – Updating a File: Random Access – Error handling During File Operations – Command-Line Arguments.

Chapter 11(Sections 11.1 - 11.10)

Book for Study

E.Balagurusamy , Object Oriented Programming with C++, Tata McGraw Hill Publishing Company Limited. NewDelhi. Fourth Edition –Tenth Reprint 2010.

Books for Reference

1. Deitel and Deitel,C++ - How to Program, Prentice- Hall, 1998.

2. Robert Lefore, Object Oriented Programming in Turbo C++, Waite Group Publications – 1999.

e - resource

Spoken Tutorial Project (Programming with C++) as e-Resource for Learning - IIT, Mumbai under National Mission on Education through ICT, MHRD, Govt. of India

Course Designed by : N.RAJESWARI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

**Core XI - PROGRAMMING WITH C++ PRACTICAL
15MMCP**

**[For students admitted from the academic year 2015-2016 onwards]
30 Hours**

List of programs

1. Sorting of Numbers(without using function)
2. Sorting of numbers (using function)
3. Numerical Integration by 1/3 rd Simpson's rule.
4. Solving First Order Ordinary Differential Equation using
 - (i) Runge- Kutta Second order method.
 - (ii) Runge- Kutta Fourth order method.
5. Solving First Order Ordinary Differential Equation using Adam's Predictor –Corrector method.
6. Generating Fibonacci series using recursion.
7. Finding the Addition, Subtraction, Multiplication and Division of Complex numbers.
8. Read the following information from the keyboard:
 - Employee name, Employee code, Designation, Years of experience,
 - Age, Basic pay, Dearness allowance, HRA, deductions and execute the following features:
 - (i) Insert a new entry
 - (ii) Delete an entry
 - (iii) List a table with employee details
 - (iv) List a table with salary details
 - (v) Sort the entries
9. Preparing a Mark Sheet of a University Examination with the following information:
 - a) Name of the Student, Roll Number, Subject Code, Subject Name,
 - b) Internal Marks and External Marks.The program should carry out the following tasks:
 - (a) Sort the students list by Name.
 - (b) Sort the students list by Rank.
10. Simulation of a simple Banking System in which initial balance and the rate of interest are read from the keyboard and these values are initialized using the constructor member function.
The program should consist of following methods:

- a. To initialize the balance and rate of interest using the constructor member function.
 - b. To make deposit.
 - c. To withdraw an amount from the balance.
 - d. To find the Compound interest based on the rate of interest.
 - e. To know the balance amount
 - f. To display the menu options.
11. Swapping two variables of various data types, namely integers, floating point numbers and character types using function overloading.
12. Performing Simple arithmetic operations of two complex numbers using operator overloading.
13. Run Time Polymorphism using Virtual function
14. Creating a base class with data members, name, roll number and sex and a derived class with members, height and weight and declaring the derived class as an array of objects and using the member functions to display the contents of the array on the screen.
15. Illustration of how class objects can be written to and read from the disk files.

Course Designed by : N.RAJESWARI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester III

Core:XII -STATISTICAL METHODS 15MM12

[For students admitted from the academic year 2015-2016 onwards]

Preamble

50 Hours

Hypothesis testing is usually considered as the principal instrument in research. It is used to extend the sample inference to the population. This course facilitates the students

- to know the procedure for testing of hypothesis for large samples
- to understand about various tests of significance for large samples for attributes and variables.

Unit I

(10 Hours)

Large Sample Theory: Tests of Significance :Null and alternative hypotheses-Errors in sampling-Critical region and level of significance-One tailed and two tailed test-Critical values or significant values.

Chapter14 (Sections 14.4.1-14.4.5)

Unit II

(10 Hours)

Large Sample Theory: Procedure for testing of hypothesis-Tests of significance for large samples. Sampling of attributes: Test of significance for single proportion-Test of significance for difference of proportions.

Chapter14 (Sections 14.5-14.7.2)

***Unit III**

(10 Hours)

Large Sample Theory: Sampling of variables: Unbiased estimate for population mean and variance-Standard error of sample mean-Test of significance for single mean. Tests of significance for difference of means- Tests of significance for the difference of standard deviations.

Chapter14 (Sections 14.8.1-14.8.5)

Unit IV

(10 Hours)

Exact Sampling Distributions-I: Applications of Chi-Square Distribution: Inferences about a Population Variance-Goodness of Fit Test -Test of Independence of Attributes_Contingency tables.Yate's correction(for 2 X 2 contingency table)-Brandt and Snedecor formula for 2 x k contingency table -Chi-square test of Homogeneity of correlation Coefficients-Bartlett's Test for homogeneity of several independent estimates of the same population Variance.

Chapter15(Sections 15.6.1-15.6.7)

Unit V

(10 Hours)

Exact Sampling Distributions-II: Applications of t-Distribution: t – test for Single Mean-t – test for Difference of Means – Paired t – test for difference of Means.

t-test for Testing the Significance of an Observed Sample Correlation Coefficient-t-test for Testing the Significance of an Observed Regression Coefficient-t-test for Testing the Significance of an Observed Partial Correlation Coefficient.

Applications of F-Distribution: F-test for Equality of Two Population Variances

Chapter16 (Sections 16.3.1 - 16.3.6,16.6.1)

Book for study

Fundamentals of Mathematical Statistics, S.C.Gupta and V.K.Kapoor, Sultan Chand & Sons,2010.

Books for reference

1. Fundamentals of Statistics, S.C Srivastava & Sangya Srivastava, Anmol publications Pvt Ltd, First Edition 2003.
2. Fundamentals of Statistics, D.N.Elhance, Veena Elhance & BM.Aggarwal- Kitab Mahal Agencies, 52nd Edition 2008.

Course Designed by : P.JAYALAKSHMI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester-III

Elective III- GRAPH THEORY

15MME3

[For students admitted from the academic year 2015-2016 onwards]

Preamble

65 Hours

The concept of graph is extraordinarily simple, which explains the wide applicability of graph theory. Graphs are among the most ubiquitous models of both natural and human-made structures. They can be used to model many types of relations and process dynamics in physical, biological and social systems. Many problems of practical interest can be represented by graphs. This course on Graph Theory will

- Familiarize the basic concepts in Graph Theory
- Help to apply the knowledge wherever it is possible.

Unit I

(13 Hours)

Graphs and Subgraphs : Graphs and Simple Graphs - Graph Isomorphism-The Incidence and Adjacency Matrices- Sub Graphs-Vertex Degrees-Paths and

Connection - Cycle. Trees: Trees-Cut Edges and Bonds -Cut Vertices– Cayley's

formula.

Chapter 1(Sections 1.1-1.7) , Chapter 2(Sections 2.1-2.4)

Unit II (13 Hours)

Connectivity: Connectivity-Blocks. Euler Tours and Hamilton Cycles: Euler Tours -Hamilton Cycles.

Chapter 3(Sections 3.1, 3.2) Chapter 4(Sections 4.1, 4.2)

***Unit III (13 Hours)**

Matchings: Matchings - Matchings and Coverings in Bipartite Graphs – Perfect Matching. Edge Colourings : Edge Chromatic Number - Vizing's Theorem.

Chapter 5(Sections 5.1-5.3) Chapter 6(Sections 6.1,6.2)

Unit IV (13 Hours)

Independent Sets and Cliques: Independent Sets - Ramsey's Theorem.

Vertex Colorings: Chromatic Number - Brook's Theorem - Hajos Conjecture-Chromatic Polynomials.

Chapter 7(Sections 7.1,7.2) Chapter 8(Sections 8.1-8.4)

Unit V (13 Hours)

Planar Graphs: Plane and planar graphs-Dual graphs - Euler's formula – Bridges – The five Color theorem and four Color conjecture – Non Hamiltonian planar graphs.

Chapter 9(Sections 9.1-9.4, 9.6 & 9.7)

Book for study

J.A. Bondy and U.S.R. Murty, Graph theory with Applications, MacMillan London, First Edition ,1976.

Books for Reference

1. J.Clark and D.A. Holton, A First Look at Graph Theory, Allied Publishers New Delhi 1995.
2. Frank. Harary, Graph Theory, Narosa Publishing House,Tenth Reprint,2001.
3. Geir Agnarsson, Raymond Greenlaw, Graph Theory Modelling, Applications and Algorithms, Pearson ,Third Impression 2011.
4. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice Hall of India 2005.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics

Semester IV

Core XIII - MATHEMATICAL METHODS

15MM13

[For students admitted from the academic year 2015 - 2016 onwards]

Preamble

65 Hours

This course explores various methods of solving integral equations and variational problems.The objectives of this course are

- To provide easy and effective means for solutions of integral equations arising in various fields of science and engineering.
- To solve differential and integral equations using integral transforms that are not solvable by standard methods

- To find extrema of functionals defined over a class of functions.

Unit I (13 Hours)

Introduction: Definition, Regularity conditions, special kinds of Kernels – Eigen values and Eigen functions – Convolution Integral – The inner or scalar product of two functions. Integral Equations with Seperable kernels: Reduction to a system of algebraic equations – Examples. Fredholm alternative – Examples – An approximate method. Method of successive Approximations: Iterative scheme – Examples – Volterra integral equations – Examples.

Book 1: Chapter 2 (Sections 2.1 – 2.5), Chapter 3 (Sections 3.1 – 3.4)

Unit II (13 Hours)

Applications to Ordinary Differential Equations: Initial value problems – Boundary value problems – Examples. Singular Integral Equations: The Abel integral equation – Examples. Integral Transform Methods: Laplace transform – Application to Volterra integral equations with convolution type kernels – Examples.

Book 1: Chapter 5 (Sections 5.1 – 5.3), Chapter 8 (Sections 8.1 – 8.2)

Chapter 9 (Sections 9.3-9.5)

***Unit III (13 Hours)**

Fourier transforms: Fourier transforms – Fourier cosine transforms – Fourier sine transforms- Fourier transform of derivatives. The calculation of the Fourier transforms of some simple functions – The Fourier transforms of rational functions – The convolution integral – Parseval's theorem for cosine and sine transforms.

Book 2: Chapter 2 (Sections 2.3-2.10)

Unit IV (13 Hours)

Hankel Transforms: Introduction – Elementary Properties of Hankel Transforms- The Hankel Inversion Theorem- Hankel Transforms Derivatives of Functions- The Hankel Transforms of Some Elementary Functions- Parseval Relation for Hankel Transforms- Relations Between Fourier and Hankel Transforms.

Book 2: Chapter 5 (Sections 5.1-5.7)

Unit V (13 Hours)

The Methods of Variations in Problems with Fixed Boundaries: Variations and its Properties- Euler equation – Functionals of the Form $\int F(x, y_1, y_2, \dots y_n, y_1', y_2', \dots y_n') dx$ – Functional dependent on higher – order derivatives – Functionals dependent on the functions of several independent variables – Variational problems in parametric form.

Book 3 : Chapter 6 (Sections 1 – 6)

Books for Study

Book 1: For Units I-II: Ram P.Kanwal – Linear Integral Equations – Theory and Technique, Academic press, Inc 1971.

Book 2: For Units III : Ian.N.Sneddon, The Use of Integral Transforms, Tata Mc-Graw Hill Publishing Company Ltd.

Book 3: For Unit IV, V: L.Elsgolts, Differential Equations and the Calculus of variations, MIR Publishers, second printing – 1973.

Books for Reference

1. L.I.G. Chambers, Integral Equations, A Short Course, International Text book company Ltd., 1976

2. A.S Gupta, Calculus of Variations with Applications, Prentice Hall of India Private Ltd., New Delhi, 1997.

Course Designed by : N.JEYANTHI
Course Reviewed by : R.ANGEL JOY
Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics
Semester IV
Core XIV– FUNCTIONAL ANALYSIS **15MM14**
[For students admitted from the academic year 2015-2016 onwards]

Preamble **65 Hours**

The study of functional analysis forms an essential part of the postgraduate courses, since

- it has extensive applications in various branches of pure and applied mathematics.
- it enables to establish a relationship between isolated mathematical theories pertaining to different branches such as differential equations, approximation of functions, numerical analysis and integral equations.

Unit I **(13 Hours)**

Banach spaces: The definition and some examples- Continuous linear transformations – The Hahn Banach theorem – The natural imbedding of N in N^{**} - The open mapping theorem.
Chapter 9(Sections 46 – 50)

Unit I **(13 Hours)**

Banach spaces: The conjugate of an operator. Hilbert spaces: The definition and some simple properties – Orthogonal complements – Orthonormal sets.
Chapter 9(Section 51) Chapter 10(Sections 52 – 54)

***Unit III** **(13 Hours)**

Hilbert spaces: The conjugate space H^* – The adjoint of an operator – Self adjoint operators – Normal and Unitary operators – Projections.
Chapter 10(Sections 55-59)

Unit IV **(13 Hours)**

Finite Dimensional Spectral Theory: Matrices – Determinants and the Spectrum of an operator – The Spectral theorem
Chapter 11(Sections 60-62)

Unit V **(13 Hours)**

General Preliminaries on Banach algebras: The definition and some examples – Regular and singular elements – Topological divisors of zero – The spectrum – The formula for the spectral radius.
Chapter 12(Sections 64-68)

Book for Study

G.F.Simmons, Introduction to Topology and Modern Analysis, TATA McGraw Hill Publishing Co. Ltd, Thirteenth Reprint 2010.

Books for Reference

1. Dr.D.Somasundaram, Functional Analysis, S.Viswanathan Pvt Ltd., 1994
2. B.V.Limaye, Functional Analysis, Wiley Eastern Limited, Second edition, 2004.

3. A.H.Siddiqui, Functional Analysis with applications, Tata McGraw Hill Publishing Co. Ltd., 2007.
4. M.Thamban Nair, Functional Analysis , Prentice Hall of India Pvt Ltd., 2002.
 Course Designed by : R.ANGEL JOY
 Course Reviewed by : S.KALAISELVI
 Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics

Semester – IV

Core XV – FLUID DYNAMICS

15MM15

[For students admitted from the academic year 2015– 2016 onwards]

Preamble

65 Hours

This course is introduced in the syllabus in order to offer a through and methodical introductory exposition of the mathematical theory of fluid motion which is useful in applications to both hydrodynamics and aerodynamics. The course facilitates the students

- to understand the general properties of fluid motion such as continuity, pressure, dynamical equation, energy, vorticity etc.,
- to know the tensor methods applied to the flow of viscous fluids.
- to know the outline of the theory of two dimensional laminar flow in boundary layer
- to apply the aerofoil theory in aerodynamics.

Unit I

(13 Hours)

Bernoulli's equation: Introductory notions – Physical dimensions – Velocity – Stream lines and paths of the particles – Stream tubes and filaments – Density – Pressure. Equations of motion: Differentiation with respect to time – The equation of continuity – Boundary conditions (both kinematical and Physical) – Rate of change of linear momentum – The equation of motion of an inviscid fluid.

Book 1: Chapter I (Sections 1.0-1.3) Chapter III (Sections 3.10-3.31, 3.40, 3.41)

Unit II

(13 Hours)

Equations of motion: Euler's momentum theorem – Conservative forces – Lagrangian form of the equation of motion – Steady motion – The energy equation – Rate of change of circulation – Vortex motion – permanence of Vorticity.

Book 1: Chapter III (Sections 3.42-3.53)

Unit III

(13 Hours)

Two dimensional motion: Introduction – Two dimensional functions – Basic singularities – Method of images – Conformal transformation – The Aerofoil.

Book 2: Chapter III (Sections 3.1-3.3, 3.5-3.7)

Unit IV

(13 Hours)

Dynamics of real fluids: The equations of motion for viscous flow – Some exact solutions of the Navier-Stokes equations.

Book 2: Chapter V (Sections 5.2,5.3.1-5.3.3)

***Unit V**

(13 Hours)

The laminar boundary layer incompressible flow: Introduction – The boundary layer equations – Analytic solutions of the boundary layer equations.

Book 2: Chapter VI (Sections 6.1-6.3)

Books for Study

Book 1: For Units I and II : L.M.Milne – Thomson, Theoretical

Hydrodynamics, Dover Publications, New York, Fifth Edition, 1996.
 Book 2: For Units III to V : N.Curle and H.J.Davies, Modern Fluid Dynamics,
 Volume I, D.Van Nostrand Co., London, 1968.

Books for reference

1. S.W.Yuan, Fundamentals of fluid Mechanics, Prentice Hall of India, Pvt. Ltd., 1988.
2. John F. Douglas, Janusz M.Gasiorek and John A. Swaffield, fluid Mechanics, Pearson Education Ltd., Fourth Edition, 2002.

Course Designed by : A.R.THILAGAVATHI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc Mathematics

Semester IV

Elective IV– SPECIAL FUNCTIONS 15MME4

[For students admitted from the academic year 2015-16 onwards]

Preamble

65 Hours

Modern engineering and physical science applications demand a thorough knowledge of applied mathematics, particularly special functions. These typically arise in applications such as communication systems, electro-optics, nonlinear wave propagation, electromagnetic theory, electric circuit theory, and quantum mechanics. Five important special functions are included in this course.

- Legendre polynomials have application in various branches of physics and engineering, especially in the transformation of spherical harmonics under co-ordinate rotations.
- Bessel functions appear in problems of [wave propagation](#), static potentials and problems involving cylindrical coordinate systems.
- The Hermite polynomials have their main application in the quantum-mechanical harmonic oscillator.
- The Laguerre polynomials arise in quantum mechanics, in the radial part of the solution of the [Schrödinger equation](#) for a one-electron atom.
- Chebyshev polynomials are used in polynomial approximations to arbitrary functions. They also occur in electrical circuit theory.

Unit I

(14 Hours)

Legendre's Equation: Legendre's Equation-Solution of Legendre's Equation-Definition of $P_n(x)$ and $Q_n(x)$ – General solution of Legendre's Equation – to show the $P_n(x)$ is the coefficient of h^n in the expansion of $(1-2xh+h^2)^{-1/2}$ – Laplace's definite integral for $P_n(x)$ – Orthogonal properties of Legendre's polynomials – Recurrence formulae – Beltrami's results – Christoffel's Expansion - Christoffel's summation formula – Rodrigue's formula – Even and odd functions.

Chapter 2 (2.1-2.13)

Unit II

(14 Hours)

Bessel's Equation .

Chapter 5.	
*Unit III	(12 Hours)
Hermite Polynomials .	
Chapter 6.	
Unit IV	(13 Hours)
Laguerre Polynomials.	
Chapter 7.	
Unit V	(12 Hours)
Chebyshev Polynomials .	
Chapter 8	

Book for Study

J.N. Sharma and Dr.R.K.Gupta , Special Functions, Krishna Prakashan Mandir
Sixteenth edition 1992-93.

Books for Reference

1. S. G. Deo, V.Lakshmikantan,V. Raghavendra ,Text book of Ordinary Differential Equations, Tata McGraw-Hill Publishing Company Ltd, New Delhi,Second Edition,16th Reprint – 2010.
2. Gupta B.D., Mathematical physics, Vikas Publishing House, Fourth Edition, 2010
3. Sathyaprakash, Mathematical physics,Sultan Chand & Sons ,5th revised edition,2011

Course Designed by : R.ANGEL JOY

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

Note: Starred Unit is for Self-Study.

M.Sc. Mathematics

Semester IV

Project and Viva- Voce

15MMPV

[For students admitted from the academic year 2015 –2016 onwards]

This is carried out as an individual project that enables the students to understand the Mathematical concepts and to take up research work in future.

M.Sc. Mathematics
Semesterwise distribution with Scheme of Examination
[For the students admitted during the academic year 2014-15 and onwards]

Sem	Course	Credits	Duration of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Core I: Algebra	5	3	25	75	100
	Core II: Real Analysis	5	3	25	75	100
	Core III: Ordinary Differential Equations	5	3	25	75	100
	Elective I: Number Theory	3	3	25	75	100
	Diploma Course : I	3	-	100	-	100
II	Core IV : Complex Analysis	5	3	25	75	100
	Core V : Partial Differential Equations	5	3	25	75	100
	Core VI: Numerical Analysis	5	3	25	75	100
	Elective II: Control Theory	3	3	25	75	100
	Diploma Course : II	3	-	100	-	100
	Mini Project	2	-	50	-	50
	Advanced Learner's Course I:Fuzzy Set Theory and its Applications / Mathematical Modelling	4*	3	-	100	100
III	Core VII: Topology	5	3	25	75	100
	Core VIII: Classical Mechanics	5	3	25	75	100
	Core IX: Programming with C++	4	3	25	75	100
	Core IX: Programming with C++	2	3	20	30	50
	Practical	3	3	25	75	100
	Elective III : Graph theory	3	-	100	-	100
	Diploma Course: III	-	-	-	-	-
	Project Work					

IV	Core X: Mathematical Methods	5	3	25	75	100
	Core XI :Functional Analysis	5	3	25	75	100
	Elective IV: Fluid Dynamics	3	3	25	75	100
	Diploma Course : IV	3	-	100	-	100
	Project Work	8	-	100	100	200
	Advanced Learner's Course II : Operator Theory / Differential Geometry	4*	3	-	100	100

Total Credits

90

* Starred credits are treated as additional credits.

** Diploma course carries 12 credits.

The Diploma Course offered by the Department is Quantitative Techniques

M. Sc Mathematics

Semester I

Core I-ALGEBRA

14MM01

[For students admitted during the academic year 2014-15 and onwards]

65 Hours

Preamble

This Course is introduced in the curriculum to expose the students to learn concepts in Abstract and Linear Algebra with the following objectives:

- To study the advanced concepts in abstract and linear algebra which have wider applications in Higher analysis, Theory of numbers, Geometry etc., with the inclusion of Ring theory, Field theory etc in the syllabi.
- To realize the importance of Sylow's theorem and the fundamental theorem of Galois theory which speak more about the relation between the order of a group, its subgroups, prime numbers, fixed field of automorphisms of a field and splitting field.
- To understand about the interplay between the Algebras of linear transformations and the matrix theory.

Module I

(13 Hours)

Group Theory: Another Counting Principle – Sylow's Theorem – Direct Products.

Chapter 2 (Sections 2.11 – 2.13)

Module II

(13 Hours)

Ring Theory: Polynomial Rings – Polynomials over the Rational Field – Polynomial Rings over Commutative Rings.

Chapter 3 (Sections 3.9 – 3.11)

Module III

(13 Hours)

Fields: Extension Fields-Roots of Polynomials – More about Roots.

Chapter 5 (Sections 5.1, 5.3, 5.5)

Module IV

(13 Hours)

Fields: The Elements of Galois Theory

Chapter 5 (Section 5.6)

Module V*(13 Hours)**

Vector Spaces and Modules: Modules. Selected Topics: Finite Fields
Chapter 4 (Section 4.5) Chapter 7 (Section 7.1)

Book for study

I.N.Herstein, Topics in Algebra, Wiley Eastern Limited, Second Edition,
Reprint 2010.

Books for Reference

3. John B.Fraleigh, A first course in Abstract Algebra, Addison-Wesley Publishing Company, Tenth printing, 2003.
4. Surjeet singh and Qazi Zameeruddin, Modern Algebra, Vikas Publishing house Private Limited, Third Edition, 2005.

Course Designed by : B.KALAISELVI
Course Reviewed by : N.JEYANTHI
Course checked by : A.R.THILAGAVATHI

M.Sc Mathematics**Semester I****Core II – REAL ANALYSIS****14MM02****[For students admitted during the academic year 2014 – 15 and onwards]****65 Hours****Preamble**

This course provides the generalization of

- the study of derivatives to higher dimensional spaces.
- the concepts like area and volume to measure.

This paper facilitate the students to

- extend the mean value theorem and Taylor's formula for higher dimensional spaces which have many applications in optimization theory.
- study the Lebesgue integrals and General Lebesgue measure essential to solve problems in modern mathematics.

Module I**(13 Hours)**

Multivariable Differential calculus: Introduction – The directional derivative – Directional derivatives and continuity – The total derivative – The total derivative expressed in terms of partial derivatives – An application to complex-valued functions – The matrix of a linear function – The Jacobian matrix – The chain rule – Matrix form of the chain rule – The meanvalue theorem for differentiable functions – A sufficient condition for differentiability – A sufficient condition for equality of mixed partial derivatives

Book I: Chapter 12 : Sections (12.1 – 12.13)

Module II**(13 Hours)**

Lebesgue Measure: Introduction – Outer measure – Measurable sets and Lebesgue measure – A nonmeasurable set – Measurable functions – Littlewood's three Principles.

Book II: Chapter 3 : Sections (1 - 6)

Module III*(13 Hours)**

The Lebesgue Integral : The Riemann Integral – The Lebesgue integral of a bounded function over a set of finite measure – The integral of a nonnegative function – The general Lebesgue integral – Convergence in measure.

Book II: Chapter 4: Sections (1 - 5)

Module IV**(13 Hours)**

Differentiation and Integration : Differentiation of monotone functions – Functions of bounded variation – Differentiation of an integral – Absolute Continuity.

Book II : Chapter 5 : Sections(1 - 4)

Module V**(13 Hours)**

Measure and Integration : Measure spaces – Measurable functions – Integration – General convergence Theorems – Signed measure – The Radon - Nikodym Theorem.

Book II: Chapter 11 : Sections (1 - 6)

Books for Study

Book I: For Module I : M. Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, Second Edition, Twentieth Reprint – 2002.

Book II: For Modules II- V :H.L.Royden, Real Analysis, Pearson Education Pte. Ltd, Third Edition, Second Indian Reprint, 2004.

Books for Reference

1. G.de.Barra, Measure Theory and Integration, Wiley Eastern Limited, 1981.
2. Inder K.Rana, An Introduction to measure and Integration, Narosa Publishing House, 2005.

Course Designed by : A.R.THILAGAVATHI
Course Reviewed by : M.THAMILSELVI
Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics**Semester I****Core III – ORDINARY DIFFERENTIAL EQUATIONS 14MM03****[For students admitted during the academic year 2014-15 and onwards]****65 Hours****Preamble**

The study of differential equations and the solutions are important since

- many phenomena in Science, Engineering and Social Sciences are interpreted in terms of differential equations.

This course facilitate the students

- to formulate differential equations.
- to study various types of equations and the methods of solving them.
- to study the qualitative properties of solutions.

Module I (13 Hours)

Linear Differential Equations of Higher Order: Introduction – Higher Order Equations – A Modelling problem – Linear Independence – Equations with constant coefficients – Equations with Variable coefficients – Wronskian –

Variation of parameters – Some Standard Methods – Method of Laplace Transforms.

Chapter 2: Sections (2.1 – 2.10)

Module II (13 Hours)

Solutions in Power Series: Introduction – Second Order Linear Equations with Ordinary Points – Legendre Equations and Legendre Polynomials – Second Order Equations with Regular Singular Point – Properties of Bessel Functions.

Chapter 3: Sections(3.1 – 3.5)

***Module III (13 Hours)**

Systems of Linear Differential Equations: Introduction – Systems of First Order Equations – Model for Arms Competition between Two Nations – Existence and Uniqueness Theorem – Fundamental Matrix – Non-homogeneous Linear systems – Linear systems with constant coefficients – Linear systems with periodic coefficients.

Chapter 4: Sections (4.1 – 4.8)

Module IV (13 Hours)

Existence and Uniqueness of Solutions: Introduction – Preliminaries – Successive Approximations – Picard's Theorem – Some Examples – Continuation and Dependence on Initial conditions – Existence of solutions in the Large – Existence and Uniqueness of solutions of systems – Fixed point method.

Chapter 5: Sections (5.1 – 5.9)

Module V (13 Hours)

Boundary Value Problems: Introduction – Sturm – Liouville Problem – Green's Function – Application of Boundary Value Problems – Picard's Theorem.

Chapter 7: Sections (7.1 – 7.5)

Book for study

S. G. Deo, V. Lakshmikanthan, V. Raghavendra, Text book of Ordinary Differential Equations, Tata McGraw-Hill Publishing Company Ltd, New Delhi, Second Edition, 16th Reprint – 2010.

Books for Reference

1. Earl.A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall of India Pvt., Ltd., - 1987.
2. Robert H. Martin. Jr., Ordinary Differential Equations, McGraw-Hill Book Company, Second Printing – 1985.

Course Designed by : N.JEYANTHI

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics
Semester I
Elective I – NUMBER THEORY

14MME1

(For students admitted during the academic year 2014 –15 and onwards)

65 Hours

Preamble

Number Theory, the great attraction of Mathematicians in the recent years is introduced in the curriculum due to

- Its wide applications in cryptography and network security.
- Its potentiality to convert all the problems of modern mathematics into the problems of Number theory.

The topics included in the present syllabus such as Congruences, Diophantine equations and continued fractions

- Provides ample opportunities for the students to practice the problem solving skills.
- Help the students to understand and attempt the new problems with more insight

Module I **(13 Hours)**

Divisibility : Introduction – Divisibility – Primes. Congruences : Congruences – Solutions of congruences

Chapter 1 (Sections 1.1 – 1.3) Chapter 2 (Sections 2.1 – 2.2)

Module II **(13 Hours)**

Congruences : Congruence of Degree 1- The function $\phi(n)$ – Congruences of Higher Degree – Prime Power Moduli- Prime Modulus

Chapter 2 (Sections 2.3 – 2.7)

Module III **(13 Hours)**

Congruences : Congruences of Degree two, Prime modulus – Power Residues. Quadratic Reciprocity: Quadratic Residues – Quadratic Reciprocity – The Jacobi symbol.

Chapter 2 (Sections 2.8 – 2.9) Chapter 3 (Sections 3.1 – 3.3)

***Module IV** **(13 Hours)**

Some Functions of Number Theory: Greatest Integer Function – Arithmetic Functions – The Moebius Inversion Formula – The multiplication of Arithmetic Functions – Recurrence functions.

Chapter 4 (Sections 4.1 – 4.5)

Module V **(13 Hours)**

Some Diophantine Equations: Diophantine Equations-The equation $ax + by=c$ – Positive Solutions – Other Linear equations – The equation $x^2+y^2=z^2$ –The equation $x^4+y^4=z^2$ – Sums of four and five squares – Waring's problems – Sum of fourth powers – Sum of two squares – The equation $4x^2+y^2 = n$ – The equation $ax^2+by^2+cz^2=0$ – Binary Quadratic Forms – Equivalence of Quadratic Forms.

Chapter 5 (Sections 5.1 – 5.14)

Book for Study

Ivan Niven and Herbert S. Zuckerman, An Introduction to Theory of Numbers, Wiley Eastern Ltd, Third Edition, 1991 Reprint.

Books for Reference:

3. T.M. Apostol, Introduction to Analytic Number Theory, Springer International Student Edition, Narosa Publishing House, Seventh Reprint 2010.
4. David M.Burton, Elementary Number Theory, University Press, 2008.

Course Designed by : M.THAMILSELVI

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics**Semester I****Diploma Course: I –ADVANCED OPERATIONS RESEARCH I****14MMD1****[For students admitted during the academic year 2014-15 and onwards]****50 Hours****Preamble**

The systematic methodology developed for Operations Research study deals with problems involving conflicting multiple objectives, policies and alternatives.

The objectives of this course are

- To locate the best or optimal solution to a problem.
- To sharpen the student's brain in making quick decisions in administrative situations.

Module I**(10 Hours)**

Duality: Definition of the Dual Problem-Primal-Dual Relationships- Dual simplex algorithm-

Integer Linear programming: Integer programming Algorithms: Cutting - Plane Algorithm.

Chapter 4 (Sections 4.1, 4.2,4.4.1) Chapter 9 (Section 9.2(9.2.2))

Module II*(10 Hours)**

Advanced linear programming: Simplex method fundamentals – Revised simplex method.

Chapter 7(Section 7.1,7.2)

Module III**(10 Hours)**

Network Models : Scope and Definition of Network models - Minimal Spanning

Tree Algorithm – Shortest - Route Problem : Examples of the Shortest Route

Applications – Shortest -Route Algorithms.

Chapter 6(Section 6.1,6.2,6.3(6.3.1,6.3.2))

Module IV**(10 Hours)**

Deterministic Dynamic Programming : Recursive Nature of Computations in DP – Forward and Backward Recursion – Selected DP Applications – Problem of Dimensionality.

Chapter 10 (Sections 10.1 – 10.3(10.3.1-10.3.3),10.4)

Module V**(10 Hours)**

Deterministic Inventory Models: General Inventory Model – Static Economic Order Quantity (EOQ) Models – Dynamic EOQ Models:Set up model.

Chapter 11 (Sections 11.1 ,11.3,11.4.2)

Book for study

Hamdy A.Taha, Operations Research – An Introduction, Pearson Education Inc Limited, Eighth Edition, 2008

Books for Reference

1. Frederick S. Hillier, Gerald J.Lieberman,- Introduction to Operations Research, McGraw-Hill Book Company, Eighth Edition 2007.
2. Wayne.L.Winston, Operations Research-Applications and Algorithms,Thomson Asia.Pvt Ltd, Fourth edition, 2003.

Course Designed by : N.RAJESWARI

Course Reviewed by : R.ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics**Semester II****Core IV - COMPLEX ANALYSIS****14MM04****[For students admitted during the academic year 2014-15 and onwards]****65 Hours****Preamble**

This paper provides a transition from under graduate elementary results to post- graduate advanced topics. The two reasons for including this course in the curriculum are:

- to impart knowledge and understanding in the advanced topics such as Normal families, Conformal mappings and Elliptic functions.
- to help the students to take up research activities in the field of complex analysis.

Module I**(13 Hours)**

Complex Integration: Fundamental Theorems: Line Integrals – Rectifiable Arcs – Line Integrals as Functions of Arcs – Cauchy’s Theorem for a Rectangle –Cauchy’s Theorem in a Disk. Local Properties of Analytical Functions: Removable singularities. Taylor’s Theorem-Zeros and Poles – The Local Mapping. Harmonic Functions: Definition and Basic Properties – The Mean -value property – Poisson’s formula – Schwarz’s theorem.

Chapter 4 Sections (1.1-1.5, 3.1-3.3, 6.1-6.4)

Module II**(13 Hours)**

Series and Product Developments: Partial fractions and Factorization: Partial Fractions – Infinite Products – Canonical Products – The Gamma function. Entire functions: Jensen’s Formula – Hadamard’s Theorem.

Chapter 5 Sections (2.1-2.4, 3.1,3.2)

Module III**(13 Hours)**

Series and Product Developments: Normal Families : Equicontinuity – Normality and Compactness – Arzela’s Theorem – Families of Analytic Functions –The Classical Definition. Conformal mapping. Dirichlet’s problem: The Riemann Mapping Theorem: Statement and Proof- Boundary Behavior – Use of the Reflection Principle – Analytic Arcs.

Chapter 5 Sections (5.1- 5.5) Chapter 6 Sections (1.1- 1.4)

Module IV**(13 Hours)**

Conformal Mapping. Dirichlet’s Problem: A Closer Look at Harmonic Functions: Functions with the Mean value Property – Harnack’s Principle. The Dirichlet problem: Subharmonic Functions – Solution of Dirichlet’s Problem.

Chapter 6 Sections (3.1, 3.2, 4.1, 4.2)

***Module V**

(13 Hours)

Elliptic Functions: Simply Periodic Functions. Representation by Exponentials – The Fourier Development – Functions of Finite Order. Doubly Periodic Functions: The Period Module – Unimodular Transformations – The Canonical Basis – General Properties of Elliptic Functions. The Weierstrass Theory: The Weierstrass \wp -function – The Functions $\zeta(z)$ and $\sigma(z)$ – The Differential Equation.

Chapter 7 Sections (1.1-1.3, 2.1-2.4, 3.1-3.3).

Book for study

Lars. V. Ahlfors, Complex analysis, Mc Graw-Hill Book Company, Third Edition, 8th printing 1987.

Books for Reference

1. Serge Lang, Complex Analysis, Springer-Verlag New York, Third Edition 1993.
2. Walter Rudin, Real and Complex analysis, McGraw Hill Book Company, 7th reprint 2009.

Course Designed by	: B.KALAISELVI
Course Reviewed by	: S.KALAISELVI
Course Checked by	: A.R.THILAGAVATHI

M.Sc Mathematics

Semester II

Core V- PARTIAL DIFFERENTIAL EQUATIONS

14MM05

[For students admitted during the academic year 2014–2015 and onwards]

65 Hours

Preamble

The theory of Partial Differential Equations is one of the most important fields of mathematics since

- it is a linchpin of almost all physical systems.
- it has many applications in Engineering, Physics and other Sciences.

The present course material prescribed provides the students

- all important concepts with the underlying principles.
- a wide range of applications with ample illustrations.

Module I

(13 Hours)

Mathematical Models: Classical Equations – The Vibrating String – The Vibrating Membrane-conduction of heat in solids-The gravitational potential. Classification of Second – Order Linear Equations: Second – Order equations in Two Independent Variables – Canonical forms – Equations with Constant Coefficients – General Solutions – Summary and Further Simplification – Exercises.

Chapter 3 Sections (3.1 – 3.3, 3.5, 3.6) Chapter 4 Sections (4.1 – 4.6)

Module II

(13 Hours)

The Cauchy Problem and Wave Equations : The Cauchy problem – Homogeneous Wave Equations – Initial Boundary – Value Problems – Equations with Non homogeneous

Boundary Conditions – Vibration of Finite String with Fixed Ends – Non homogeneous Wave Equations – Solution of the Goursat Problem – Exercises.
Chapter 5 Sections (5.1, 5.3 – 5.7, 5.9, 5.12)

***Module III**

(13 Hours)

Method of Separation of Variables: Introduction – Separation of Variables – The Vibrating String Problem – Existence and Uniqueness of Solution of the Vibrating String Problem – The Heat Conduction Problem – Existence and Uniqueness of Solution of the Heat Conduction Problem – The Laplace and Beam Equations – Nonhomogeneous problems – Exercises.

Chapter 7 Sections (7.1 – 7.9)

Module IV

(13 Hours)

Boundary – Value Problems and Applications : Boundary – Value Problems – Maximum and Minimum Principles – Uniqueness and Continuity Theorems – Dirichlet Problem for a Circle – Dirichlet Problem for a Circular Annulus – Neumann Problem for a Circle – Dirichlet Problem for a Rectangle – Dirichlet Problem Involving the Poisson Equation – The Neumann Problem for a Rectangle – Exercises.

Chapter 9 Sections (9.1 – 9.10)

Module V

(13 Hours)

Green's Function and Boundary-Value Problems : Introduction – The Dirac Delta Function – Properties of Green's Functions – Method of Green's Functions – Dirichlet's Problem for the Laplace Operator – Dirichlet's Problem for the Helmholtz Operator – Method of Images – Method of Eigenfunctions

Chapter 11 Sections (11.1 – 11.8)

Book for study

Tyn Myint – U Lokenath Debnath, Linear Partial Differential Equations for Scientists and Engineers, Birkhauser, Fourth Edition, First Indian Reprint 2009.

Book for Reference:

1. IAN.N.Sneddon, Elements of Partial Differential Equations, Dover Publications, I Edition-2006.
2. J.B.Doshi, Differential Equations for Scientists and Engineers, Narosa Publishing House, 2010.

Course Designed by : N.RAJESWARI

Course Reviewed by : B.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics

Semester II

Core VI – NUMERICAL ANALYSIS

14MM06

[For students admitted during the academic year 2014 – 2015 and onwards]

65Hours

Preamble

The rapid development of high speed digital computers and the increasing desire for numerical answers to applied problems have led to the enhanced demands in the courses dealing with the methods and techniques of numerical analysis.

The objectives of introducing this course are:

- To expose the students to the various numerical methods available for solving algebraic and differential equations.
- To help the students to develop their skills in numerical computation.
- To expose the students to problems in physical and management sciences and in engineering.

Module I (13 Hours)

Solution of Linear Systems $AX = B$: Upper-Triangular Linear Systems – Gaussian Elimination and Pivoting – Triangular Factorization – Iterative Methods for Linear Systems.

Chapter 3 (Sections 3.3 – 3.6)

Module II (13 Hours)

Interpolation and Polynomial Approximation : Chebyshev Polynomials (Optional) – Pade Approximations. Curve Fitting : Least - Squares Line – Methods of Curve Fitting – Interpolation By Spline Functions .

Chapter 4 (Sections 4.5 - 4.6) Chapter 5 (Sections 5.1 – 5.3).

Module III (13 Hours)

Solution of Differential Equations : Euler’s Method– Heun’s Method – Taylor Series Method – Runge-Kutta Methods – Predictor-Corrector Methods.

Chapter 9 (Sections 9.2 – 9.6).

Module IV (13 Hours)

Solution of Partial Differential Equations: Hyperbolic Equations – Parabolic Equations – Elliptic Equations.

Chapter 10 (Sections 10.1 – 10.3).

***Module V (13 Hours)**

Eigenvalues and Eigenvectors : Homogeneous Systems: Eigenvalue Problem – Power Method – Jacobi’s Method – Eigenvalues of Symmetric Matrices.

Chapter 11 (Sections 11.1 – 11.4).

Note: Simple problems that can be done manually and using calculator are only included- Programs are excluded.

Book for Study

Numerical Methods Using MATLAB, John. H.Mathews, Kurtis D. Fink, Pearson Prentice Hall, Fourth Edition-2012.

Books for Reference

2. M.K.Jain, S.R.K.Iyengar and R.K. Jain, Numerical methods for Scientific and engineering Computation, New Age International (P) Limited, Fourth Edition 2003, Reprint 2004.
2. Curtis F. Gerald and Parick O.Wheatley, Applied Numerical Analysis, Pearson Education Pvt Ltd., Sixth Edition, Fourth Indian reprint 2005.
3. R.G. Stanton, Numerical Methods for Science and Engineering, Prentice Hall of India Private Ltd, 1985.

Course Designed by : P.PADMAVATHI

Course Reviewed by: N.RAJESWARI

Course checked by : A.R.THILAGAVATHI

M.Sc Mathematics
Semester II
Elective II-CONTROL THEORY **14MME2**
[For students admitted during the academic year 2014-15 and onwards]
65 Hours

Preamble

The field of control theory is at the forefront of the creative interplay of mathematics, engineering and computer science. Drawing from these disciplines, control theory brings powerful theoretical results to bear upon advanced techniques.

The objectives of this course are

- to model any system based on physical law
- to identify a system based on physical law
- to analyze the controllability and stability of the system
- to synthesize the control input and apply it to the system

Module I **(13 Hours)**

Introduction: Motivation – Basic results of differential equations – Fixed point Methods - Exercises. Observability: Linear systems – Nonlinear systems - Exercises.

Chapters 1 & 2

Module II **(13 Hours)**

Controllability: Linear systems – Nonlinear systems – Exercises [problems related to the Given topics].

Chapter 3 (Sections 3.1 – 3.2, 3.5)

Module III **(13 Hours)**

Stability: Linear systems – Perturbed Linear systems - Nonlinear systems – Exercises.[Problems related to the given topics].

Chapter 4 (Sections 4.1-4.3, 4.5)

Module IV **(13 Hours)**

Stabilizability: Stabilization via Linear feedback control – The controllable subspace– Stabilization with restricted feedback - Exercises

Chapter 5

***Module V** **(13 Hours)**

Optimal control: Linear time varying systems – Linear time invariant systems – Nonlinear systems - Exercises.

Chapter 6

Book for Study

K.Balachandran and J.P.Dauer, Elements of Control Theory, Narosa Publishing House, New Delhi, Second Edition 2012.

Books for Reference

1. Naresh K.Sinha, Control Systems, New Age International Limited, Publishers, Third Edition, 1998.
2. Robert H.Martin,Jr , Ordinary Differential Equations, International Student Edition Mc GrawHill Book Company, New Delhi,2nd Printing – 1985.
3. A.C.King , J.Billingham and S.R. Otto, Differential Equations Linear, Non-Linear, Ordinary, Partial , Cambridge University Press (2003), First South Asian Edition, 2005

Course Designed by : R.ANGEL JOY
Course Reviewed by : P.JAYALAKSHMI
Course Checked by : A.R.THILAGAVATHI

**M.Sc. Mathematics
Semester II**

Diploma Course: II –ADVANCED OPERATIONS RESEARCH II

14MMD2

[For students admitted during the academic year 2014-15 and onwards]

50 Hours

Preamble

This course is a continuation of the course I in Semester I: In this course probabilistic concepts used in Optimization are dealt with.
It enables the student

- To specialize in inventory management, that forms the basis of supply chain management
- To specialize in queuing concepts that has wide applications like processor scheduling etc.

Module I

(10 Hours)

Probabilistic Inventory Models: Continuous Review Models – Single – Period Models.
Chapter 14(Sections 14.1,14.2)

Module II

(10 Hours)

Queuing Systems : Elements of a Queuing Model – Role of Exponential Distribution – Pure Birth and Death Models (Relationship Between the Exponential and Poisson Distributions) – Generalized Poisson Queuing Model
Chapter 15 (Sections 15.2 – 15.5)

Module III

(10 Hours)

Specialized Poisson Queues: Steady state measures of performance-Single server models– Multiple server model-Machine servicing model.
Chapter 15 (Sections 15.6.1 – 15.6.4)

***Module IV**

(10 Hours)

Game Theory: Optimal solution of Two Person Zero -sum games – Solution of Mixed Strategy Games.
Chapter 13(Sections 13.4.1-13.4.2)

Module V

(10 Hours)

Classical Optimization Theory: Unconstrained Problems – Constrained Problems – Equality constraints
Chapter 18(Sections 18.1.1, 18.2.1)

Book for study

Hamdy A.Taha, Operations Research – An Introduction, Pearson Education Inc Limited, Eighth Edition, 2008

Books for Reference

1. G.Srinivasan, Operations Research- Principles and Applications

PHI Learning Private Limited, Second printing, 2008
2. Wayne.L.Winston, Operations Research-Applications and
Algorithms, Thomson Asia.Pvt Ltd, Fourth edition, 2003.

Course Designed by : N.RAJESWARI
Course Reviewed by : R,ANGEL JOY
Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics
Semester III
Core VII– TOPOLOGY **14MM07**

(For students admitted during the academic year 2014-15 and onwards)
65 Hours

Preamble

Topology is one of the basic disciplines of pure mathematics and concerns more on logical precision. It is qualitative mathematics and formerly known as analysis of situation. The objectives of the course are

- to lay foundation for further study in Algebraic Topology.
- to understand modern pure mathematics.
- to make use of ideas and methods in Topology to analysis and Geometry.

Module I **(13 Hours)**

Topological Spaces and Continuous Functions: Topological spaces – Basis for a Topology – The Order Topology – The Product Topology on $X \times Y$ – The Subspace Topology – Closed Sets and Limit Points – Continuous Functions – The product Topology.
Chapter 2 (Sections 12-19)

Module II **(13 Hours)**

Topological Spaces and Continuous Functions: The Metric Topology – The Metric Topology(Continued) .
Connectedness and Compactness : Connected Spaces – Connected Subspaces of the Real Line – Components and Local Connectedness.
Chapter 2 (Sections 20, 21) Chapter 3 (Sections 23-25)

***Module III** **(13 Hours)**

Connectedness and Compactness: Compact Spaces – Compact Subspaces of the Real Line – Limit point Compactness – Local compactness.
Countability and Separation Axioms: The Countability Axioms – The Separation Axioms – Normal Spaces.
Chapter 3 (Sections 26 – 29) Chapter 4 (Sections 30 – 32)

Module IV **(13 Hours)**

Countability and Separation Axioms: The Urysohn Lemma – The Urysohn Metrization Theorem – The Tietze Extension Theorem.
The Tychonoff Theorem: The Tychonoff Theorem – The Stone-Cech Compactification.
Chapter 4 (Sections 33 – 35) Chapter 5 (Sections 37 – 38)

Module V **(13 Hours)**

Metrization Theorems and Paracompactness: Local finiteness – The Nagata – Smirnov Metrization Theorem – Paracompactness – The Smirnov Metrization Theorem.
Chapter 6 (Sections 39 – 42)

Note : Exclude supplementary Exercises.

Book for study

James R. Munkres, Topology, Pearson Education Inc, Second Edition, 2011.

Books for Reference

3. J. Dugundji, Topology, Universal Book Stall, New Dehi, 1975.
4. George F. Simmons, Topology and Modern Analysis, McGraw Hill Book Company, 13th Reprint 2010.

Course Designed by : S.KALAISELVI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics

Semester III

Core VIII– CLASSICAL MECHANICS 14MM08

(For students admitted during the academic year 2014 –15 and onwards)

65 Hours

Preamble

This subject attracts the interest of Mathematicians since the solutions of Physical problems are derived using Mathematical procedures. The syllabus is a compact package of intellectually satisfying areas of dynamical theory.

The study offers the students an opportunity:

- to become acquainted with Mathematical technologies and procedures which are useful in other fields of physics.
- to acquire knowledge in solving Mechanical problems.
- to understand and appreciate the working of objects like motion of planets, motion of rockets etc.,

Module I

(13 Hours)

Introductory Concepts: The Mechanical System – Generalized Co-ordinates – Constraints – Virtual Work – Energy and Momentum.

Chapter 1 : (Sections 1.1 – 1.5)

Module II

(13 Hours)

Lagrange's Equations: Derivation of Lagrange's Equations – Examples – Integrals of the Motion.

Chapter 2 : (Sections 2.1 – 2.3)

Module III

(13 Hours)

Hamilton's Equations: Hamilton's principle – Hamilton's Equations – Other variational Principles – Phase space.

Chapter 4: (Sections 4.1 – 4.4)

***Module IV**

(13 Hours)

Hamilton – Jacobi theory: Hamilton's Principal function – The Hamilton Jacobi equation – Separability.

Chapter 5 : (Sections 5.1 – 5.3)

Module V

(13 Hours)

Canonical Transformations: Differential forms and generating functions – Special transformations – Lagrange and Poisson brackets.

Chapter 6 : (Sections 6.1 – 6.3)

Book for study

Donald T. Greenwood, Classical Dynamics, Prentice Hall of India Private Ltd, 1985.

Books for Reference

3. Herbert Goldstein, Classical Mechanics, Second Edition – Addison Wesley Publishing company, 1988.
4. John L. Synge and Byron A. Griffith – Principles of Mechanics – International Student Edition – McGraw Hill – Koga Kusha Ltd, 1970.

Course Designed by : P.PADMAVATHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester III

Core IX - PROGRAMMING WITH C++

14MM09

(For students admitted during the academic year 2014-2015 and onwards)

45 Hours

Preamble

C++ is a Versatile Object Oriented Programming language suitable for virtually any programming task like development of compilers, databases and communication systems.

It has become a necessity to learn this language since

- it has become a general purpose language.
- it is easy, yet powerful to handle large Programs.

This course is offered to

- empower the software developing skills of the student.
- enhance the ability of logical thinking.
- solve any complex real life problems with ease using computers.

Module I

(9 Hours)

Tokens, Expressions and Control Structures: Introduction-Tokens - Keywords - Identifiers and Constants - Basic data Types - User-Defined Data Types.

Derived data types - Symbolic constants - Type Compatibility –Declaration of variables – Dynamic initialization of Variables - Reference Variables –

Operators in C++ - Scope Resolution Operator - Member Dereferencing

Operators - Memory Management Operators – Manipulators - Typecast

Operator - Expressions and their Types – Special Assignment Expressions –

Implicit Conversions – Operator. Overloading – Operator Precedence – Control Structures.

Chapter 3: (Sections 3.1 – 3.24).

Module II

(9 Hours)

Functions in C++: Introduction – The Main Function – Function prototyping – Call by Reference – Return by reference – Inline functions – Default arguments – const Arguments – Function overloading – Friend and Virtual Functions – Math Library Functions. Classes

and Objects: Introduction – C Structures Revisited – Specifying a Class –Defining Member Functions – A C++ Program with Class – Making an Outside Function Inline – Nesting of Member Functions – Private Member Functions– Arrays within a Class – Memory allocation for Objects – Static Data Members – Static Member Functions –Arrays of Objects – Objects as Function Arguments – Friendly Functions – Returning Objects – constant Member functions – Pointers to Members – Local classes.

Chapter 4 (Sections 4.1 – 4.11) Chapter 5 (Sections 5.1 – 5.19)

***Module III (9Hours)**

Constructors and Destructors : Introduction - Constructors – Parameterized Constructors –Multiple Constructors in a Class - Constructors with Default Arguments – Dynamic Initialization of Objects – Copy constructor – Dynamic Constructors –Constructing Two- Dimensional Arrays – const Objects - Destructors. Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading - Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends- Manipulation of Strings Using Operators– Rules for Overloading Operators
Chapter 6(Sections 6.1 – 6.11) Chapter 7(Sections 7.1 – 7.7)

Module IV (9 Hours)

Inheritance: Extending Classes: Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes-Nesting of Classes. Pointers, Virtual Functions and Polymorphism: Introduction – Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual functions
Chapter 8(Sections 8.1 – 8.12) Chapter 9 (Sections 9.1 - 9.7)

Module V (9 Hours)

Working with Files : Introduction – Classes for File Stream Operations – Opening and Closing a File – Detecting End-of-File – More about Open()- File modes – File Pointers and their Manipulations - Sequential Input and Output Operations – Updating a File: Random Access – Error handling During File Operations – Command-Line Arguments.
Chapter 11(Sections 11.1 - 11.10)

Book for Study

E.Balagurusamy , Object Oriented Programming with C++, Tata McGraw Hill Publishing Company Limited. NewDelhi. Fourth Edition –Tenth Reprint 2010.

Books for Reference

3. Deitel and Deitel,C++ - How to Program, Prentice- Hall, 1998.
4. Robert Lefore, Object Oriented Programming in Turbo C++, Waite Group Publications – 1999.

Course Designed by : N.RAJESWARI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

Core IX - PROGRAMMING WITH C++ PRACTICAL 14MMCP
(For students admitted during the academic year 2014-2015 and onwards)

30 Hours

List of programs

16. Sorting of Numbers(without using function)
17. Sorting of numbers (using function)
18. Numerical Integration by 1/3 rd Simpson's rule.
19. Solving First Order Ordinary Differential Equation using
 - (iii) Runge- Kutta Second order method.
 - (iv) Runge- Kutta Fourth order method.
20. Solving First Order Ordinary Differential Equation using Adam's Predictor –Corrector method.
21. Generating Fibonacci series using recursion.
22. Finding the Addition, Subtraction, Multiplication and Division of Complex numbers.
23. Read the following information from the keyboard:
 - Employee name, Employee code, Designation, Years of experience,
 - Age, Basic pay, Dearness allowance, HRA, deductions and execute the following features:
 - (iv) Insert a new entry
 - (v) Delete an entry
 - (vi) List a table with employee details
 - (iv) List a table with salary details
 - (v) Sort the entries
24. Preparing a Mark Sheet of a University Examination with the following information:
 - c) Name of the Student, Roll Number, Subject Code, Subject Name,
 - d) Internal Marks and External Marks.The program should carry out the following tasks:
 - (c) Sort the students list by Name.
 - (d) Sort the students list by Rank.
25. Simulation of a simple Banking System in which initial balance and the rate of interest are read from the keyboard and these values are initialized using the constructor member function.

The program should consist of following methods:

 - g. To initialize the balance and rate of interest using the constructor member function.
 - h. To make deposit.
 - i. To withdraw an amount from the balance.
 - j. To find the Compound interest based on the rate of interest.
 - k. To know the balance amount
 - l. To display the menu options.
26. Swapping two variables of various data types, namely integers, floating point numbers and character types using function overloading.
27. Performing Simple arithmetic operations of two complex numbers using operator overloading.
28. Run Time Polymorphism using Virtual function

29. Creating a base class with data members, name, roll number and sex and a derived class with members, height and weight and declaring the derived class as an array of objects and using the member functions to display the contents of the array on the screen.
30. Illustration of how class objects can be written to and read from the disk files.

Course Designed by : N.RAJESWARI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester-III

Elective III- GRAPH THEORY

14MME3

(For students admitted during the academic year 2014-15 and onwards)

65 Hours

Preamble

The concept of graph is extraordinarily simple, which explains the wide applicability of graph theory. Graphs are among the most ubiquitous models of both natural and human-made structures. They can be used to model many types of relations and process dynamics in physical, biological and social systems. Many problems of practical interest can be represented by graphs.

This course on Graph Theory will

- Familiarize the basic concepts in Graph Theory
- Help to apply the knowledge wherever it is possible.

Module I

(13 Hours)

Graphs and Subgraphs : Graphs and Simple Graphs - Graph isomorphism-The Incidence and Adjacency matrices- Sub Graphs-Vertex degrees-Paths and connection - Cycles.Trees: Trees-Cut edges and bonds-Cut vertices –Cayley's formula.

Chapter 1(Sections 1.1-1.7) , Chapter 2(Sections 2.1-2.4)

***Module II**

(13 Hours)

Connectivity: Connectivity-Blocks Euler tours and Hamilton cycles: Euler tours - Hamilton cycles.

Chapter 3(Sections 3.1, 3.2) Chapter 4(.Sections 4.1, 4.2)

Module III

(13 Hours)

Matchings: Matchings - Matchings and coverings in Bipartite Graphs - Perfect Matching. Edge Colourings: Edge Chromatic number - Vizing's theorem.

Chapter 5(Sections 5.1-5.3) Chapter 6(Sections 6.1,6.2)

Module IV

(13 Hours)

Independent Sets and Cliques: Independent sets - Ramsey's theorem.

Vertex colorings - Chromatic number - Brook's theorem - Hajos Conjecture- Chromatic polynomials - Girth and Chromatic number.

Chapter 7(Sections 7.1,7.2) Chapter 8(Sections 8.1-8.5)

Module V

(13 Hours)

Planar Graphs: Plane and planar graphs-Dual graphs - Euler's formula – Bridges - Kuratowski's theorem - The five Color theorem and four Color conjecture – Non Hamiltonian planar graphs.

Chapter 9(Sections 9.1-9.7)

Book for study

J.A. Bondy and U.S.R. Murty, Graph theory with Applications, MacMillan London, First Edition ,1976.

Book for Reference

5. J.Clark and D.A. Holton, A First Look at Graph Theory, Allied Publishers New Delhi 1995.
6. Frank. Harary, Graph Theory, Narosa Publishing House,Tenth Reprint,2001.
7. Geir Agnarsson, Raymond Greenlaw, Graph Theory Modelling, Applications and Algorithms, Pearson ,Third Impression 2011.
8. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice Hall of India 2005.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester III

Diploma Course:III -STATISTICAL METHODS-I 14MMD3
(For students admitted during the academic year 2014-2015 and onwards)
50 Hours

Preamble

Hypothesis testing is usually considered as the principal instrument in research. It is used to extend the sample inference to the population. This course facilitates the students

- to know the procedure for testing of hypothesis for large samples
- to understand about various tests of significance for large samples for attributes and variables.

Module I

(10 Hours)

Large Sample Theory: Tests of Significance :Null and alternative hypotheses-Errors in sampling-Critical region and level of significance-One tailed and two tailed test-Critical values or significant values.

Chapter14 (Sections 14.4.1-14.4.5)

Module II

(10 Hours)

Large Sample Theory: Procedure for testing of hypothesis-Tests of significance for large samples. Sampling of attributes: Test of significance for single proportion. Chapter14 (Sections 14.5,14.6,14.7.1)

***Module III**

(10 Hours)

Large Sample Theory: Sampling of attributes: Test of significance for difference of proportions.

Chapter14 (Section 14.7.2)

Module IV

(10 Hours)

Large Sample Theory: Sampling of variables: Unbiased estimate for population mean and variance-Standard error of sample mean-Test of significance for single mean.

Chapter14 (Sections 14.8.1-14.8.3)

Module V

(10 Hours)

Large Sample Theory :Sampling of variables: Tests of significance for difference of means- Tests of significance for the difference of standard deviations.

Chapter14 (Sections 14.8.4,14.8.5)

Book for study

Fundamentals of Mathematical Statistics, S.C.Gupta and V.K.Kapoor, Sultan Chand & Sons,2010.

Books for reference

1. Fundamentals of Statistics, S.C Srivastava & Sangya Srivastava, Anmol publications Pvt Ltd, First Edition 2003.
2. Fundamentals of Statistics, D.N.Elhance, Veena Elhance & BM.Aggarwal- Kitab Mahal Agencies, 52nd Edition 2008.

Course Designed by : M.THAMILSELVI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester IV

Core X - MATHEMATICAL METHODS 14MM10

(For students admitted during the academic year 2014-2015 and onwards)

65 Hours

Preamble

This course explores various methods of solving integral equations and variational problems. The objectives of this course are

- To provide easy and effective means for solutions of integral equations arising in various fields of science and engineering.
- To solve differential and integral equations using integral transforms that are not solvable by standard methods
- To find extrema of functionals defined over a class of functions

Module I

(13 Hours)

Introduction: Definition, Regularity conditions, special kinds of Kernels – Eigen values and Eigen functions – Convolution Integral – The inner or scalar product of two functions. Integral Equations with Seperable kernels: Reduction to a system of algebraic equations – Examples. Fredholm alternative – Examples – An approximate method. Method of successive Approximations: Iterative scheme – Examples – Volterra integral equations – Examples.

Book 1: Chapter 1 (Sections 1.1 – 1.6), Chapter 2 (Sections 2.1 – 2.5)

Chapter 3 (Sections 3.1 – 3.4)

Module II

(13 Hours)

Applications to Ordinary Differential Equations: Initial value problems – Boundary value problems – Examples. Singular Integral Equations: The Abel integral equation – Examples. Integral Transform Methods: Laplace transform – Application to Volterra integral equations with convolution type kernals – Examples.

Book 1: Chapter 5 (Sections 5.1 – 5.3), Chapter 8 (Sections 8.1 – 8.2)
Chapter 9 (Sections 9.3-9.5)

Module III

(13 Hours)

Fourier transforms: Fourier transforms – Fourier cosine transforms – Fourier sine transforms- Fourier transform of derivatives. The calculation of the Fourier transforms of some simple functions – The Fourier transforms of rational functions – The convolution integral – Parseval's theorem for cosine and sine transforms.

Book 2: Chapter 2 (Sections 2.3-2.10)

***Module IV**

(13 Hours)

The Methods of Variations in Problems with Fixed Boundaries: Variations and its Properties- Euler equation – Functionals of the Form $\int F(x, y_1, y_2, \dots, y_n, y_1', y_2', \dots, y_n') dx$ – Functional dependent on higher – order derivatives – Functionals dependent on the functions of several independent variables – Variational problems in parametric form.

Book 3 : Chapter 6 (Sections 1 – 6)

Module V

(13 Hours)

Variational problems involving Conditional Extremum: Constraints of the form $\phi(x, y_1, y_2, \dots, y_n) = 0$ – Constraints of the form $\phi(x, y_1, y_2, \dots, y_n, y_1', y_2', \dots, y_n') = 0$ – Isoperimetric problems. Direct methods in variational problems: Direct methods – Euler's finite difference method – The Ritz method

Book 3: Chapter 9 (Sections 1 – 3) , Chapter 10 (Sections 1 – 3)

Books for Study

Book 1: For Modules I-II: Ram P.Kanwal – Linear Integral Equations – Theory and Technique, Academic press, Inc 1971.

Book 2: For Modules III : Ian.N.Sneddon, The Use of Integral Transforms, Tata Mc-Graw Hill Publishing Company Ltd.

Book 3: For Module IV, V: L.Elsgolts, Differential Equations and the Calculus of variations, MIR Publishers, second printing – 1973.

Books for Reference

1. L.I.G. Chambers, Integral Equations, A Short Course, International Text book company Ltd., 1976
2. A.S Gupta, Calculus of Variations with Applications, Prentice Hall of India Private Ltd., New Delhi, 1997.

Course Designed by : N.JEYANTHI

Course Reviewed by : R.ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester IV

Core XI– FUNCTIONAL ANALYSIS

14MM11

(For students admitted during the academic year 2014-15 and onwards)

PREAMBLE

65 HOURS

The study of functional analysis forms an essential part of the postgraduate courses, since

- it has extensive applications in various branches of pure and applied mathematics.

- it enables to establish a relationship between isolated mathematical theories pertaining to different branches such as differential equations, approximation of functions, numerical analysis and integral equations.

Module I (13 Hours)

Banach spaces: The definition and some examples- Continuous linear transformations – The Hahn Banach theorem – The natural imbedding of N in N^{**} - The open mapping theorem.
Chapter 9(Sections 46 – 50)

Module II (13 Hours)

Banach spaces: The conjugate of an operator. Hilbert spaces: The definition and some simple properties – Orthogonal complements – Orthonormal sets.
Chapter 9(Section 51) Chapter 10(Sections 52 – 54)

***Module III (13 Hours)**

Hilbert spaces: The conjugate space H^* – The adjoint of an operator – Self adjoint operators – Normal and Unitary operators – Projections.
Chapter 10(Sections 55-59)

Module IV (13 Hours)

Finite Dimensional Spectral Theory: Matrices – Determinants and the Spectrum of an operator – The Spectral theorem
Chapter 11(Sections 60-62)

Module V (13 Hours)

General Preliminaries on Banach algebras: The definition and some examples – Regular and singular elements – Topological divisors of zero – The spectrum – The formula for the spectral radius.
Chapter 12(Sections 64-68)

Book for Study

G.F.Simmons, Introduction to Topology and Modern Analysis, TATA McGraw Hill Publishing Co. Ltd, Thirteenth Reprint 2010.

Books for Reference

5. Dr.D.Somasundaram, Functional Analysis, S.Viswanathan Pvt Ltd., 1994
6. B.V.Limaye, Functional Analysis, Wiley Eastern Limited, Second edition, 2004.
7. A.H.Siddiqui, Functional Analysis with applications, Tata McGraw Hill Publishing Co. Ltd., 2007.
8. M.Thamban Nair, Functional Analysis , Prentice Hall of India Pvt Ltd., 2002.

Course Designed by : R.ANGEL JOY
Course Reviewed by : S.KALAISELVI
Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester – IV

Elective IV – FLUID DYNAMICS 14MME4

(For students admitted during the academic year 2014– 15 and onwards)

Preamble 65 Hours

This course is introduced in the syllabus in order to offer a thorough and methodical introductory exposition of the mathematical theory of fluid motion which is useful in applications to both hydrodynamics and aerodynamics. The course facilitates the students

- to understand the general properties of fluid motion such as continuity, pressure, dynamical equation, energy, vorticity etc.,
- to know the tensor methods applied to the flow of viscous fluids.
- to know the outline of the theory of two dimensional laminar flow in boundary layer
- to apply the aerofoil theory in aerodynamics.

Module I

(13 Hours)

Bernoulli's equation: Introductory notions – Physical dimensions – Velocity – Stream lines and paths of the particles – Stream tubes and filaments – Density – Pressure. Equations of motion: Differentiation with respect to time – The equation of continuity – Boundary conditions (both kinematical and Physical) – Rate of change of linear momentum – The equation of motion of an inviscid fluid.

Book 1: Chapter I (Sections 1.0-1.3) Chapter III (Sections 3.10-3.31, 3.40, 3.41)

Module II

(13 Hours)

Equations of motion: Euler's momentum theorem – Conservative forces – Lagrangian form of the equation of motion – Steady motion – The energy equation – Rate of change of circulation – Vortex motion – permanence of Vorticity.

Book 1: Chapter III (Sections 3.42-3.53)

Module III

(13 Hours)

Two dimensional motion: Introduction – Two dimensional functions – Basic singularities – Method of images – Conformal transformation – The Aerofoil.

Book 2: Chapter III (Sections 3.1-3.3, 3.5-3.7)

Module IV

(13 Hours)

Dynamics of real fluids: The equations of motion for viscous flow – Some exact solutions of the Navier-Stokes equations.

Book 2: Chapter V (Sections 5.2, 5.3.1-5.3.3)

***Module V**

(13 Hours)

The laminar boundary layer incompressible flow: Introduction – The boundary layer equations – Analytic solutions of the boundary layer equations.

Book 2: Chapter VI (Sections 6.1-6.3)

Books for Study

Book 1: For modules I and II : L.M.Milne – Thomson, Theoretical

Hydrodynamics, Dover Publications, New York, Fifth Edition, 1996.

Book 2: For modules III to V : N.Curle and H.J.Davies, Modern Fluid Dynamics, Volume I, D.Van Nostrand Co., London, 1968.

Books for reference

3. S.W.Yuan, Fundamentals of fluid Mechanics, Prentice Hall of India, Pvt. Ltd., 1988.
4. John F. Douglas, Janusz M.Gasiorsek and John A. Swaffield, fluid Mechanics, Pearson Education Ltd., Fourth Edition, 2002.

Course Designed by : A.R.THILAGAVATHI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics
Semester IV
Diploma Course: IV- Statistical Methods II 14MMD4
(For students admitted during the academic year 2014-2015 and onwards)
50 Hours

Preamble

This course facilitates the students to apply the statistical Techniques in research.

Module I **(10 Hours)**

Exact Sampling Distributions-I: Applications of Chi-Square Distribution: Inferences about a Population Variance-Goodness of Fit Test -Test of Independence of Attributes-Contingency tables.

Chapter 15 (Sections 15.6.1-15.6.3)

Module II **(10 Hours)**

Exact Sampling Distributions-I: Applications of Chi-Square Distribution: Yate's correction (for 2×2 contingency table)-Brandt and Snedecor formula for $2 \times k$ contingency table -Chi-square test of Homogeneity of correlation Coefficients-Bartlett's Test for homogeneity of several independent estimates of the same population Variance.

Chapter 15 (Sections 15.6.4 - 15.6.7)

***Module III** **(10 Hours)**

Exact Sampling Distributions-II: Applications of t-Distribution: t – test for Single Mean-t – test for Difference of Means – Paired t – test for difference of Means.

Chapter 16 (Sections 16.3.1 – 16.3.3)

Module IV **(10 Hours)**

Applications of t-Distribution: t-test for Testing the Significance of an Observed Sample Correlation Coefficient- t-test for Testing the Significance of an Observed Regression Coefficient-t-test for Testing the Significance of an Observed Partial Correlation Coefficient. Applications of F-Distribution: F-test for Equality of Two Population Variances

Chapter 16 (Sections 16.3.4 - 16.3.6, 16.6.1)

Module V **(10 Hours)**

Applications of F-Distribution: F-test for Testing the Significance of an Observed Multiple Correlation Coefficient-F-test for Testing the Significance of an Observed Sample Correlation Ratio-F-Test for Testing the Linearity of Regression-F-Test for Equality of Several Means. Fisher's z – distribution-Fisher's Z-Transformation.

Chapter 16 (Sections 16.6.2-16.6.5, 16.9, 16.10)

Book for study

Fundamentals of Mathematical Statistics, S.C. Gupta and V.K. Kapoor, Sultan Chand & Sons, 2010.

Books for reference

1. Fundamentals of Statistics, S.C. Srivastava & Sangya Srivastava, Anmol publications Pvt Ltd, First Edition 2003.
2. Fundamentals of Statistics, D.N. Elhance, Veena Elhance & B.M. Aggarwal-Kitab Mahal Agencies, 52nd Edition 2008.

Course Designed by : M.THAMILSELVI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics
Semesterwise distribution with Scheme of Examination
[For the students admitted during the academic year 2012-13 and onwards]

Sem	Course	Credits	Dur of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Core I: Algebra	5	3	25	75	100
	Core II: Real Analysis	5	3	25	75	100
	Core III: Ordinary Differential Equations	5	3	25	75	100
	Elective I: Number Theory	4	3	25	75	100
	Diploma Course : I	3	-	100	-	100
II	Core IV : Complex Analysis	5	3	25	75	100
	Core V : Partial Differential Equations	5	3	25	75	100
	Core VI: Numerical Analysis	5	3	25	75	100
	Elective II: Control Theory	4	3	25	75	100
	Diploma Course : II	-	-	100	-	100
	Advanced Learner's Course I: Fuzzy Set Theory and its Applications / Mathematical Modelling	2 4*	3	-	100	100
III	Core VII: Topology	5	3	25	75	100
	Core VIII: Classical Mechanics	5	3	25	75	100
	Core IX: Programming with C++	4	3	25	75	100
	Core IX: Programming with C++ Practical	2	3	40	60	100
	Elective III : Graph theory	4	3	25	75	100
	Diploma Course: III	3	-	100	-	100
	Project Work	-	-	-	-	-
IV	Core X: Mathematical Methods	5	3	25	75	100
	Core XI : Functional Analysis	5	3	25	75	100
	Elective IV: Fluid Dynamics	4	3	25	75	100
	Diploma Course : IV	2	-	100	-	100
	Project Work	8	-	-	-	200
	Advanced Learner's Course II : Operator Theory / Differential Geometry	4*	3	-	100	100

Total Credits

90

* Starred credits are treated as additional credits.

** Diploma course carries 10 credits.

The Diploma Course offered by the Department is Quantitative Techniques.

M. Sc Mathematics
Semester I

Core I-ALGEBRA

12MM01

[For students admitted during the academic year 2012-13 and onwards] 75 Hrs

Preamble

This Course is introduced in the curriculum to expose the students to learn concepts in Abstract and Linear Algebra with the following objectives:

- To study the advanced concepts in abstract and linear algebra which have wider applications in Higher analysis, Theory of numbers, Geometry etc., with the inclusion of Ring theory, Field theory etc in the syllabi.
- To realize the importance of Sylow's theorem and the fundamental theorem of Galois theory which speak more about the relation between the order of a group, its subgroups, prime numbers, fixed field of automorphisms of a field and splitting field.
- To understand about the interplay between the Algebras of linear transformations and the matrix theory.

Module I **(15 Hours)**

Group theory: Another counting principle – Sylow's theorem – Direct products.

Chapter 2 (Sections 2.11 – 2.13)

Module II **(15 Hours)**

Ring theory: Polynomial Rings – Polynomials over the Rational field – polynomial rings over Commutative Rings.

Chapter 3 (Sections 3.9 – 3.11)

Module III **(15 Hours)**

Fields: Extension Fields-Roots of polynomials – More about roots.

Chapter 5 (Sections 5.1, 5.3, 5.5)

Module IV **(15 Hours)**

Fields: The Elements of Galois theory

Chapter 5 (Section 5.6)

***Module V** **(15 Hours)**

Vector spaces and modules: Modules. Selected topics: Finite fields

Chapter 4 (Section 4.5) Chapter 7 (Section 7.1)

Book for study

I.N.Herstein, Topics in Algebra, Wiley Eastern Limited, Second Edition, 2006.

Books for Reference

5. John B.Fraleigh, A first course in Abstract Algebra, Addison-Wesley Publishing Company, Tenth printing, 2003.
6. Surjeet singh and Qazi Zameeruddin, Modern Algebra, Vikas Publishing house Private Limited, Third Edition, 2005.

Course Designed by : N.JEYANTHI
Course Reviewed by : M.THAMILSELVI
Course checked by : A.R.THILAGAVATHI

M.Sc Mathematics
Semester I

Core II – REAL ANALYSIS

12MM02

[For students admitted during the academic year 2012 – 13 and onwards] 75 Hours

Preamble

This course provides the generalization of

- the study of derivatives to higher dimensional spaces.
- the concepts like area and volume to measure.

This paper facilitate the students to

- extend the mean value theorem and Taylor's formula for higher dimensional spaces which have many applications in optimization theory.
- study the Lebesgue integrals and General Lebesgue measure essential to solve problems in modern mathematics.

Module I

(15 Hours)

Multivariable Differential calculus: Introduction – The directional derivative – Directional derivatives and continuity – The total derivative – The total derivative expressed in terms of partial derivatives – An application to complex-valued functions – The matrix of a linear function – The Jacobian matrix – The chain rule – Matrix form of the chain rule – The mean value theorem for differentiable functions – A sufficient condition for differentiability – A sufficient condition for equality of mixed partial derivatives – Taylor's formula for functions from \mathbb{R}^n to \mathbb{R}^1 .

Book I: Chapter 12 : Sections (12.1 – 12.14)

Module II

(15 Hours)

Lebesgue Measure: Introduction – Outer measure – Measurable sets and Lebesgue measure – A nonmeasurable set – Measurable functions – Littlewood's three Principles.

Book II: Chapter 3 : Sections (1 - 6)

***Module III**

(15 Hours)

The Lebesgue Integral : The Riemann Integral – The Lebesgue integral of a bounded function over a set of finite measure – The integral of a nonnegative function – The general Lebesgue integral – Convergence in measure.

Book II: Chapter 4: Sections (1 - 5)

Module IV

(15 Hours)

Differentiation and Integration : Differentiation of monotone functions – Functions of bounded variation – Differentiation of an integral – Absolute Continuity.

Book II : Chapter 5 : Sections(1 - 4)

Module V

(15 Hours)

Measure and Integration : Measure spaces – Measurable functions – Integration – General convergence Theorems – Signed measure – The Radon - Nikodym Theorem.

Book II: Chapter 11 : Sections (1 - 6)

Books for Study

Book I: For Module I : M. Apostol, Mathematical Analysis, Narosa

Publishing House, New Delhi, Second Edition,
Twentieth Reprint – 2002.

Book II: For Modules II- V :H.L.Royden, Real Analysis, Pearson Education
Pte. Ltd, Fourth Edition,
First Indian Reprint, 2011.

Books for Reference

3. G.de.Barra, Measure Theory and Integration, Wiley Eastern Limited, 1981.
4. Inder K.Rana, An Introduction to measure and Integration, Narosa Publishing House, 2005.

Course Designed by : A.R.THILAGAVATHI
Course Reviewed by : M.THAMILSELVI
Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester I

Core III – ORDINARY DIFFERENTIAL EQUATIONS 12MM03

[For students admitted during the academic year 2012-13 and onwards] 75 Hours

Preamble

The study of differential equations and the solutions are important since

- many phenomena in Science, Engineering and Social Sciences are interpreted in terms of differential equations.

This course facilitate the students

- to formulate differential equations.
- to study various types of equations and the methods of solving them.
- to study the qualitative properties of solutions.

Module I

(15 Hours)

Linear Differential Equations of Higher Order: Introduction – Higher Order Equations – A Modelling problem – Linear Independence – Equations with constant coefficients – Equations with Variable coefficients – Wronskian – Variation of parameters – Some Standard Methods – Method of Laplace Transforms.

Chapter 2: Sections (2.1 –2.10)

Module II

(15 Hours)

Solutions in Power Series: Introduction – Second Order Linear Equations with Ordinary Points – Legendre Equations and Legendre Polynomials – Second Order Equations with Regular Singular Point – Properties of Bessel Functions.

Chapter 3: Sections(3.1 – 3.5)

*Module III

(15 Hours)

Systems of Linear Differential Equations: Introduction – Systems of First Order Equations – Model for Arms Competition between Two Nations – Existence and Uniqueness Theorem – Fundamental Matrix – Non-homogeneous Linear systems – Linear systems with constant coefficients – Linear systems with periodic coefficients.

Chapter 4: Sections (4.1 – 4.8)

Module IV

(15 Hours)

Existence and Uniqueness of Solutions: Introduction – Preliminaries – Successive Approximations – Picard's Theorem – Some Examples – Continuation and Dependence on Initial conditions – Existence of solutions in the Large – Existence and Uniqueness of solutions of systems – Fixed point method.

Chapter 5: Sections (5.1 – 5.9)

Module V

(15 Hours)

Boundary Value Problems: Introduction – Sturm – Liouville Problem – Green's Function – Application of Boundary Value Problems – Picard's Theorem.

Chapter 7: Sections (7.1 – 7.5)

Book for study

S. G. Deo, V. Lakshmikantham, V. Raghavendra, Text book of Ordinary Differential Equations, Tata McGraw-Hill Publishing Company Ltd, New Delhi, Second Edition, 16th Reprint – 2010.

Books for Reference

1. Earl A. Coddington, An Introduction to Ordinary Differential Equations, Prentice Hall of India Pvt., Ltd., - 1987.
2. Robert H. Martin, Jr., Ordinary Differential Equations, McGraw-Hill Book Company, Second Printing – 1985.

Course Designed by : P.PADMAVATHI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics

Semester I

Elective I – NUMBER THEORY

12MME1

(For students admitted during the academic year 2012 – 13 and onwards) 75 Hours

Preamble

Number Theory, the great attraction of Mathematicians in the recent years is introduced in the curriculum due to

- Its wide applications in cryptography and network security.
- Its potentiality to convert all the problems of modern mathematics into the problems of Number theory.

The topics included in the present syllabus such as Congruences, Diophantine equations and continued fractions

- Provides ample opportunities for the students to practice the problem solving skills.
- Help the students to understand and attempt the new problems with more insight

Module I

(15 Hours)

Divisibility : Introduction – Divisibility – Primes. Congruences : Congruences – Solutions of congruences

Chapter 1 (Sections 1.1 – 1.3) Chapter 2 (Sections 2.1 – 2.2)

Module II**(15Hours)**

Congruences : Congruence of Degree 1- The function $\phi(n)$ – Congruences of Higher Degree – Prime Power Moduli- Prime Modulus

Chapter 2 (Sections 2.3 – 2.7)

Module III**(15Hours)**

Congruences : Congruences of Degree two, Prime modulus – Power Residues. Quadratic Reciprocity: Quadratic Residues – Quadratic Reciprocity – The Jacobi symbol.

Chapter 2 (Sections 2.8 – 2.9) Chapter 3 (Sections 3.1 – 3.3)

Module IV*(15 Hours)**

Some Functions of Number Theory: Greatest Integer Function – Arithmetic Functions – The Moebius Inversion Formula – The multiplication of Arithmetic Functions – Recurrence functions.

Chapter 4 (Sections 4.1 – 4.5)

Module V**(15 Hours)**

Some Diophantine Equations: Diophantine Equations-The equation $ax + by = c$ – Positive Solutions – Other Linear equations – The equation $x^2 + y^2 = z^2$ – The equation $x^4 + y^4 = z^2$ – Sums of four and five squares – Waring's problems – Sum of fourth powers – Sum of two squares – The equation $4x^2 + y^2 = n$ – The equation $ax^2 + by^2 + cz^2 = 0$ – Binary Quadratic Forms – Equivalence of Quadratic Forms.

Chapter 5 (Sections 5.1 – 5.14)

Book for Study

Ivan Niven and Herbert S. Zuckerman, An Introduction to Theory of Numbers, Wiley Eastern Ltd, Third Edition, 1991 Reprint.

Books for Reference:

5. T.M. Apostol, Introduction to Analytic Number Theory, Springer International Student Edition, Narosa Publishing House, Seventh Reprint 2010.
6. David M. Burton, Elementary Number Theory, University Press, 2008.

Course Designed by : M.THAMILSELVI

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics**Semester I****Diploma Course: I - ADVANCED OPERATIONS RESEARCH I 12MMD1**

[For students admitted during the academic year 2012-13 and onwards] **50 Hours**

Preamble

The systematic methodology developed for Operations Research study deals with problems involving conflicting multiple objectives, policies and alternatives. The objectives of this course are

- To locate the best or optimal solution to a problem.
- To sharpen the students' brain in making quick decisions in administrative situations.

Module I**(10 Hours)**

Duality: Definition of the Dual Problem-Primal-Dual Relationships-Economic Dual simplex algorithm- Integer Linear programming: Integer programming Algorithms:

Cutting Plane Algorithm.

Chapter 4 (Sections 4.1, 4.4.1) Chapter 9 (Section 9.2(9.2.2))

***Module II**

(10 Hours)

Advanced linear programming: Simplex method fundamentals – revised simplex method.

Chapter 7(Section 7.1,7.2)

Module III

(10 Hours)

Network Models : Scope and Definition of Network models - Minimal Spanning Tree

Algorithm – Shortest - Route Problem : Examples of the Shortest Route Applications –

Shortest Route Algorithms.

Chapter 6(Section 6.1,6.2,6.3(6.3.1,6.3.2))

Module IV

(10 Hours)

Deterministic Dynamic Programming : Recursive Nature of Computations in DP – Forward

and Backward Recursion – Selected DP Applications – Problem of Dimensionality.

Chapter 10 (Sections 10.1 – 10.3(10.3.1-10.3.3))

Module V

(10 Hours)

Deterministic Inventory Models: General Inventory Model – Static Economic Order Quantity

(EOQ) Models – Dynamic EOQ Models-Set up model.

Chapter 11 (Sections 11.1 ,11.3,11.4.2)

Book for study

Hamdy A.Taha, Operations Research – An Introduction, Pearson Education Inc Limited, Eighth Edition, 2008

Books for Reference

1. Frederick S. Hillier, Gerald J.Lieberman,- Introduction to Operations Research, McGraw-Hill Book Company, Eighth Edition 2007.
2. Wayne.L.Winston, Operations Research-Applications and Algorithms,Thomson Asia.Pvt Ltd, Fourth edition, 2003.

Course Designed by : N.RAJESWARI

Course Reviewed by : R.ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester II

Core IV - COMPLEX ANALYSIS

12MM04

[For students admitted during the academic year 2012-13 and onwards]

75 Hours

Preamble

This paper provides a transition from under graduate elementary results to post- graduate advanced topics. The two reasons for including this course in the curriculum are:

- to impart knowledge and understanding in the advanced topics such as Normal families, Conformal mappings and Elliptic functions.
- to help the students to take up research activities in the field of complex analysis.

Module I

(15 Hours)

Complex Integration: Fundamental Theorems: Line Integrals – Rectifiable Arcs – Line Integrals as functions of Arcs – Cauchy's theorem for a Rectangle –Cauchy's theorem in a

Disk. Local Properties of Analytical functions: Removable singularities. Taylor's theorem- Zeros and poles – The Local mapping. Harmonic functions: Definition and Basic properties – The Mean value property – Poisson's formula – Schwarz's theorem.

Chapter 4 Sections (1.1-1.5, 3.1-3.3, 6.1-6.4)

Module II

(15 Hours)

Series and Product Developments: Partial fractions and factorization: Partial Fractions – Infinite Products – Canonical products – The Gamma function. Entire functions: Jensen's formula – Hadamard's theorem.

Chapter 5 Sections (2.1-2.4, 3.1-3.2)

Module III

(15 Hours)

Series and Product Developments: Normal families : Equicontinuity – Normality and compactness – Arzela's theorem – Families of analytic functions –The classical definition. Conformal mapping. Dirichlet's problem: The Riemann Mapping Theorem: Statement and proof- Boundary behavior – Use of the Reflection principle – Analytic arcs.

Chapter 5 Sections (5.1- 5.5) Chapter 6 Sections (1.1- 1.4)

Module IV

(15 Hours)

Conformal Mapping. Dirichlet's Problem: A closer look at Harmonic functions: Functions with the Mean value property – Harnack's Principle. The Dirichlet problem: Sub harmonic functions – Solution of Dirichlet's problem.

Chapter 6 Sections (3.1, 3.2, 4.1, 4.2)

***Module V**

(15 Hours)

Elliptic functions: Simply periodic functions. Representation by Exponentials – The Fourier Development – Functions of finite order. Doubly periodic functions: The Period Module – Unimodular transformations – The canonical Basis – General properties of Elliptic functions. The Weierstrass Theory: The Weierstrass \wp - function – The functions $\zeta(z)$ and $\sigma(z)$ - The Differential Equation.

Chapter 7 Sections (1.1-1.3, 2.1-2.4, 3.1-3.3).

Book for study

Lars. V. Ahlfors, Complex analysis, Mc Graw-Hill Book Company, Third Edition, 8th printing 1987.

Books for Reference

1. Serge Lang, Complex Analysis, Springer-Verlag New York, Third Edition 1993.
2. Walter Rudin, Real and Complex analysis, McGrawHill Book Company, 7th reprint 2009.

Course Designed by : N.JEYANTHI
Course Reviewed by : S.KALAISELVI
Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester II

Core V- PARTIAL DIFFERENTIAL EQUATIONS

12MM05

[For students admitted during the academic year 2012–2013 and onwards]

75 Hours

Preamble

The theory of Partial Differential Equations is one of the most important fields of mathematics since

- It is a linchpin of almost all physical systems.
- It has many applications in Engineering, Physics and other Sciences.

The present course material prescribed provides the students

- All important concepts with the underlying principles.
- A wide range of applications with ample illustrations

Module I

(15Hours)

Mathematical Models: Classical Equations – The Vibrating String – The Vibrating Membrane-conduction of heat in solids-The gravitational potential. Classification of Second – Order Linear Equations: Second – Order equations in Two Independent Variables – Canonical forms – Equations with Constant Coefficients – General Solutions – Summary and Further Simplification – Exercises.

Chapter 3 Sections (3.1 – 3.3, 3.5, 3.6) Chapter 4 Sections (4.1 – 4.6)

Module II

(15 Hours)

The Cauchy Problem and Wave Equations : The Cauchy problem – Homogeneous Wave Equations – Initial Boundary – Value Problems – Equations with Non homogeneous Boundary Conditions – Vibration of Finite String with Fixed Ends – Non homogeneous Wave Equations – Solution of the Goursat Problem – Exercises.

Chapter 5 Sections (5.1, 5.3 – 5.7, 5.9, 5.12)

***Module III**

(15Hours)

Method of Separation of Variables: Introduction – Separation of Variables – The Vibrating String Problem – Existence and Uniqueness of Solution of the Vibrating String Problem – The Heat Conduction Problem – Existence and Uniqueness of Solution of the Heat Conduction Problem – The Laplace and Beam Equations – Nonhomogeneous problems – Exercises.

Chapter 7 Sections (7.1 – 7.9)

Module IV

(15 Hours)

Boundary – Value Problems and Applications : Boundary – Value Problems – Maximum and Minimum Principles – Uniqueness and Continuity Theorems – Dirichlet Problem for a Circle –Dirichlet Problem for a Circular Annulus – Neumann Problem for a Circle – Dirichlet Problem for a Rectangle – Dirichlet Problem Involving the Poisson Equation – The Neumann Problem for a Rectangle – Exercises.

Chapter 9 Sections (9.1 – 9.10)

Module V

(15 Hours)

Green's Function and Boundary-Value Problems : Introduction – The Dirac Delta Function – Properties of Green's Functions – Method of Green's Functions – Dirichlet's Problem for the Laplace Operator – Dirichlet's Problem for the Helmholtz Operator – Method of Images – Method of Eigenfunctions

Chapter 11 Sections (11.1 – 11.8)

Book for study

Tyn Myint – U Lokenath Debnath, Linear Partial Differential Equations for Scientists and Engineers, Birkhauser , Fourth Edition ,First Indian Reprint 2009.

Book for Reference:

1. IAN.N.Sneddon, Elements of Partial Differential Equations, Dover Publications, I Edition-2006.
2. J.B.Doshi, Differential Equations for Scientists and Engineers, Narosa Publishing House, 2010.

Course Designed by : N.RAJESWARI

Course Reviewed by : B.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics**Semester II****Core VI – NUMERICAL ANALYSIS****12MM06****[For students admitted during the academic year 2012 – 2013 and onwards] 75 Hours****Preamble**

The rapid development of high speed digital computers and the increasing desire for numerical answers to applied problems have led to the enhanced demands in the courses dealing with the methods and techniques of numerical analysis.

The objectives of introducing this course are:

- To expose the students to the various numerical methods available for solving algebraic and differential equations.
- To help the students to develop their skills in numerical computation.
- To expose the students to problems in physical and management sciences and in engineering.

Module I**(15 Hours)**

Solution of Linear Systems $AX = B$: Upper-Triangular Linear Systems – Gaussian Elimination and Pivoting – Triangular Factorization – Iterative Methods for Linear Systems. Chapter 3 (Sections 3.3 – 3.6)

Module II**(15 Hours)**

Interpolation and Polynomial Approximation : Chebyshev Polynomials (Optional) – Pade Approximations – Curve Fitting : Least – Squares Line – Methods of Curve Fitting – Interpolation By Spline Functions . Chapter 4 (Sections 4.5 - 4.6) Chapter 5 (Sections 5.1 – 5.3).

Module III**(15 Hours)**

Solution of Differential Equations : Introduction to Differential Equations – Euler's Method – Heun's Method – Taylor Series Method – Runge-Kutta Methods – Predictor-corrector Methods. Chapter 9 (Sections 9.1 – 9.6).

Module IV**(15 Hours)**

Solution of Partial Differential Equations: Hyperbolic Equations – Parabolic Equations – Elliptic Equations. Chapter 10 (Sections 10.1 – 10.3).

Module V*(15 Hours)**

Eigenvalues and Eigenvectors : Homogeneous Systems: Eigenvalue Problem – Power

Method – Jacobi’s Method – Eigenvalues of Symmetric Matrices.

Chapter 11 (Sections 11.1 – 11.4).

Note: Simple problems that can be done manually and using calculator are only included- Programs are excluded.

Book for Study

Numerical Methods Using MATLAB, John. H.Mathiews, Kurtis D. Fink, Pearson Prentice Hall, Fourth Edition- 2004.

Books for Reference

- 1.M.K.Jain, S.R.K.Iyengar and R.K. Jain, Numerical methods for Scientific and engineering Computation, New Age International (P) Limited, Fourth Edition, 2003, Reprint 2004.
- 2.Curtis F.Gerald and Parick O.Wheatley, Applied Numerical Analysis, Pearson Education Pvt Ltd., Sixth Edition, Fourth Indian reprint 2005.
- 3.R.G. Stanton, Numerical Methods for Science and Engineering, Prentice Hall of India Private Ltd, 1985.

Course Designed by : R.ANGEL JOY

Course Reviewed by: N.RAJESWARI

Course checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester II

Elective II-CONTROL THEORY

12MME2

[For students admitted during the academic year 2012-13 and onwards] 75 Hours

Preamble

The field of control theory is at the forefront of the creative interplay of mathematics, engineering and computer science. Drawing from these disciplines, control theory brings powerful theoretical results to bear upon advanced techniques.

The objectives of this course are

- to model any system based on physical law
- to identify a system based on physical law
- to analyze the controllability and stability of the system
- to synthesize the control input and apply it to the system

Module I

(15 Hours)

Introduction: Motivation – Basic results of differential equations – Fixed point

Methods - Exercises. Observability: Linear systems – Nonlinear systems - Exercises.

Chapters 1 & 2

Module II

(15 Hours)

Controllability: Linear systems – Nonlinear systems – Exercises [problems related to the Given topics].

Chapter 3 (Sections 3.1 – 3.2, 3.5)

Module III

(15 Hours)

Stability: Linear systems – Perturbed Linear systems - Nonlinear systems – Exercises. [problems related to the given topics].

Chapter 4 (Sections 4.1-4.3, 4.5)

Module IV**(15 Hours)**

Stabilizability: Stabilization via Linear feedback control – The controllable subspace –
Stabilization with restricted feedback - Exercises
Chapter 5

Module V*(15 Hours)**

Optimal control: Linear time varying systems – Linear time invariant systems – Nonlinear
systems - Exercises.
Chapter 6

Book for Study

K.Balachandran and J.P.Dauer, Elements of Control Theory, Narosa Publishing House ,
New Delhi, Second Edition 2012.

Books for Reference

1. Naresh K.Sinha ,Control Systems, New Age International Limited,Publishers,Third
Edition, 1998
2. Robert H.Martin,Jr , Ordinary Differential Equations, International Student Edition
Mc GrawHill Book Company, New Delhi,2nd Printing – 1985.
3. A.C.King , J.Billingham and S.R. Otto, Differential Equations Linear, Non-Linear,
Ordinary, Partial , Cambridge University Press (2003), First South Asian Edition, 2005

Course Designed by : R.ANGEL JOY

Course Reviewed by : P.JAYALAKSHMI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics**Semester II****Diploma Course: II –ADVANCED OPERATIONS RESEARCH II****12MMD2****[For students admitted during the academic year 2012-13 and onwards] 50 Hours****Preamble**

This course is a continuation of course I in Semester I: In this course probabilistic concept
used in Optimization are dealt with.

It enables the student

- To specialize in inventory management, that forms the basis of supply chain
management
- To specialize in queuing concepts that has wide applications like processor
scheduling etc.

Module I**(10 Hours)**

Probabilistic Inventory Models: Continuous Review Models – Single – Period Models.
Chapter 14(Sections 14.1,14.2)

Module II**(10 Hours)**

Queuing Systems : Elements of a Queuing Model – Role of Exponential Distribution – Pure
Birth and Death Models (Relationship Between the Exponential and Poisson Distributions) –
Generalized Poisson Queuing Model
Chapter 15 (Sections 15.2 – 15.5)

Module III**(10 Hours)**

Specialized Poisson Queues: Steady state measures of performance-Single server models
– Multiple server model-Machine servicing model.

Chapter 15 (Sections 15.6.1 – 15.6.4)

Module IV*(10 Hours)**

Game Theory: Optimal solution of two person zero sum games – solution of mixed strategy games.

Chapter 13(Sections 13.4.1-13.4.2)

Module V**(10 Hours)**

Classical Optimization Theory: Unconstrained Problems – Constrained Problems – Equality constraints

Chapter 18(Sections 18.1.1, 18.2.1)

Book for study

Hamdy A.Taha, Operations Research – An Introduction, Pearson Education Inc Limited, Eighth Edition, 2008

Books for Reference

1. G.Srinivasan, Operations Research- Principles and Applications
PHI Learning Private Limited, Second printing, 2008
2. Wayne.L.Winston, Operations Research-Applications and Algorithms, Thomson Asia.Pvt Ltd, Fourth edition, 2003.

Course Designed by : N.RAJESWARI

Course Reviewed by : R,ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics**Semester III****Core VII– TOPOLOGY****12MM07****(For students admitted during the academic year 2012-13 and onwards)****65 Hours****Preamble**

Topology is one of the basic disciplines of pure mathematics and concerns more on logical precision. It is qualitative mathematics and formerly known as analysis of situation. The objectives of the course are

- to lay foundation for further study in Algebraic Topology.
- to understand modern pure mathematics.
- to make use of ideas and methods in Topology to analysis and Geometry.

Module I**(13 Hours)**

Topological Spaces and Continuous Functions: Topological spaces – Basis for a Topology – The Order Topology – The Product Topology on $X \times Y$ – The Subspace Topology – Closed Sets and Limit Points – Continuous Functions – The product Topology.

Chapter 2 (Sections 12-19)

Module II**(13 Hours)**

Topological Spaces and Continuous Functions: The Metric Topology – The Metric Topology(Continued) .

Connectedness and Compactness : Connected Spaces – Connected Subspaces of the Real Line – Components and Local Connectedness.

Chapter 2 (Sections 20, 21) Chapter 3 (Sections 23-25)

***Module III**

(13 Hours)

Connectedness and Compactness: Compact Spaces – Compact Subspaces of the Real Line – Limit point Compactness – Local compactness.

Countability and Separation Axioms: The Countability Axioms – The Separation Axioms – Normal Spaces.

Chapter 3 (Sections 26 – 29) Chapter 4 (Sections 30 – 32)

Module IV

(13 Hours)

Countability and Separation Axioms: The Urysohn Lemma – The Urysohn Metrization Theorem – The Tietze Extension Theorem.

The Tychonoff Theorem: The Tychonoff Theorem – The Stone-Cech Compactification.

Chapter 4 (Sections 33 – 35) Chapter 5 (Sections 37 – 38)

Module V

(13 Hours)

Metrization Theorems and Paracompactness: Local finiteness – The Nagata – Smirnov

Metrization Theorem – Paracompactness – The Smirnov Metrization Theorem.

Chapter 6 (Sections 39 – 42)

Note : Exclude supplementary Exercises.

Book for study

James R. Munkres, Topology, Pearson Education Inc, Second Edition, 2010.

Books for Reference

5. J. Dugundji, Topology, Universal Book Stall, New Dehi, 1975.
6. George F. Simmons, Topology and Modern Analysis, McGraw Hill Book Company, 13th Reprint 2010.

Course Designed by : S.KALAISELVI

Course Reviewed by : B.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc. Mathematics

Semester III

Core VIII– CLASSICAL MECHANICS

12MM08

(For students admitted during the academic year 2012 –13 and onwards) 65 Hours

Preamble

This subject attracts the interest of Mathematicians since the solutions of Physical problems are derived using Mathematical procedures. The syllabus is a compact package of intellectually satisfying areas of dynamical theory.

The study offers the students an opportunity:

- to become acquainted with Mathematical technologies and procedures which are useful in other fields of physics.
- to acquire knowledge in solving Mechanical problems.
- to understand and appreciate the working of objects like motion of planets, motion of rockets etc.,

Module I**(13 Hours)**

Introductory Concepts: The Mechanical System – Generalized Co-ordinates – Constraints – Virtual Work – Energy and Momentum.

Chapter 1 : (Sections 1.1 – 1.5)

Module II**(13 Hours)**

Lagrange's Equations: Derivation of Lagrange's Equations – Examples – Integrals of Motion.

Chapter 2 : (Sections 2.1 – 2.3)

Module III**(13 Hours)**

Hamilton's Equations: Hamilton's principle – Hamilton's Equations – Other variational Principles – Phase space.

Chapter 4: (Sections 4.1 – 4.4)

Module IV*(13 Hours)**

Hamilton – Jacobi theory: Hamilton's Principle function – Hamilton Jacobi equation – Separability.

Chapter 5 : (Sections 5.1 – 5.3)

Module V**(13 Hours)**

Canonical Transformations: Differential forms and generating functions – Special transformations – Lagrange and Poisson brackets.

Chapter 6 : (Sections 6.1 – 6.3)

Book for study

Donald T. Greenwood, Classical Dynamics, Prentice Hall of India Ltd, 1985.

Books for Reference

5. Herbert Goldstein, Classical Mechanics, Second Edition – Addison Wesley Publishing company, 1988.
6. John L. Synge and Byron A. Griffith – Principles of Mechanics – International Student Edition – McGraw Hill – Koga Kusha Ltd, 1970.

Course Designed by : M. THAMILSELVI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics**Semester III****Core IX - PROGRAMMING WITH C++****12MM09****[For students admitted during the academic year 2012-2013 and onwards]****45 Hours****Preamble**

C++ is a Versatile Object Oriented Programming language suitable for virtually any programming task like development of compilers, databases and communication systems.

It has become a necessity to learn this language since

- it has become a general purpose language.
- it is easy, yet powerful to handle large Programs.

This course is offered to

- Empower the software developing skills of the student.
- Enhance the ability of logical thinking.
- Solve any complex real life problems with ease using computers.

Module I**(9 Hours)**

Tokens, Expressions and Control Structures: Introduction-Tokens - Keywords - Identifiers and Constants - Basic data Types - User-Defined Data Types. Derived data types - Symbolic constants - Type Compatibility –Declaration of variables – Dynamic initialization of Variables - Reference Variables – Operators in C++ - Scope Resolution Operator - Member Dereferencing Operators - Memory Management Operators – Manipulators - Typecast Operator - Expressions and their Types – Special Assignment Expressions - Implicit Conversions – Operator. Overloading – Operator Precedence – Control Structures.

Chapter 3: (Sections 3.1 – 3.24).

Module II**(9 Hours)**

Functions in C++: Introduction – The Main Function – Function prototyping - Call by Reference – Return by reference – Inline functions – Default arguments – const Arguments – Function overloading – Friend and Virtual Functions – Math Library Functions.

Classes and Objects: Introduction – C Structures Revisited – Specifying a Class –Defining Member Functions – A C++ Program with Class – Making an Outside Function Inline – Nesting of Member Functions – Private Member Functions – Arrays within a Class – Memory allocation for Objects – Static Data Members – Static Member Functions –Arrays of Objects – Objects as Function Arguments – Friendly Functions – Returning Objects – constan Member functions – Pointers to Members – Local classes.

Chapter 4 (Sections 4.1 – 4.11) Chapter 5 (Sections 5.1 – 5.19)

Module III*(9Hours)**

Constructors and Destructors : Introduction - Constructors – Parameterized Constructors – Multiple Constructors in a Class - Constructors with Default Arguments – Dynamic Initialization of Objects – Copy constructor – Dynamic Constructors –Constructing Two-Dimensional Arrays – const Objects - Destructors.

Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading - Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends- Manipulation of Strings Using Operators– Rules for Overloading Operators

Chapter 6(Sections 6.1 – 6.11) Chapter 7(Sections 7.1 – 7.7)

Module IV**(9 Hours)**

Inheritance: Extending Classes: Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes-Nesting of Classes.

Pointers, Virtual Functions and Polymorphism: Introduction – Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual functions

Chapter 8(Sections 8.1 – 8.12) Chapter 9 (Sections 9.1 - 9.7)

Module V**(9 Hours)**

Working with Files : Introduction – Classes for File Stream Operations – Opening and Closing a File – Detecting End-of-File – More about Open()- File modes – File Pointers and

their Manipulations - Sequential Input and Output Operations – Updating a File: Random Access – Error handling During File Operations – Command-Line Arguments.
Chapter 11(Sections 11.1 - 11.10)

Book for Study

E.Balagurusamy , Object Oriented Programming with C++, Tata McGraw Hill Publishing Company Limited. NewDelhi. Fourth Edition –Tenth Reprint 2010.

Books for Reference

5. Deitel and Deitel,C++ - How to Program, Prentice- Hall, 1998.
6. Robert Lefore, Object Oriented Programming in Turbo C++, Waite Group Publications – 1999.

Course Designed by : B.KALAISELVI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

Core IX - PROGRAMMING WITH C++ PRACTICAL **12MMCP** **[For students admitted during the academic year 2012-2013 and onwards]**

List of programs

30 Hours

- 1.Sorting of Numbers(without using function)
2. Sorting of numbers (using function)
3. Numerical Integration by 1/3 rd Simpson's rule.
4. Solving First Order Ordinary Differential Equation using
 - (i) Runge- Kutta Second order method.
 - (ii) Runge- Kutta Fourth order method.
5. Solving First Order Ordinary Differential Equation using Adam's Predictor – Corrector method.
6. Generating Fibonacci series using recursion.
7. Finding the Addition, Subtraction, Multiplication and Division of Complex numbers.
8. Read the following information from the keyboard:
Employee name, Employee code, Designation, Years of experience, Age, Basic pay, Dearness allowance, HRA, deductions and execute the following features:
 - (vii) Insert a new entry
 - (viii) Delete an entry
 - (ix) List a table with employee details
 - (iv) List a table with salary details
 - (v) Sort the entries
9. Preparing a Mark Sheet of a University Examination with the following information:
Name of the Student, Roll Number, Subject Code, Subject Name, Internal Marks and External Marks.
The program should carry out the following tasks:
 - (a) Sort the students list by Name.
 - (b) Sort the students list by Rank.
10. Simulation of a simple Banking System in which initial balance and

the rate of interest are read from the keyboard and these values are initialized using the constructor member function.

The program should consist of following methods:

- (i) To initialize the balance and rate of interest using the constructor member function.
 - (ii) To make deposit.
 - (iii) To withdraw an amount from the balance.
 - (iv) To find the Compound interest based on the rate of interest.
 - (v) To know the balance amount
 - (vi) To display the menu options.
11. Swapping two variables of various data types, namely integers, floating point numbers and character types using function overloading.
 12. Performing Simple arithmetic operations of two complex numbers using operator overloading.
 13. Run Time Polymorphism using Virtual function
 14. Creating a base class with data members, name, roll number and sex and a derived class with members, height and weight and declaring the derived class as an array of objects and using the member functions to display the contents of the array on the screen.
 15. Illustration of how class objects can be written to and read from the disk files.

Course Designed by : B.KALAISELVI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester-III

Elective III- GRAPH THEORY

12MME3

[For students admitted during the academic year 2012-13 and onwards] 65 Hours

Preamble

The concept of graph is extraordinarily simple, which explains the wide applicability of graph theory. Graphs are among the most ubiquitous models of both natural and human-made structures. They can be used to model many types of relations and process dynamics in physical, biological and social systems. Many problems of practical interest can be represented by graphs.

This course on Graph Theory will

- Familiarize the basic concepts in Graph Theory
- Help to apply the knowledge where ever it is possible.

Module I

(13 Hours)

Graphs, Subgraphs and Trees: Graphs and sub-graphs: Graphs and simple Graphs- Graph isomorphism-The incidence and adjacency matrices- Sub Graphs-Vertex degrees-Paths and connections-Cycles, Trees: Trees-Cut edges and bonds-Cut vertices –Cayley's formula.

Chapter 1(Sections 1.1-1.7) Chapter 2(Sections 2.1-2.4)

***Module II**

(13 Hours)

Connectivity: Connectivity-Blocks-Euler tours and Hamilton cycles: Euler tours –Hamilton cycles.

Chapter 3(Sections 3.1, 3.2) Chapter4(.Sections 4.1, 4.2)

Module III**(13 Hours)**

Matchings: Matchings- Matchings and coverings in Bipartite Graphs-Perfect Matching -Edge colourings: Edge chromatic number-Vizing's theorem.

Chapter 5(Sections 5.1-5.3) Chapter 6(Sections 6.1,6.2)

Module IV**(13 Hours)**

Independent sets and cliques: Independent sets- Ramsey's theorem-Vertex colorings-Chromatic number-Brook's theorem -Hajos Conjecture-Chromatic polynomials- Girth and Chromatic number.

Chapter 7(Sections 7.1-7.2) Chapter 8(Sections 8.1-8.5)

Module V**(13 Hours)**

Planar Graphs: Plane and planar graphs-Dual graphs-Euler's formula-Bridges-Kuratowski's theorem-The five color theorem and four color conjecture-Non Hamiltonian planar graphs.

Chapter 9(Sections 9.1-9.7)

Book for study

J.A. Bondy and U.S.R. Murty, Graph theory with Applications, MacMillan London, 1976.

Book for Reference

1.J.Clark and D.A. Holton, A First Look at Graph Theory, Allied Publishers New Delhi 1995.

2.Frank. Harary, Graph Theory, Narosa Publishing House,Tenth Reprint,2001.

3.Geir Agnarsson, Raymond Greenlaw, Graph Theory Modelling, Applications and Algorithms, Pearson ,Third Impression 2011.

4.Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice Hall of India 2005.

Course Designed by : S.KALAISELVI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester III

Diploma Course: III -STATISTICAL METHODS-I

12MMD3

(For students admitted during the academic year 2012-2013 and onwards) 50 Hours

Preamble

Hypothesis testing is usually considered as the principal instrument in research. It is used to extend the sample inference to the population. This course facilitates the students

- to know the procedure for testing of hypothesis for large samples
- to understand about various tests of significance for large samples for attributes and variables.

Module I**(10 Hours)**

Tests of Significance :Null and alternative hypotheses-Errors in sampling-Critical region and level of significance-One tailed and two tailed test-Critical values or significant values.

Chapter14 (Sections 14.4.1-14.4.5)

Module II**(10 Hours)**

Procedure for testing of hypothesis-Tests of significance for large samples-Sampling of attributes: Test of significance for single proportion.

Chapter14 (Sections 14.5,14.6,14.7.1)

Module III*(10 Hours)**

Sampling of attributes: Test of significance for difference of proportions.

Chapter14 (Section 14.7.2)

Module IV

(10 Hours)

Sampling of variables: Unbiased estimate for population mean and variance-Standard error of sample mean-Test of significance for single mean.

Chapter14 (Sections 14.8.1-14.8.3)

Module V

(10 Hours)

Sampling of variables: Tests of significance for difference of means-Tests of significance for the difference of standard deviations.

Chapter14 (Sections 14.8.4,14.8.5)

Book for study

Fundamentals of Mathematical Statistics, S.C.Gupta and V.K. Kapoor,Sultan Chand & Sons,2010.

Books for reference

1. Fundamentals of Statistics, S.C Srivastava & Sangya Srivastava, Anmol publications Pvt Ltd, First Edition 2003.
2. Fundamentals of Statistics, D.N.Elhance, Veena Elhance & BM.Aggarwal- Kitab Mahal Agencies, 52nd Edition 2008.

Course Designed by : N.JEYANTHI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester IV

Core X - MATHEMATICAL METHODS

12MM10

(For students admitted during the academic year 2012-2013 and onwards) 65 Hours

Preamble

This course explores various methods of solving integral equations and variational problems.

The objectives of this course are

- To provide easy and effective means for solutions of integral equations arising in various fields of science and engineering.
- To solve differential and integral equations using integral transforms that are not solvable by standard methods
- To find extrema of functionals defined over a class of functions

Module I

(13 Hours)

Introduction: Definition,Regularity conditions, special kinds of Kernels – eigen values and eigen functions – convolution Integral – The inner or scalar product of two functions. Integral Equations with Seperable kernels: Reduction to a system of algebraic equations – Examples. Fredholm alternative – Examples – An approximate method. Method of successive Approximations: Iterative scheme – Examples – Volterra integral equations – Examples.

Book 1: Chapter 1 (Sections 1.1 – 1.6), Chapter 2 (Sections 2.1 – 2.5)

Chapter 3 (Sections 3.1 – 3.4)

Module II**(13 Hours)**

Applications to Ordinary Differential Equations: Initial value problems – Boundary value problems – Examples. Singular Integral Equations: The Abel integral equation – Examples. Integral Transform Methods: Laplace transform – Application to Volterra integral equations – Examples.

Book 1: Chapter 5 (Sections 5.1 – 5.3), Chapter 8 (Sections 8.1 – 8.2)
Chapter 9 (Sections 9.3-9.5)

Module III**(13 Hours)**

Fourier transforms: Fourier transforms – Fourier cosine transforms – Fourier sine transforms- Fourier transform of derivatives. The calculation of the Fourier transforms of some simple functions – The Fourier transforms of rational functions – The convolution integral – Parseval's theorem for cosine and sine transforms.

Book 2: Chapter 2 (Sections 2.3-2.10)

Module IV**(13 Hours)**

Hankel Transforms: Introduction – Elementary Properties of Hankel Transforms- The Hankel Inversion Theorem- Hankel Transforms Derivatives of Functions- The Hankel Transforms of Some Elementary Functions- Parseval Relation for Hankel Transforms- Relations Between Fourier and Hankel Transforms - The Use of Hankel Transforms in the Solution of Partial Differential Equations.

Book 2: Chapter 5 (Sections 5.1-5.7, 5.10)

Module V*(13 Hours)**

The Methods of Variations in Problems with Fixed Boundaries: Variations and its Properties- Euler equation – Functionals of the Form $\int F(x, y_1, y_2, \dots, y_n, y_1', y_2', \dots, y_n') dx$ – Functional dependent on higher – order derivatives – Functionals dependent on functions of several independent variables – Variational problems in parametric form.

Book 3 : Chapter 6 (Sections 1 – 6)

Books for Study

Book 1: For Modules I-II: Ram P.Kanwal – Linear Integral Equations – Theory and Technique, Academic press, Inc 1971.

Book 2: For Modules III -IV: Ian.N.Sneddon, The Use of Integral Transforms, Tata McGraw Hill Publishing Company Ltd.

Book 3: For Module V: L.Elsgolts, Differential Equations and the Calculus of variations, MIR Publishers, second printing – 1973.

Books for Reference

1. L.I.G. Chambers, Integral Equations, A Short Course, International Text book company Ltd., 1976
2. A.S Gupta, Calculus of Variations with Applications, Prentice Hall of India Private Ltd., New Delhi, 1997.

Course Designed by : M.THAMILSELVI

Course Reviewed by : R.ANGEL JOY

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics

Semester – IV

Core XI– FUNCTIONAL ANALYSIS

12MM11

[For students admitted during the academic year 2012-13 and onwards] 65 Hours

Preamble

The study of functional analysis forms an essential part of the postgraduate courses, since

- it has extensive applications in various branches of pure and applied mathematics.
- it enables to establish a relationship between isolated mathematical theories pertaining to different branches such as differential equations, approximation of functions, numerical analysis and integral equations.

Module I

(13 Hours)

Banach spaces: The definition and some examples- Continuous linear transformations – The Hahn Banach theorem – The natural imbedding of N in N^{**} - The open mapping theorem.
Chapter 9(Sections 46 – 50)

Module II

(13 Hours)

Banach spaces: The conjugate of an operator. Hilbert spaces: The definition and some simple properties – Orthogonal complements – Orthonormal sets.
Chapter 9(Section 51) Chapter 10(Sections 52 – 54)

Module III

(13 Hours)

Hilbert spaces: The conjugate space H^* – The adjoint of an operator – Self adjoint operators – Normal and Unitary operators – Projections.
Chapter 10(Sections 55-59)

*Module IV

(13 Hours)

Finite Dimensional Spectral Theory: Matrices – Determinants and the Spectrum of an operator – The Spectral theorem
Chapter 11(Sections 60-62)

Module V

(13 Hours)

General Preliminaries on Banach algebras: The definition and some examples – Regular and singular elements – Topological divisors of zero – The spectrum – The formula for the spectral radius.
Chapter 12(Sections 64-68)

Book for Study

G.F.Simmons, Introduction to Topology and Modern Analysis, TATA McGraw Hill Publishing Co. Ltd, Thirteenth Reprint 2010.

Books for Reference

- 1.Dr.D.Somasundaram, Functional Analysis, S.Viswanathan Pvt Ltd., 1994
- 2.B.V.Limaye, Functional Analysis, Wiley Eastern Limited, Second edition, 2004.
- 3.A.H.Siddiqui, Functional Analysis with applications, Tata McGraw Hill Publishing Co. Ltd., 2007.
- 4.M.Thamban Nair, Functional Analysis, Prentice Hall of India Pvt Ltd., 2002.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics
Semester – IV
Elective IV – FLUID DYNAMICS **12MME4**

[For students admitted during the academic year 2012– 13 and onwards] **65 Hours**

Preamble

This course is introduced in the syllabus in order to offer a thorough and methodical introductory exposition of the mathematical theory of fluid motion which is useful in applications to both hydrodynamics and aerodynamics. The course facilitates the students

- to understand the general properties of fluid motion such as continuity, pressure, dynamical equation, energy, vorticity etc.,
- to know the tensor methods applied to the flow of viscous fluids.
- to know the outline of the theory of two dimensional laminar flow in boundary layer
- to apply the aerofoil theory in aerodynamics.

Module I **(13 Hours)**

Bernoulli's equation: Introductory notions – Physical dimensions – Velocity – Stream lines and paths of the particles – Stream tubes and filaments – Density – Pressure. Equations of motion: Differentiation with respect to time – The equation of continuity – Boundary conditions (both kinematical and Physical) – Rate of change of linear momentum – The equation of motion of an inviscid fluid.

Book 1: Chapter I (Sections 1.0-1.3) Chapter III (Sections 3.10-3.31, 3.40, 3.41)

Module II **(13 Hours)**

Equations of motion: Euler's momentum theorem – Conservative forces – Lagrangian form of the equation of motion – Steady motion – The energy equation – Rate of change of circulation – Vortex motion – permanence of Vorticity.

Book 1: Chapter III (Sections 3.42-3.53)

Module III **(13 Hours)**

Two dimensional motion: Introduction – Two dimensional functions – Basic singularities – Method of images – Conformal transformation – The Aerofoil.

Book 2: Chapter III (Sections 3.1-3.3, 3.5-3.7)

Module IV **(13 Hours)**

Dynamics of real fluids: The equations of motion for viscous flow – Some exact solutions of the Navier-Stokes equations.

Book 2: Chapter V (Sections 5.2,5.3)

***Module V** **(13 Hours)**

The laminar boundary layer incompressible flow: Introduction – The boundary layer equations – Analytic solutions of the boundary layer equations.

Book 2: Chapter VI (Sections 6.1-6.3)

Books for Study

Book 1: For modules I and II : L.M.Milne – Thomson, Theoretical Hydrodynamics, Dover Publications, New york,Fifth Edition, 1996.

Book 2: For modules III to V : N.Curle and H.J.Davies, Modern Fluid Dynamics, Volume I, D.Van Nostrand Co., London, 1968.

Books for reference

- 1.S.W.Yuan, Fundamentals of fluid Mechanics, Prentice Hall of India, Pvt. Ltd., 1988.
- 2.John F. Douglas, Janusz M.Gasiorek and John A. Swaffield, fluid Mechanics, Pearson Education Ltd., Fourth Edition, 2002.

Course Designed by : A.R.THILAGAVATHI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

M.Sc Mathematics**Semester IV****Diploma Course: IV- Statistical Methods II****12MMD4****(For students admitted during the academic year 2012-2013 and onwards)****50 Hours****Preamble**

This course facilitates the students to apply the statistical Techniques in research.

Module I**(10 Hours)**

Applications of Chi-Square Distribution: Inferences about a Population Variance-Goodness of Fit Test -Test of Independence of Attributes-Contingency tables.

Chapter15(Sections 15.6.1-15.6.3)

Module II*(10 Hours)**

Applications of t-Distribution: t-test for Single Mean-t-test for Difference of Means- Paired t-test for Difference of Means.

Chapter16 (Sections 16.3.1-16.3.3)

Module III**(10 Hours)**

Applications of t-Distribution: t-test for Testing the Significance of an Observed Sample Correlation Coefficient- t-test for Testing the Significance of an Observed Regression Coefficient-t-test for Testing the Significance of an Observed Partial Correlation Coefficient.

Chapter16 (Sections 16.3.4-16.3.6)

Module IV**(10 Hours)**

Applications of F-Distribution: F-test for Equality of Two Population Variances- F-test for Testing the Significance of an Observed Multiple Correlation Coefficient-F-test for Testing the Significance of an Observed Sample Correlation Ratio-F-Test for Testing the Linearity of Regression-F-Test for Equality of Several Means.

Chapter16 (Sections 16.6.1-16.6.5)

Module V**(10 Hours)**

Fisher's Z-Transformation: Applications of Z- Transformation.

Chapter16(Section 16.10.1)

Book for study

Fundamentals of Mathematical Statistics,S.C.Gupta and V.K. Kapoor,Sultan Chand & Sons,2010.

Books for reference

1. Fundamentals of Statistics, S.C Srivastava & Sangya Srivastava, Anmol publications Pvt Ltd, First Edition 2003.
2. Fundamentals of Statistics, D.N.Elhance, Veena Elhance & BM.Aggarwal- Kitab Mahal Agencies, 52nd Edition 2008.

Course Designed by : S.KALAISELVI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

Curriculum Framework for the students admitted in the academic year 2017-2018

Department of Physics

Curriculum Design

Sri G.V.G Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

B.Sc. Physics

Scheme of Examination – CBCS Pattern

Sem	Course code	Course Title	Ins Hrs/ week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
I	117TA1/ 117MY1/ 117HD1/ 117FR1	Part I - Language I	6	3	25	75	100	4
	117EN1	Part II - English I	6	3	25	75	100	4
	117P01	Part III - Core I- Mechanics, Properties of Matter and Sound	7	3	25	75	100	5
		Core Practical I	3	-	-	-	-	-
	117AP1	Allied I-Chemistry I	4	3	25	50	75	3
		Allied Chemistry Practical	2	-	-	-	-	-
	117EVS	Part IV - Environmental Studies	2	2	50	-	50	2
II	217TA2/ 217MY2/ 217HD2/ 217FR2	Part I - Language II	6	3	25	75	100	4
	217EN2	Part II - English II	6	3	25	75	100	4
	217P02	Part III - Core II - Heat and Thermodynamics	4	3	25	75	100	4
	217P03	Part III - Core III - Optics	3	3	25	75	100	3
	217PP1	Core Practical I	3	3	40	60	100	4
	217AP2	Allied II- Chemistry II	4	3	25	50	75	3
	217APP	Allied Chemistry Practical	2	3	20	30	50	2
	217VEC	Part IV- Value Education	2	2	50	-	50	2
	317TA3/ 317MY3/ 317HD3/ 317FR3	Part I - Language III	6	3	25	75	100	4

III	317EN3	Part II - English III	6	3	25	75	100	4
	317P04	Part III - Core IV- Atomic and Solid State Physics	4	3	25	75	100	4
		Core Practical II	3	-	-	-	-	-
	317AP3	Allied III - Mathematics I	6	3	25	75	100	4
	317NSE	Part IV Non-Major Elective Science in everyday life	2	2	50	-	50	2
	317PS1	Part IV Skill Enhancement Course I- Mechanical & Medical Instrumentation	3	3	75	-	75	3
IV	417TA4/ 417MY4/ 417HD4/ 417FR4	Part I - Language IV	6	3	25	75	100	4
	417EN4	Part II - English IV	6	3	25	75	100	4
	417P05	Part III - Core V Mathematical Physics	4	3	25	75	100	4
	417PP2	Core Practical II	3	3	40	60	100	4
	417AP4	Allied IV- Mathematics II	6	3	25	75	100	4
	417NGA	Part IV General Awareness	-	1	50	-	50	2
	417PS2	Part IV - Skill Enhancement Course –II Electrical Instrumentation	3	3	75	-	75	3
	417GIS	Information Security	2	2	50	-	Grade	Grade
	417ALP	Advanced Learners Course I - Space Physics	-	3	-	100	100	4*
V	517P06	Part III - Core VI - Electronic Devices and Circuits	5	3	25	75	100	4
	517P07	Core VII - Nanosciences	6	3	25	75	100	4
	517PP3	Core Practical III	6	3	40	60	100	4

	517PE1	Elective I – Scilab (T &P) /	5	3	40	60	100	4
	517PE2	Astrophysics	5	3	25	75	100	
	517PE3	Elective II – Project and Viva - voce	5	3	50	50	100	4
	517PS3	Part IV- Skill Enhancement Course-III Electronic Instrumentation	3	3	75	-	75	3
VI	617P08	Part III - Core VIII - Electricity and Magnetism	5	3	25	75	100	4
	617P09	Core IX - Quantum Mechanics and Relativity	5	3	25	75	100	4
	617P10	Core X - Digital Electronics and Microprocessors	5	3	25	75	100	4
	617PP4	Core Practical IV	6	3	40	60	100	4
	617PE4	Elective III- Programming in C / Programming in MATLAB	4	3	25	75	100	4
	617PE5							
	617PE6 617PE7	Elective Practical - Programming in C / Programming in MATLAB	2	3	20	30	50	2
	617PS4	Part IV- Skill Enhancement Course-IV Institutional Training	3	-	75	-	75	3
	617EX1/ 617EX2/ 617EX3/ 615EX4/ 617EX 5	Part V- Extension activity	-	-	50	-	50	2
	617ALP	Advanced Learners Course II - Energy Physics	-	3	-	100	100	4 *

Total

3500 140

*** Starred credits are treated as additional credits (Optional).**

Institutional training during summer vacation after II and IV semesters for one week.

B.Sc. Physics
Semester I
Part III - Core I - Mechanics, Properties of Matter and Sound
117P01
Credits: 5 **Hours: 105 (C-90, A-5, Tu-10)**

The main objectives of this course are

- To familiarize the basic principles, theory and concepts of gravitation and properties of matter.
- To impart knowledge in the conservation laws, energy, force and momentum in mechanics.
- To develop the problem solving skills in gravitation, elasticity and surface tension
- To define the parameters of sound such as origin, pitch and quality and ultrasonics
- To develop a basic understanding of acoustics

Unit I Conservation Laws (18 hrs)

Conservation laws in general – Concepts of work, power and energy – Conservative forces – Energy – Conservative force as negative gradient of potential energy – Law of conservation of mechanical energy – Linear restoring force – Potential energy curve – Non-conservative force – General law of conservation of energy - Law of conservation of momentum – Centre of mass – Collision – Calculation of final velocities of colliding particles (Elastic and In-elastic Collision quantitative analysis only).

Unit II Gravitation (20 hrs)

Kepler's law of motion – Derivation of law of gravitation – Newton's universal law of gravitation – Determination of 'G' by Boy's method – Merits of Boy's method – Acceleration due to gravity – Compound pendulum – Bar pendulum – Points of suspension and oscillations are interchangeable – Minimum time period – **Worked out examples.**

Elasticity

Definitions – Yield point, Elastic limit – Elastic fatigue – Three types of elasticity : Young's Modulus, Bulk Modulus, Modulus of Rigidity – Work done per unit volume in a strain - Poisson's ratio - Twisting couple of a cylinder – Torsion pendulum – Bending of beams – Cantilever - **Worked out examples.**

Unit III Viscosity (18hrs)

Stream line motion and Turbulent flow – Poiseuille's formula – Correction to Poiseuille's formula – Poiseuille's experiment (Variable pressure head)-Ostwald's viscometer – Terminal velocity and Stoke's formula – Stoke's method – Variation of viscosity with temperature and pressure – Friction and lubrication – Searle's viscometer – Rankine's method for the determination of viscosity of gas.

Unit IV Surface tension (18 hrs)

Surface tension – Explanation of surface tension on kinetic theory – Work done in increasing the area of a surface – Work done in blowing a bubble – Angle of contact – Spreading of one liquid over another – Pressure difference across a liquid surface – Excess pressure inside a curved liquid surface – Force between two plates separated by a thin layer of a liquid – Determination of surface tension of a liquid by Jaeger’s method – Variation of surface tension with temperature – Quincke’s method – Interfacial surface tension between two liquids – **Worked out examples.**

Unit V Acoustics

(16 hrs)

Free vibrations – Undamped vibrations - Damped vibrations – Forced vibrations – Origin of Sound – Practical applications: Gramophone – Microphone & Loud speaker – Tape recorder – Reverberation – Sabine’s Reverberation formula – Factors Affecting the Acoustics of Buildings – Sound Distribution in an Auditorium – Requisites for good Acoustics.

Ultrasonics - Production of Ultrasonic waves – Piezoelectric Oscillator –Determination of velocity of Ultrasonic waves.

C – Contact hours A – Assignment Tu – Tutorial

Books for study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I	Mechanics	D.S.Mathur	N.Chand Company	2004 Edition
II, III & IV	Properties of Matter	Brijlal, N.Subramanyam	Eurasia Publishing house, New Delhi	XIII Edition 2001
V	A Text book of Sound	N.Subramanyam, Brijlal	Vikas Publishing House Pvt Ltd.	Reprint 2006

Books for reference:

S. No.	Name of the Book	Authors	Publishers	Year & Edition
1.	Mechanics and Electrodynamics	Brijlal, N.Subramanyam and Jivan, Sehan	Eurasia Publishing House Private Ltd, New Delhi	Reprint 2005

2.	Elements of Properties of Matter	D.S Mathur	Shyamalal Charitable trust, New Delhi	Reprint 2009
3	A Text book of Sound	M.Ghosh	S.Chand & company Ltd	Reprint 2005

Course outcome:

On the completion of this course the student will be able to

- CO1:** use concepts of kinetic and potential energy and energy conservation to solve dynamical problems
- CO2:** interpret the term "elasticity" and be able to determine the stresses due to bending in beams of different cross sections
- CO3:** gain knowledge about viscous nature of the fluids and methods to determine the property
- CO4:** understand the surface tension of liquids and correlate the property with different natural phenomena
- CO5:** gain knowledge about perception of sound and building acoustics and will be able to develop a fundamental knowledge of building design

B.Sc. Physics

Semester II

Part III - Core II – Heat and Thermodynamics 217P02

Credits: 4

Hours: 60 (C-52, A-4, Tu-4)

The main objectives of this course are

- To provide a fundamental understanding on the behavior of the gases and their transport properties
- To educate about the basic laws of heat and its effect on the systems
- To develop an understanding on the laws of thermodynamics and thermo dynamical systems and the balancing of the same in the universe
- To bring about a perception on the heat transfer phenomena during various thermo dynamical processes
- To facilitate an understanding on the statistics involved in the particle distribution in the different energy levels in the thermo dynamical systems
- To provide an opportunity to learn and develop the problem solving skills under heat transfer systems.

Unit I Behavior of real gases

(10 hrs)

Kinetic Theory of Gases – Expression for the Pressure of a Gas – Kinetic interpretation of Temperature – Degrees of Freedom and Maxwell's Law of Equi

partition of Energy – Mean Free Path – Andrew’s Experiments on Carbon dioxide – Behavior of gases at high Pressure – Vander Waals Equation of State – Critical constants - **Worked out examples..**

Unit II Transport Phenomena in gases (10 hrs)

Inter Molecular Attraction – Porous Plug Experiment – Theory of Porous Plug Experiment – Joule - Kelvin Effect – Temperature of Inversion – Relation between Boyle Temperature, Temperature of Inversion and Critical Temperature – Liquefaction of Helium – K. Onne’s Method – Helium I and Helium II – Adiabatic Demagnetization.

Unit III Thermodynamics (10 hrs)

First Law of Thermodynamics – Application of First Law of Thermodynamics – Isothermal Process – Adiabatic Process – Isochoric Process – Isobaric Process – Gas Equation during Adiabatic Process – Irreversible Process – Reversible Process – Second Law of Thermodynamics – Carnot’s Reversible Engine – Carnot’s Engine and Refrigerator – Carnot’s Theorem- **Worked out examples..**

Unit IV Thermodynamics and Entropy (12 hrs)

Thermodynamic (or Work or Absolute) Scale of Temperature – Absolute Zero on Work Scale – Work Scale and Ideal Gas Scale- Clapeyron’s Latent Heat Equation – Entropy – Change in Entropy in a Reversible Process (Carnot’s cycle) – Change in Entropy in an Irreversible Process – Third Law of Thermodynamics – Maxwell’s Thermodynamical Relations - **Worked out examples..**

Unit V Statistical thermodynamics (10 hrs)

Three Kinds of Particles – Maxwell-Boltzmann Energy distribution law – Bose – Einstein distribution law – Photon gas – Fermi-Dirac distribution law – Free Electrons in Metal: Electron gas – Comparison of three statistics.

C – Contact hours A – Assignment Tu – Tutorial

Book for study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I-V	Heat and Thermodynamics	Brijlal and Subramaniam	S.Chand & Co.	Reprint 2006

Books for reference:

S. No.	Name of the Book	Authors	Publishers	Year & Edition
1.	Heat and Thermodynamics	S. Singhal & J.B. Agarwal	Pragathi Prakashan Publishing	Reprint 1995
2.	Text book of Heat and Thermodynamics	J.B. Rajam & C.L. Arora	Chand & Co	10 th Reprint 1981

Course outcome:

On the completion of this course the student will be able to

- CO1:** gain knowledge in the fundamental behavior of the gases and the heat transport phenomena in them
- CO2:** understand the terms involving temperature and the effect of them on the mechanical systems
- CO3:** learn the thermodynamical laws and the disorder associated with the universal systems
- CO4:** comprehend on the Statistical distribution of particles in the thermodynamical systems
- CO5:** evolve the techniques of solving problems under thermodynamics of universal systems

B.Sc. Physics**Semester I & II****Part III – Core Practical I****217PP1****Credits: 4****Hours: 45****The main objectives of this course are**

- To provide opportunities for developing the laboratory skills by applying theoretical knowledge.
- To develop a broad array of basic skills and tools for performing Physics experiments and data analysis.
- To understand the concept of direct observation in Physics principles and to distinguish between inferences based on theory and on the outcomes of experiments.
- To understand the course responsibilities and ethical values while recording data.
-
- To develop collaborative learning skills that are vital to success in many lifelong endeavors.

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Acceleration due to gravity – Compound pendulum.
2. Young's modulus – Uniform bending – Pin & Microscope.
3. Young's modulus – Non-uniform bending – Single optic lever and Telescope.
4. Rigidity modulus of the material of the wire & Moment of Inertia of the disc – Torsion pendulum.
5. Rigidity modulus of the material of the rod – Static torsion.

6. Y , η , σ – Searle's double bar pendulum.
7. Surface tension and interfacial tension – drop weight method.
8. Co-efficient of viscosity of highly viscous liquids (castor oil) – Stoke's method.
9. Co-efficient of viscosity of water and comparison of radii of capillary tubes – Poiseuille's flow.
10. Verification of laws of stretched string & determination of unknown frequency of the tuning fork – Sonometer.
11. Frequency of an electrically maintained tuning fork – Melde's string.
12. Thermal conductivity of a bad conductor (cardboard) – Lee's disc method.
13. Specific heat capacity of a liquid – Joule's calorimeter.
14. Refractive index of the material of the prism – Spectrometer.
15. Refractive index of a liquid-Hollow prism
16. Melting point of wax using thermistor – Ohm's law.
17. Calibration of low range voltmeter – Potentiometer.
18. Internal resistance of a cell– Potentiometer.
19. Impedance and power factor of an Inductive circuit.
20. Study of characteristics of a Junction diode.

Course outcome

On the completion of this course students will be able to

- CO1:** perform experiments and interpret on the results by observation.
- CO2:** understand the parameters such as constants, characteristic curves, calibration, error, correction, etc associated with the measurements
- CO3:** comprehends the Physics principles involved in the measurements using the Instruments.
- CO4:** evolve and independent approach to problems associated with experimental work.
- CO5:** think innovatively and improve the creative skills with ethical values.

B.Sc. Physics

Semester III

Part IV - Skill Enhancement Course I – Mechanical & Medical Instrumentation 317PS1

Credits: 3

Hours: 45 (C-33, P-12)

The main objectives of this course are

- To provide a strong foundation in the working concepts of instruments used for parametric measurements.
- To impart basic knowledge in the production and the measurement of low Pressure.

- To facilitate the learners to understand about the measurement of various levels of temperature using thermometers.
- To provide a knowledge about electrodes and physiological assist devices used in Bio-medical systems.
- To familiarize the handling and maintaining of simple mechanical and medical instruments and their purposes by performing practical activity.

Unit I Characteristics of instruments and measurements system

(8 hrs)

Methods of measurements – Classification of instruments – Analog and digital modes of operation – Static characteristics – True value – Static error – Static correction – Scale range and Scale pan – Reproducibility and Drift – Repeatability – noise – Accuracy and Precision – Significant figures – Limiting errors – Types of errors – Gross errors – Systematic errors – Instrumental errors – Observational errors – Random errors.

Unit II Production and measurement of low pressure

(8 hrs)

Exhaust pumps – Characteristics – Rotary oil pump – Mercury Geissler pump – Diffusion-Condensation pump – Measurement of low pressure – The Bourdon gauge – McLeod gauge – The Pirani resistance gauge – Knudsen gauge.

Unit III Measurement of Temperature

(8hrs)

Electrical resistance thermometer: Platinum resistance thermometer – Salient features of resistance wire thermometers – Thermocouple thermometer – Thermocouple construction – Measurement of thermocouple output – Advantages and Disadvantages – Optical pyrometers – Disappearing filament type.

Unit IV Electrodes & Physiological Assist Devices

(9 hrs)

Design and Components of the Bio-medical instrument system – Electrodes-half cell potential – Electrode paste – Metallic Microelectrode – Depth and Needle electrode – Surface electrode – Chemical Electrode – pH Electrode.

Model of the heart lung machine – Oxygenators – Bubble oxygenators – Blood pumps – Non-Pulsatile pump.

Unit V Practicals:

(12 hrs)

1. Handling and maintaining microscope
2. Handling and maintaining spectrometer
3. Handling and maintaining telescope
4. Handling and maintaining glucometer and digital pressure meter
5. Measurements in Physics (Vernier calipers & Screw gauge)
6. Errors in measurements.

C-Contact hours P- Practicals

Books for study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I-III	Electrical and Electronic Measurements and instrumentation	A.K.Sawhney	Dhantpat Rai & Sons Publications	4 th Edition 1991
IV	Biomedical Instrumentation	Dr.M.Arumugam	Anuradha Agencies, Kumbakonam	2 nd Edition 2003

Books for Reference:

S. No.	Name of the Book	Authors	Publishers	Year & Edition
1.	Instrumentation Devices and Systems	C.S. Rangan, G.R.Sharma and V.S.V.Mani	TataMcGraw Hill Publishing Ltd, New Delhi	11 th Reprint 1992
2.	Experimental methods for Engineers	J.P.Holman	Mc Graw Hill International Book Company	Fifth edition
3	Biomedical Instrumentation and Measurements	Leslie Cromwell and Fred S.Weibel	Printice Hall of India, New Delhi	1980
4	Hand book Biomedical Instrumentation	R.S Khandpur	Tata McGraw Hill publishing co	9 th Edition 1996.

Course outcome:

On the completion of this course the student will be able to

CO1: interpret characteristics of measuring instruments and errors in the measurements.

CO2: gain knowledge about the construction and working of various pumps and gauges.

CO3: understand the working of different thermometers and temperature measurements.

CO4: understand different bio signals through ionic potentials generated and also interpret the purpose of using different electrodes.

CO5: develop skill in handling and maintaining instruments

B.Sc. Physics
Semester IV
Part III - Core V - Mathematical Physics 417P05

Credits: 4

Hours: 60 (C-52, A-3, Tu-5)

The main objectives of this course are

- To provide an understanding of basic vector function and vector identities.
- To enable the learners to understand the vector theorems.
- To facilitate the learners to apply Gauss divergence theorem for Physics problems.
- To impart knowledge in the understanding of fundamentals of classical constants.
- To provide a knowledge of solving algebraic equations, differential equations and integral equations numerically and to develop the skills in finding the approximate solutions for the problems.

Unit I Vectors- I (10hrs)

Line, Surface and Volume integrals – Divergence and Curl of a vector function – Simple Problems – Important vector identities – Gauss divergence theorem and Proof – Problems using Gauss divergence theorem – Equation of Continuity.

Unit II Vectors- II (10hrs)

Stoke's theorem and Proof – Problems using Stoke's theorem – Green's theorem and its Proof using Gauss divergence theorem – Green's theorem in a plane – Classification of vector fields

Orthogonal curvilinear coordinates – Gradient, Divergence, Laplacian and Curl in terms of orthogonal curvilinear coordinates – Spherical polar coordinates and differential operators

Unit III Classical Mechanics - Lagrangian (10hrs)

Constraints and degrees of freedom – Holonomic and non-holonomic constraints Generalised co-ordinates – Generalised notations – Generalised displacement – Generalised velocity – Generalised momentum – Generalised force – D'Alembert's principle – Lagrange's equations from D'Alembert's principle for Conservative system – Application of Lagrange's equation of motion: Linear Harmonic Oscillator – Simple Pendulum.

Unit IV Classical Mechanics - Hamiltonian (11hrs)

Hamilton's variational principle – Deduction of Lagrange's equations of motion from Hamilton's principle for conservative system - Phase space and the motion of the system – Hamiltonian–Hamilton's Canonical equations of motion – Physical Significance of H –Deduction of Canonical Equation from a variational principle –Applications of Hamilton's equations of motion: Simple Pendulum

Unit V Numerical Methods (11hrs)

Solution of algebraic equations – Bisection method – Newton-Raphson method – Solution of linear algebraic equations – Gauss elimination method.

Numerical integration – Quadrature formula for equidistant co-ordinates – Trapezoidal rule – Simpson's rule – Numerical solution of ordinary differential equations – Taylor's series method – Fourth order Runge-Kutta method.

C – Contact hours A – Assignment Tu – Tutorial

Books for study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I & II	Mathematical physics	Satya Prakash	Sultan & sons	Reprint 2014
III & IV	Classical Mechanics	Dr. S.L. Gupta, Dr.V. Kumar & Dr. H.V. Sharma	Pragati Prakashan Publishing, Meerut	Third revised edition 2010
V	Numerical methods	A.Singaravelu	Meenakshi publications	New revised edition 2014

Books for Reference:

S. No.	Name of the Book	Authors	Publishers	Year & Edition
1.	Mathematical physics	Rajput	Pragati Prakashan Publishing, Meerut	1995 Edition
2.	Classical Mechanics	Herbert Goldstein	Poole & Safko	2002 Edition
3	Numerical methods	S.Kalavathi & M. Joice punitha	Mc Graw Hill Publications	2 nd Edition, 2010

Course outcome:

On the completion of this course the student will be able to

- CO1:** apply Gauss divergence theorem and Stokes theorem to Physics problems.
- CO2:** develop skill in writing gradient, divergence, curl and Laplacian in different co- ordinate systems.
- CO3:** gain knowledge about the classical constants such as Lagrangian and Hamiltonian.
- CO4:** solve the problems for different physical systems under Classical Mechanics.
- CO5:** apply Numerical methods to obtain the approximate solution to the problems involving differentiation, integration and simultaneous algebraic equations.

B.Sc. Physics
Semester IV
Part IV-Skill Enhancement Course II-Electrical
Instrumentation **417PS2**

Credits: 3

Hours: 45 (T-33, P-12)

The main objectives of this course are

- To impart fundamental knowledge about the principle, construction and working of the types of D'Arsonval movement.
- To provide an understanding about basics of voltmeters, ammeters, and their parameters such as sensitivity, loading effect, advantage etc.
- To enable the students to know about the construction and characteristic of current transformer.
- To provide an understanding about measuring of powers in AC, DC circuits.
- To conduct a hands on training in the handling of electrical instruments that are used for general purpose.

Unit I Galvanometers & Ammeters

(9hrs)

D'Arsonval Galvanometers – Construction of D'Arsonval Galvanometer – Torque Equation – Dynamic Behaviour of Galvanometers – Equation of Motion – Ballistic Galvanometer – Construction of ballistic galvanometer – Types of Instruments - Errors in Ammeters and Voltmeters - Permanent magnet Moving Coil Instruments (PMMC) – construction of PMMC Instruments – Torque Equation – Ammeter Shunts - Multi range Ammeters.

Unit II Voltmeters and Ohmmeters

(8hrs)

Multirange d.c. Voltmeters - Sensitivity of PMMC Voltmeters - Sensitivity of PMMC Voltmeters and their Loading Effects – Advantages and Disadvantages of PMMC Instruments - Series type Ohmmeter - Shunt type Ohmmeters – Multimeter or Volt - Ohm - Milli – ammeter(V.O.M) - Megger .

Unit III Transformers

(8hrs)

Use of Instrument Transformers – Current Transformers – Characteristics of Current Transformers – Causes of Errors in Current Transformers – Means to reduce Errors in Current Transformers – Construction of Current Transformers.

Unit IV Measurement of Power and Watt meters

(8hrs)

Power in D.C. Circuits – Power in A.C. Circuits – Electrodynamometer Wattmeter – Construction of Electrodynamometer wattmeter – Measurement of Medium Resistance – Ammeter Voltmeter Method – Wheatstone Bridge – Application of D.C. Potentiometers.

Unit V Practicals

(12 hrs)

1. Handling and maintaining power supply
2. Handling and maintaining multimeter

3. Voltage measurement using Voltmeter
4. Current measurement using Ammeter
5. Handling and maintaining step down transformer
6. Calibrating resistance boxes.

T – Theory P – practical

Books for study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I-IV	A course in Electrical and Electronic Measurements and Instrumentation	A.K.Sawhney	Dhanpat Rai & Sons publications	Reprint 2008

Books for reference:

S.No.	Name of the Book	Authors	Publishers	Year & Edition
1.	Modern Electronic Instrumentation and Measurement technique	Albert D Helfrick and William D.Hooper	Prentice Hall of India, New Delhi	Reprint 2008

Course outcome:

On the completion of this course the student will be able to

- CO1:** understand the construction and working of the types of galvanometers and ammeters.
- CO2:** gain knowledge about meter movements, their sensitivity, loading effects and merits.
- CO3:** acquire a clear knowledge about current transformers, their errors and rectification.
- CO4:** develop knowledge about power measurements in AC, DC circuits.
- CO5:** acquire practical skill in handling and maintaining electrical instruments.

B.Sc. Physics
Semester III & IV
Part III - Core Practical II

417PP2

Credits:4

Hours: 45

The main objectives of this course are

- To enhance a better understanding of theory through practicals.
- To familiarize the equipments, develop observational skills and to foster critical thinking.
- To train the students in measuring, recording, analyzing and interpreting the results of the experiments involving electricity and electronics.
- To develop troubleshooting skills, independent thinking and team work.

LIST OF PRACTICALS
(A minimum of 15 experiments)

1. Calibration of very high range Ammeter – Potentiometer
2. Calibration of high range voltmeter – Potentiometer.
3. Calibration of very low range Ammeter – Potentiometer
4. Temperature co-efficient of resistance of a coil – Carey-Foster's bridge.
5. Comparison of e.m.fs of two cells – B.G.
6. Figure of merit of B.G.
7. Moment of the magnet due to the field along the axis of the coil – Magnetometer.
8. Magnetic flux density due to the field along the axis of the coil – Magnetometer.
9. Wavelength of colors of Mercury spectrum – Grating – Normal Incidence Method – Spectrometer
10. i-d curve Spectrometer
11. Determination of Hartmann's constants – Spectrometer
12. Wavelength of LASER source – Grating
13. Refractive Index of liquid – Hollow prism and Laser Source
14. Determination of AC frequency – Sonometer.
15. Q factor of a series resonant circuit.
16. Q factor of a parallel resonant circuit.
17. Low pass, high pass & band pass filters.
18. Study of characteristics of a Zener diode.
19. Construction of low voltage power supply using diodes.
20. Tracing of Lissajou's figures – CRO.
21. Reconstruction of a Hologram – Demonstration
22. Measurement of Blood sugar, Blood Pressure & Hemoglobin – Demonstration

Course Outcome:

On completion of this course the students will be able to

CO 1 : correlate theory with practicals leading to better understanding of the subject.

CO 2 : record, analyse and interpret the results of the experiment.

CO 3: calibrate electrical meters for its precision and accuracy.

CO 4 : develop and understanding on medical instruments and clinical parameters.

CO 5 : work confidently, independently and in small teams

B.Sc. Mathematics / B.Sc. Chemistry
Semester I & II
Allied Physics Practicals 217AMP/217ACP

Credits: 2

Hours: 30

The main objectives of this course are

- To impart a practical knowledge in various areas of Experimental Physics.
- To develop skills in measurements using instruments working with Physics principles.
- To correlate the theory with practicals to improve the level of understanding.
- To instill a confidence in the handling of equipments.
- To delineate the concepts of Physics with a mathematical approach and chemical convictions.

LIST OF PRACTICALS
(A minimum of 15 experiments)

1. Acceleration due to gravity – Compound pendulum
2. Young's modulus – Non-uniform bending – Optic lever, Scale and Telescope.
3. Young's modulus – Cantilever depression – Scale and Telescope.
4. Rigidity modulus of the material of the wire – Torsion Pendulum.
5. Rigidity modulus of the material of the rod – Static torsion.
6. Refractive index of the material of the prism – Spectrometer
7. AC frequency – Sonometer
8. Calibration of low range voltmeter – Potentiometer.
9. Calibration of high range ammeter – Potentiometer.
10. Measurement of resistance – Potentiometer.
11. Temperature co-efficient of resistance – Ohm's law - Thermistor.
12. Characteristics of a Zener diode.
13. Characteristics of FET.
14. Characteristics of a junction diode.
15. Verification of AND, OR, NOT, NAND, NOR & XOR gates – IC's.
16. Half adder & Full adder using IC's.

17. NAND as universal building block.
18. De-Morgan's theorems using logic gates.
19. NOR as universal building block.
20. Solving Boolean equations using logic gates.

Course outcome

On the completion of this course students will be able to

- CO1:** gain knowledge in experimental Physics.
- CO2:** demonstrate a practical skill on measurements and instrumentation.
- CO3:** complement and supplement the theory with practicals.
- CO4:** display a sense of confident in the equipment handling.
- CO5:** assure a depth of knowledge of Physics in day today life

Curriculum Framework for the students admitted in the academic year 2016-2017

Department of Physics

Curriculum Design

Sri G.V.G Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

B.Sc. Physics

Scheme of Examination – CBCS Pattern

Sem	Course code	Course Title	Ins Hrs/ week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
I	115TA1/ 115MY1/ 115HD1/ 115FR1	Part I - Language I	6	3	25	75	100	4
	115EN1	Part II - English I	6	3	25	75	100	4
	115P01	Part III - Core I- Mechanics and Properties of Matter	7	3	25	75	100	4
		Core Practical I	3	-	-	-	-	-
	115AP1	Allied I-Chemistry I	4	3	25	50	75	3
		Allied Chemistry Practical	2	-	-	-	-	-
	115EVS	Part IV - Environmental Studies	2	2	50	-	50	2
II	215TA2/ 215MY2/ 215HD2/ 215FR2	Part I - Language II	6	3	25	75	100	4
	215EN2	Part II - English II	6	3	25	75	100	4
	215P02	Part III - Core II - Heat and Thermodynamics	7	3	25	75	100	4
	215PP1	Core Practical I	3	3	40	60	100	4
	215AP2	Allied II- Chemistry II	4	3	25	50	75	3
	215APP	Allied Chemistry Practical	2	3	20	30	50	2
	215VEC	Part IV - Value Education	2	2	50	-	50	2
III	315TA3/ 315MY3/ 315HD3/ 315FR3	Part I - Language III	6	3	25	75	100	4
	315EN3	Part II - English III	6	3	25	75	100	4
	315P03	Part III - Core III- Optics	4	3	25	75	100	4
		Core Practical II	3	-	-	-	-	-
	315AP3	Allied III - Mathematics I	6	3	25	75	100	4
	315PS1	Part IV Skill Based Course I- Mechanical Instrumentation	3	3	75	-	75	3
	315NSE	Non-Major Elective Course I: Science in everyday life	2	2	50	-	50	2

IV	415TA4/ 415MY4/ 415HD4/ 415FR4 415EN4 415P04	Part I - Language IV	6	3	25	75	100	4
	415PP2	Part II- English IV	6	3	25	75	100	4
	415AP4	Part III- Core IV- Waves and Oscillations	4	3	25	75	100	4
	415PS2	Core Practical II	3	3	40	60	100	4
		Allied IV- Mathematics II	6	3	25	75	100	4
		Part IV- Skill Based Course -II Medical Instrumentation	3	3	75	-	75	3
	415NGA	Non-Major Elective Course II: General Awareness (On-line)	-	1	50	-	50	2
	415GIS	Information Security	2	2	50	-	Grade	Grade
	415ALP	Advanced Learners Course I - Space Physics	-	3	-	100	100	3*
V	515P05	Part III - Core V- Mathematical Physics	5	3	25	75	100	4
	515P06	Core VI- Atomic and Solid State Physics	4	3	25	75	100	4
	515P07	Core VII- Electronic Devices and Circuits	4	3	25	75	100	4
	515PP3	Core Practical III	6	3	40	60	100	4
	515PE1	Elective I – Nanosciences	4	3	25	75	100	4
	515PE2	Elective II – Project and Viva - voce	4	3	50	50	100	4
	515PS3	Part IV- Skill Based Course-III Electrical and Electronic Instrumentation	3	3	75	-	75	3
VI	615P08	Part III - Core VIII- Electricity and Magnetism	5	3	25	75	100	4
	615P09	Core IX - Quantum Mechanics and Relativity	5	3	25	75	100	4
	615P10	Core X - Digital Electronics and Microprocessors	5	3	25	75	100	4
	615PE3	Elective III- Programming in C	4	3	25	75	100	4
	615PP4	Core Practical IV	6	3	40	60	100	4
	615PPE	Elective Practical Programming in C	2	3	20	30	50	2
	615PS4	Part IV-Skill Based Course-IV Institutional Training	3	-	75	-	75	3
		Part V- Extension activity	-	-	50	-	50	2
	615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5							
	615ALP	Advanced Learners Course II - Energy Physics	-	3	-	100	100	3*
Total			3500			140		

B.Sc Physics

Semester I

Part III - Core I - Mechanics and Properties of Matter 115P01

Credits: 4

Hours: 105 (C-80, A-10, Tu-15)

Preamble:

The purpose of this paper is to give an introductory account of basic ideas in conservation principles and properties of matter.

Objectives:

- To enable the students in order to learn the basic principles, theory and concepts of Matter and Mechanics.
- To impart knowledge about the physical properties of liquids such as viscosity and surface tension of liquids.

Learning outcome:

- Will be able to understand the conservation laws and gravity governing the bodies in motion.
- Will be able to acquire knowledge about elasticity, viscosity and surface tensional properties of matter.

Unit I Conservation Laws

(16hrs)

Conservation laws in general – Concepts of work, power and energy – Conservative forces – Energy – Conservative force as negative gradient of potential energy – Law of conservation of momentum – Centre of mass – Motion of the Centre of mass – Centre of mass frame of reference – Collision – Calculation of final velocities of colliding particles.

Unit II Gravitation

(16hrs)

Kepler's law of motion – Derivation of law of gravitation – Newton's universal law of gravitation – Determination of 'G' by Boy's method – Merits of Boy's method – Acceleration due to gravity – Compound pendulum – Bar pendulum – Points of suspension and oscillations are interchangeable – Minimum time period – **Worked out examples.**

Unit III Elasticity

(18hrs)

Definitions – Yield point, Elastic limit – Elastic fatigue – Poisson's ratio – Poisson's ratio for Rubber – Work done in Deforming a body – Bulk modulus (Relation between K , Y and σ) Modulus of Rigidity – Relation between elastic constants (Y , η , K and σ) – Twisting of a cylinder – Torsion pendulum – Bending of beams – Bending moment – Cantilever – Beam supported at its ends and loaded in the middle – I Section girders – Determination of elastic constants by Searle's method – **Worked out examples.**

Unit IV Viscosity

(16hrs)

Stream line motion and Turbulent flow – Poiseuille's formula – Correction to Poiseuille's formula – Poiseuille's experiment (Variable pressure head)-Ostwald's

viscometer – Terminal velocity and Stoke’s formula – Stoke’s method – Variation of viscosity with temperature and pressure – Friction and lubrication – Searle’s viscometer – Rankine’s method for the determination of viscosity of gas.

Unit V Surface tension

(14hrs)

Surface tension – Explanation of surface tension on kinetic theory – Work done in increasing the area of a surface – Work done in blowing a bubble – Angle of contact – Spreading of one liquid over another – Pressure difference across a liquid surface – Excess pressure inside a curved liquid surface – Force between two plates separated by a thin layer of a liquid – Determination of surface tension of a liquid by Jaeger’s method – Variation of surface tension with temperature – Quincke’s method – Interfacial surface tension between two liquids – **Worked out examples.**

Books for study:

1. Mechanics, D.S.Mathur, N.Chand & Company, 2nd edition (**Unit I**).
2. Properties of Matter, Brijlal N.Subramanyam Eurasia Publishing house, New Delhi, 2nd edition (**Unit II, III**).
3. Properties of Matter and Acoustics, R.Murugesan & Kiruthiga Sivaprasath, Chand & Co. 2012 edition (**Unit IV and V**).

Books for reference:

1. Mechanics and Electrodynamics, Brijlal, N.Subramanyam and Jivan, Sehan,Eurasia Publishing House Private Ltd, New Delhi, Revised and enlarged edition, 2005.
2. Elements of Properties of Matter, D.S Mathur,Shyamalal Charitable trust, New Delhi, Reprint, 2010.

B.Sc Physics

Semester II

Part III - Core II – Heat and Thermodynamics 115P02

Credits: 4

Hours: 105 (C-80, A-10, Tu-15)

Preamble:

The revolution in Physics can be attributed to the study of Thermodynamics and Statistical Physics. A deep understanding of Thermodynamics is essential in order to appreciate the environmental concepts in Physics.

Objectives:

- To impart knowledge about behavior of gases and concepts about low temperature Physics
- To study about the Thermodynamical laws and their applications in day –today life.

Learning outcome:

- Will learn about the behavior of gases.
- Will be able to understand liquefaction process of gases.
- Will gain knowledge about the application of statistics in Thermodynamics.

Unit I Ideal gas and Behavior of real gases (18hrs)

Three states of Matter – Kinetic model - Kinetic theory of gases – Expression for the pressure Exerted by a gas – Derivation of Gas equation – Derivation of gas laws – Charles law – Boyle's law – Degree of Freedom – Andrew's experiment on CO_2 – Critical Constants – Behavior of gases at high pressure – Boyle Temperature – Vanderwaal's equation of state – Comparison with Experimental PV Curves – Estimation of critical constants – Constants of Vanderwaal's Equation – Critical Coefficient – Limitations of Vanderwaal's Equation – Reduced Equation of State – Properties of Matter near critical point – Experimental determination – **Worked out examples.**

Unit II Transport phenomena in gases (16hrs)

Joule's Law for a perfect gas (Intermolecular attraction) – Joule-Thomson Effect – Joule-Thomson Porous Plug experiment – Regenerative Cooling (Theory Porous Plug experiment) – Joule-Kelvin effect – Temperature of Inversion – Relation between T_B , T_i and T_c – Mean free path – Sphere of influence – Expression for Mean free path (Clausius Expression) – Viscosity: Transport of momentum – Thermal Conductivity: Transport of Thermal energy – Liquefaction of Hydrogen – Liquefaction of Helium – Properties of liquid He I and He II – Production of low temperature – Adiabatic demagnetization – Measurement of low temperature: (Helium Vapour Pressure Thermometer)

Unit III Thermodynamics (18hrs)

Zeroth law of Thermodynamics – First law of thermodynamics – Application of first law of thermodynamics – Specific heat capacity of a gas – Isochoric process – Isobaric process – Adiabatic process – Isothermal process – Reversible and Irreversible process – Carnot's Ideal heat engine – Carnot's cycle – Carnot's engine and refrigerator – Second law of thermodynamics Carnot's theorem – Clapeyron's Latent heat equation using Carnot's Cycle – Concept of Entropy – Change in Entropy – Change in entropy in a reversible cycle – Change in entropy in an irreversible process – Kelvin's Thermodynamic Scale of Temperature – Third law of thermodynamics : Nernst's Heat Theorem – Maxwell's thermodynamical relations – **Worked out examples.**

Unit IV Statistical aspects of Thermodynamics (14hrs)

Probability – Principle of equal A priori probability – Some basic rules of probability theory – Permutations and Combinations – Macrostate and Microstate – Thermodynamical probability – Fluctuations and their dependence – Constraints on a system – Static and Dynamic systems – Most probable State – Concept of a cell in a component – Phase Space – Applications: One-Dimensional Harmonic Oscillator – Entropy and Probability – Boltzmann's Canonical distribution law – The equipartition of energy – Partition function and its relation with thermodynamic quantities – **Worked out examples.**

Unit V Thermodynamical distribution (14hrs)

Three Kinds of Particles – Maxwell-Boltzmann Energy distribution law – Bose – Einstein distribution law – Photon gas – Fermi-Dirac distribution law – Free

Electrons in Metal: Electron gas – Comparison of three statistics – Difference between Classical and Quantum Statistics.

Books for study:

1. Heat and Thermodynamics, Brijlal and Subramaniam, S.Chand & Co. Reprint 2006 (Unit I – V).

Books for reference:

1. Heat and Thermodynamics, S. Singhal & J.B. Agarwal, Pragathi Prakashan publishing, Reprint 1995.
2. Text book of Heat and Thermodynamics, J.B. Rajam & C.L. Arora, Chand & Co. 10th Reprint.

B.Sc. Physics

Semester I & II

Part III – Core Practical I

215PP1

Credits: 3

Hours: 45

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Acceleration due to gravity – Compound pendulum.
2. Rigidity modulus of the material of the wire & Moment of Inertia of the disc – Torsion pendulum.
3. Rigidity modulus of the material of the rod – Static torsion.
4. Young's modulus – Uniform bending – Pin & Microscope.
5. Young's modulus – Non-uniform bending – Pin & Microscope.
6. Surface tension and interfacial tension – drop weight method.
7. Co-efficient of viscosity of highly viscous liquids (castor oil) – Stoke's method.
8. Co-efficient of viscosity of water and comparison of radii of capillary tubes – Poiseuille's flow.
9. μ of the material of the prism – Spectrometer.
10. Resolving power of a grating – Minimum deviation – Spectrometer
11. Melting point of wax using thermistor – ohm's law.
12. Calibration of low range voltmeter – Potentiometer.
13. Calibration of high range ammeter – Potentiometer.
14. Impedance and power factor of an Inductive circuit.
15. Verification of laws of stretched string & determination of unknown frequency of the tuning fork – Sonometer.
16. Study of characteristics of a Junction diode.
17. Thermal conductivity of a bad conductor (cardboard) – Lee's disc method.
18. Specific heat capacity of a liquid – Joule's calorimeter.
19. Y , η , σ – Searle's double bar pendulum.
20. Frequency of an electrically maintained tuning fork – Melde's string.

Credits: 2**Hours: 30**

- B.Sc. Physics**
Semester III

Credits: 3**Hours: 45 (C-40, A-5)**

Experiment is an act or operation carried out under condition determined by experimental in order to discover some unknown principle and effect to test establish and illustrate some suggested or known truth. Experimentation is vital for progress in any field where information is lagging. The measurements and the correct interpretation thereof might be used to study the functioning of different components which comprise a particular system, determine the cause of malfunctioning of the system and have a thorough understanding of its operation.

Objectives:

- To provide a good foundation in measurement concepts.
- To introduce knowledge of the parameters that needs to be measured.
- To provide a knowledge of the functioning of instruments for parametric measurement.

Learning outcome:

- Will learn the characteristics of each type instrument and the errors associated in the measurement.
- Will acquire information about the working principle and the parameters of measurements

Unit I Characteristics of instruments and measurements system (8 hrs)

Methods of measurements – Classification of instruments – Analog and digital modes of operation – Static characteristics – True value – Static error – Static correction – Scale range and Scale pan – Reproducibility and Drift – Repeatability – noise – Accuracy and Precision – Significant figures – Limiting errors – Types of errors – Gross errors – Systematic errors – Instrumental errors – Observational errors – Random errors.

Unit II Production and measurement of low pressure (8 hrs)

Exhaust pumps – Characteristics – Rotary oil pumps – Mercury pumps (Geissler pumps) – Diffusion-Condensation pumps – Measurement of low pressure – The Bourdon gauge – McLeod gauge – The Pirani resistance gauge – Ionization gauge (Hot cathode) – Knudsen gauge.

Unit III Measurement of Temperature (8hrs)

Electrical resistance thermometer: Platinum resistance thermometer – Salient features of resistance wire thermometers – Thermocouple thermometer – Thermocouple construction – Measurement of thermocouple output – Advantages and Disadvantages – Optical pyrometers – Disappearing filament type.

Unit IV Measurement of flow and liquid level (8 hrs)

Turbine flow meter – Orifice flow meter – Hot wire Anemometer – Measurement of liquid level: Resistive method – Capacitive method – Inductive method – Measurement of liquid level using float.

Unit V Measurement of Humidity and thickness (8 hrs)

Hygrometer – Dew point hygrometer – Surface conductivity method – Measurement of thickness: Inductive method – Measurement of thickness using ultra sonic vibrations – Nuclear radiation method.

Books for study:

1. Electrical and Electronic Measurements and instrumentation, A.K.Sawhney – Dhanpat Rai & Sons Publications – 1991 Revised 4th Edition.
2. Industrial Instrumentation, K.Krishnaswamy and S. Vijaya chitra – New age International Publishers 1st edition – Reprint 2008.

Books for Reference:

1. Instrumentation Devices and Systems, C.S. Rangan, G.R.Sharma and V.S.V.Mani–11th Reprint 1992, TataMcGraw Hill Publishing Ltd, New Delhi.
2. Experimental methods for Engineers, J.P.Holman – Fifth edition – McGraw, Hill International Book Company.

B.Sc. Physics
Semester IV
Core IV - Waves and Oscillations **415P04**

Credits: 4**Hours: 60 (C-54, A-3, Tu-3)****Preamble:**

Sound is a stimulus that acts on the sense of hearing. It is the sensation that is received by our ear. The science of sound generally known as Acoustics which is a branch of physics dealing with the external disturbances which give rise to the above sensation. It explains the nature, phenomenon, and laws of sound generation and propagation. A medium of material nature is necessary for the propagation of sound. The propagation of sound through a medium takes place by transfer of disturbance from particle to particle by their to and fro motion.

Objectives:

- To provide knowledge about waves, oscillations and acoustics.
- To bring about an understanding on the velocities of sound and its variation for the temperature, pressure, etc.

Learning Outcome:

- Will be able to understand the concept of waves and its nature.
- Will be able to appreciate the effect of sound waves as it vibrates inside & outside the building as a branch of acoustics.

Unit I Damped Harmonic Oscillator (12hrs)

Damped vibrations – Power dissipation – Quality factor – Moving coil Galvanometer – Damping on the moving part of the galvanometer: Mechanical damping – Electromagnetic damping Logarithmic decrement – Electromagnetic damping correction.

Driven Harmonic Oscillator: Driven or forced harmonic oscillator – Sharpness of Resonance – Power absorption in driven oscillator – Quality factor – Bandwidth and selectivity of Resonant circuit.

Unit II Waves (11hrs)

Waves-nature, production and propagation – Equation of progressive wave – Forms of the wave equation – Longitudinal waves – Water waves – General wave motion – Characteristic of wave motion – Transmission energy – Sound waves – Sound wave in a gas – Pressure variation in a sound wave – Energy density of a wave – **Worked out examples.**

Unit III Superposition of waves (11hrs)

Principle of Super position – Stationary waves – Characteristic of a stationary wave – Analytical treatment of stationary waves – Nature of stationary waves – Pressure and density changes at displacement nodes and antinodes – Distribution of energy in a stationary wave – Phenomena of beats-Beats and modulation – Square – law detector – Wave velocity and particle velocity – Group velocity and waves in dispersive media.

Unit IV Velocity of Sound (11hrs)

Origin of Sound – Velocity of longitudinal waves in gases – Newton's formula for velocity of sound – Effect of temperature and pressure on velocity of sound in gases – Effect of density, humidity and wind – Velocity of sound in water – Velocity of sound in air – Velocity of sound in Isotropic Solids.

Unit V Acoustics and Ultrasonics (11hrs)

Acoustics – Reverberation – Sabine's Reverberation formula – Determination of Absorption Co-efficient – Factors Affecting the Acoustics of Buildings – Sound Distribution in an Auditorium – Requisites for good Acoustics.

Ultrasonics-Production of Ultrasonic waves: Magnetostriction Oscillator – Piezoelectric Oscillator – Acoustic grating – Applications of Ultrasonic waves.

Books for study:

1. A Text book of Waves and Oscillations, Ashok K.Ganguli,S.Chand & Company Ltd, Reprint 1994 (**Unit I,II&III**).
2. A Text book of Sound, N.Subrahmanyam, Brijlal, Vikas Publishing House Pvt. Ltd, Reprint, 2006 (**Unit IV & V**).

Books for Reference:

1. Waves and Oscillations, N.Subrahmanyam Brijlal,Vikas Publishing house Pvt.Ltd.,3rd Reprint 2005.
2. A Text book of Sound, M.Ghoush, S.Chand &company Ltd, Reprint 1989.

B.Sc Physics

Semester III & IV

Part III - Core Practical II

415PP2

Credits: 3

Hours: 45

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Calibration of high range voltmeter – Potentiometer.
2. Calibration of very low range Ammeter – Potentiometer
3. Temperature co-efficient of resistance of a coil – Carey-Foster's bridge.
4. Comparison of e.m.fs of two cells – B.G.
5. Figure of merit of B.G.

6. Constant of B.G. – Solenoid inductor method.
7. Comparison of Resistances – B.G.
8. Moment of the magnet due to the field along the axis of the coil – Magnetometer.
9. Magnetic flux density due to the field along the axis of the coil – Magnetometer.
10. Determination of AC frequency – Sonometer.
11. Q factor of a series resonant circuit.
12. Q factor of a parallel resonant circuit.
13. Low pass, high pass & band pass filters.
14. Tracing of Lissajou's figures – CRO.
15. Study of characteristics of a Zener diode.
16. Wavelength of colors of Mercury spectrum – Grating – Normal Incidence Method – Spectrometer
17. Determination of Hartmann's constants – Spectrometer
18. Wavelength of LASER source – Grating
19. Refractive Index of liquid – Hollow prism and Laser Source
20. Reconstruction of a Hologram – Demonstration
21. Measurement of Blood sugar, Blood Pressure & Hemoglobin – Demonstration

B.Sc. Physics

Semester IV

Part IV - Skill Based Course II - Medical Instrumentation

415PS2

Credits: 3

Hours: 45 (C-4, A-5)

Preamble:

Medical instrumentation is in the designing and developing era and every year the hospitals and research institutes are adding modern medical equipments for the medical study. Therefore, it is necessary for every student to understand the Physics principles and functioning of various medical equipments. This paper would enable the students to acquire knowledge about the functioning of some of these medical equipments.

Objectives:

- To familiarize the Biomedical assist devices.
- To develop an understanding about the working principle of specialized medical equipments like CT scan, MRI, Ultra sonogram.

Learning outcome:

- Will be able to know the names of the hospital equipments and their purpose.
- Will be able to learn and appreciate the Physics principles of the equipments.

Unit I Electrodes

(8 hrs)

Transport of ions through the cell membrane – Resting and action potentials – Characteristics of resting potential – Design and Components of the Bio-medical instrument system – Electrodes- half cell potential – Electrode paste – Metallic Microelectrode – Depth and Needle electrode – Surface electrode – Chemical Electrode – pH Electrode.

Unit II Bio Potential Recorders**(8hrs)**

Characteristics of the recording system – Mechanical functions of the heart – Electro Cardiography – Origin of Cardiac Action potential – ECG lead configurations – ECG recording setup – Practical considerations for ECG recording – Analysis of recorded ECG signals

Unit III Physiological Assist Devices**(8hrs)**

Pacemakers – Energy requirements to excite heart muscle – Methods of stimulation – External and Internal Pacemakers – Different modes of operation – Ventricular asynchronous pacemaker – Pacemaker batteries – Lithium cells.

Defibrillators – Internal and External defibrillators – synchronized DC defibrillator – Model of the heart lung machine – Oxygenators – Bubble oxygenators – Blood pumps – Non-Pulsatile pump – Kidney machine – Renal function – Dialysis – Peritoneal dialysis.

Unit IV Operation Theatre Equipment**(8hrs)**

Surgical diathermy : Electro surgery techniques – Electrosurgical diathermy unit – Range and area of irritation of different diathermy techniques – Ventilators – Anesthesia machine – Flow meters – Electromagnetic blood flow meters.

Unit V Advances in Biomedical Instrumentation**(8hrs)**

Endoscopes – Computer tomography – Principle – CT scanner – Thermography – Infrared thermography – Ultrasonic imaging systems: Ultrasonic propagation through tissues – Display modes – A Mode – B Mode – T-M Mode – Recording devices – Ultrasonic imaging instrumentation

Magnetic resonance imaging: Magnetic Resonance phenomenon – MRI instrumentation.

Book for study:

Biomedical Instrumentation, Dr.M.Arumugam, Anuradha Agencies, Vidyakaruppur, Kumbakonam, 2nd edition 6th Reprint, 2003.

Books for reference:

1. Biomedical Instrumentation and Measurements, Leslie Cromwell and Fred S.Weibel Printice Hall of India Rt,New Delhi.
2. Hand book Biomedical Instrumentation, R.S Khandpur, Tata Mc Graw Hill publishing co, 9th Edition 1996

B.Sc. Physics**Semester V****Part III - Core V - Mathematical Physics 515P05****Credits: 4****Hours: 75 (C-60, A-5, Tu-10)****Preamble:**

All Physical phenomena are represented by simple and compact expressions of mathematics. For proper understanding of the basic concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity

as well as other areas of Physics, the topics such as Vector calculus, Differential equations and Numerical methods are required. Therefore “Mathematical Physics” is introduced in the fifth semester as Core Course V.

Objectives:

- To enable the learners to understand Vector calculus
- To learn about the kinds of differential equations and partial differential equations in Physics
- To Study about some of the numerical methods.

Learning Outcome:

- Will be able to learn the application of mathematics to problems in physics.
- Will be able to understand the development of mathematical methods suitable for applications and for the formulation of physical theories.

Unit I Vectors- I (12hrs)

Line, Surface and Volume integrals – Divergence and Curl of a vector function – Simple Problems – Important vector identities – Gauss divergence theorem and Proof – Problems using Gauss divergence theorem – Equation of Continuity – Euler’s equation of motion – Bernoulli’s equation.

Unit II Vectors- II (12hrs)

Stoke’s theorem and Proof – Problems using Stoke’s theorem – Green’s theorem and its Proof using Gauss divergence theorem – Green’s theorem in a plane – Classification of vector fields

Orthogonal curvilinear coordinates – Gradient, Divergence, Laplacian and Curl in terms of orthogonal curvilinear coordinates – Spherical polar coordinates and differential operators – Cylindrical coordinates and differential operators.

Unit III Differential equations (12hrs)

Bessel’s differential equation – Bessel’s function of first kind – Bessel’s half orders – Recurrence formulae for $J_n(x)$ – Generating Function for $J_n(x)$ – Laguerre’s Differential Equation and Laguerre Polynomials – Generating Function for Laguerre Polynomials – Rodrigue’s Formula for Laguerre Polynomials – Recurrence relations for Laguerre Polynomials.

Unit IV Classical Mechanics (12hrs)

Constraints and degrees of freedom – Holonomic and non-holonomic constraints – Generalised co-ordinates – Generalised notations – Generalised displacement – Generalised velocity – Generalised momentum – Generalised force.

Hamilton’s variational principle – Deduction of Lagrange’s equations of motion from Hamilton’s principle for conservative system – D’Alembert’s principle – Lagrange’s equations from D’Alembert’s principle for Conservative system – Application of Lagrange’s equation of motion – Simple Pendulum.

Unit V Numerical Methods (12hrs)

Solution of algebraic equations – Bisection method – Newton-Raphson method – Solution of linear algebraic equation – Gauss elimination method.

Numerical integration – Quadrature formula for equidistant co-ordinates – Trapezoidal rule – Simpson’s rule – Numerical solution of ordinary differential

equations – Taylor's series method – Euler's method – Fourth order Runge-Kutta method.

B.Sc. Physics

Semester V

Part III - Core VII - Electronic devices and circuits 515P07

Credits: 4

Hours: 60 (C-54, A-3, Tu-3)

Preamble:

The field of electronics has occupied the major areas of applications in the field of science and technology. A basic knowledge about the electronic devices and circuits would help the students appreciate their practical applications.

Objectives:

- To impart a knowledge about the semiconductor devices and their behaviors.
- To educate their practical applications in various electronic circuitry along with their advantages and disadvantages.

Learning Outcome:

- Students will become familiar to the devices such as special diodes, transistors and their characteristics.
- Students will be able to appreciate the application of these devices in the circuit like power supply, amplifiers, signal generators etc.

Unit I Special diodes

(10hrs)

Introduction – PN-Junction diode – V-I Characteristics – Diode-current equation – Effect of Temperature on Diode Characteristics – Static and Dynamic resistance of a diode – Zener diode – V-I Characteristics – Schottky diode – V-I Characteristics – Schottky diode applications – Varactor diode – Specifications – Application in tuning circuits – LED – LED voltage drop and current – Multicolour LED.

Unit II Rectifiers, Filters and Regulated Power Supply

(11hrs)

Half wave rectifier – Average values of output voltage and load current – PIV of HWR – Full wave rectifier – Centre-tapped full wave rectifier – Average values of output voltage and load current – Bridge rectifiers – PIV of Bridge rectifiers – Advantages and Disadvantages – Ripple factor and efficiency of HWR and FWR – TUF – Comparison – **Worked out examples.**

Filters – Inductor filter – Capacitor filter – LC filters – π -Filters – **Worked out examples.**

Voltage regulator – Zener diode shunt regulator – Working – Optimum value of current limiting resistor – Disadvantages – IC voltage regulators : Fixed positive linear voltage regulator – Complete DC power supply circuit – **Worked out examples.**

Unit III Bipolar Junction Transistor

(11 hrs)

BJT – Operations of BJT (NPN , PNP) – Current gain in CB and CE Configuration – Relation between current gain α and β – Current gain in CC Configuration – Leakage current in CE BJT – Characteristics of CE Configuration – Maximum power dissipation in BJT – D.C operating point and load line – Drawing D.C load line – Q point and maximum undistorted output – Stability factor – Voltage divider bias – Stability of voltage divider bias – Classification of amplifiers – Single stage Common Emitter transistor amplifier – Analysis of CE amplifiers – CE amplifier

parameters – Frequency response – Gain stability in CE amplifier – Characteristics and uses of CE amplifiers – **Worked out examples.**

Unit IV Transistor Amplifiers

(11hrs)

Power amplifiers – Difference between power and voltage amplifiers – Performance parameter – Class A amplifiers – Characteristics – Class B amplifiers – Characteristics and power relation – Class B push-pull amplifiers – Crossover distortion – Efficiency – Feedback amplifiers – Principle – Advantages and disadvantages – **Worked out examples.**

Unit V Transistor Oscillators and wave shaping circuits

(11hrs)

Classification of oscillators – Oscillatory circuit – The Barkhausen criterion – Hartely oscillator – Collpitt's oscillator – Multivibrators – Astable multivibrator – Types of wave-shaping circuits – Linear wave shaping circuits – Differentiating circuits – Applications – Generation of narrow pulse from square wave – Integrating circuits – Applications – Generation of triangular wave forms from square wave – Clamping circuits – Voltage doubler.

Books for study:

1. A Text book of Applied Electronics, R.S.Sedha, Chand & Co. Ltd., 1st edition, Reprint 1998, NewDelhi.
2. Basic Electronics Solid state, B.L. Theraja, Chand & Co.Ltd., 1st edition 1998 , Reprint 2002, NewDelhi.

Books for Reference:

1. Foundations of electronics, D.Chattopadhyay & Others, Wiley Eastern Ltd., Edition 1993.
2. Principles of Electronics, Albert Malvino, Tata McGraw Hill Publishing.

B.Sc. Physics

Semester V

Part III - Core Practical III

515PP3

Credits: 4

Hours: 90

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Cauchy's constants – Spectrometer.
2. i – d Curve and refractive index ' μ ' – Spectrometer.
3. Absolute measurement of capacity – B.G.
4. High resistance by leakage – B.G.
5. Band gap energy of a Thermistor.
6. Study of absorption of laser light on various filters – Demonstration.
7. Characteristics of LED – Laser Source
8. Study of magnetic field with current
9. Determination of magnetic susceptibility and paramagnetic materials
10. Determination of compressibility of liquids-Acousto optic effect

11. Wave shaping circuits – Generation of square wave from triangular wave and triangular wave from square wave.
12. Transistor characteristics (PNP or NPN)
13. Voltage Doubler.
14. Single stage RC coupled amplifier.
15. Construction of Half wave, Full wave and Bridge wave rectifier and tracing their output wave forms.
16. IC regulated power supply (5V regulator using 7805).
17. Hartley oscillator using BJT
18. Colpitt's oscillator using BJT.
19. Inverting and Non-Inverting amplifier using OPAMP 741
20. Adder and subtractor using OPAMP 741
21. Peaking Amplifier using OPAMP 741

B.Sc. Physics

Semester V

Part III - Elective I - Nano Sciences

515PE1

Credits: 4

Hours: 60 (C-56, A-4)

Preamble:

“There’s Plenty of Room at the Bottom” – so said Richard Feymann describing a process by which the ability to manipulate individual atoms and molecules might be developed, using one set of precise tools to build and operate, another a smaller set and so on down to the needed scale.

Nanotechnology mainly consists of the processing of separation, consolidation and deformation of materials by one atom or molecule. The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes(CNTs). At present the practice of Nanotechnology embraces both Stochastic and deterministic approach.

Objectives:

- To impart knowledge about properties and synthesis of Nanomaterials
- To develop an understanding about characterization techniques and applications of Nanomaterials.

Learning outcome:

- Will learn about the basic classification of nanomaterials and special Nanomaterials
- Will acquire knowledge about Nanomaterials, analytical instrumentation and applications in cosmetics, textiles, sensors etc.,

Unit I Generations of Nanomaterials and Properties

(13hrs)

Nanotechnology Generation – Definition of Nanoscience, Nanotechnology – Surface to Volume Ratio at Nanoscale – Mechanical properties – Thermal properties – Optical properties – Electrical properties – Magnetic properties.

Unit II Classification and Special Nanomaterials (13hrs)

Classification of Nanomaterials: 2D, 1D and 0D Nanomaterials – Fullerene – Carbon Nano tubes – Types of Nanotubes – Synthesis of CNT – Properties of CNT – Applications of CNT – Porous Silicon.

Unit III Nanomaterial Synthesis (13hrs)

Top Down and Bottom up Techniques – Chemical methods of synthesis: Sol-Gel method – Hydrothermal synthesis – Microwave synthesis.

Physical methods of synthesis: High energy Ball milling – Laser ablation – Sputter deposition – Plasma Arc discharge.

Unit IV Characterization Techniques (13hrs)

(Portion covers Instrumentation, working principle and analysis technique towards Nanoscale).

Electron Microscopes: SEM – AFM

Nano manipulator – Nanotweezers.

Optical Microscope: Confocal Microscope

Diffraction Method: X-ray Diffraction Technique Debye-Scherrer Relation

Unit V Applications of Nanomaterials (13hrs)

Nano sensors : Nano pressure sensor – Bio sensors

Nano electronics: Single Electron Transistor

Nanotechnology in energy : Quantum Dot solar cells

Nanotechnology in textiles: Characteristics of nano finishing in garments – UV protection of textiles – Antibacterial textiles

Nano technology in Cosmetics :Sun screen lotion – Anti ageing creams-Tattoos.

Books for study:

1. Nanotechnology Principles and Practices, Sulabha K Kulkarni, 2nd edition, Capital publishing company, New Delhi.
2. Introduction to NanoScience and Nanotechnolgy, K.K.Chattopadhyaya and A.N Banerjee First Edition, PHI learning Private Ltd., New Delhi.
3. Nanotechnology, Technology Revolution of 21st Century, Er. Rakesh Rathi, S.Chand &Company Ltd, New Delhi, 1st edition 2009.
4. Nanomaterials, Nanotechnologies and Design, Micheael F.Ashby, Paulo J. Ferreira Daniel L. Schodel, First Printed in India 2011, Elsevier India Pvt. Ltd.

B.Sc. Physics

Semester V

Part III – Elective II- Project and Viva - voce

515PE2

Credits: 4

Hours: 60

Objectives:

- To motivate the students to do project at micro level in Physics.
- To familiarize the students with the recent areas of research in Physics
- To develop independent thinking of students
- To explore the knowledge about the experimental methods
- To enhance the presentation skills in the report working
- To raise the confidence level of students in pursuing higher studies and research in future

B.Sc. Physics

Semester VI

Part III - Core VIII - Electricity and Magnetism

615P08

Credits: 4

Hours: 75 (C-60, A-5, Tu-10)

Preamble:

Electricity, Magnetism and Electromagnetic theory are subject topics of all times. These topics have many applications in our day-to-day life.

Objectives:

- To impart the knowledge about the basic concepts of electric and magnetic field.
- To facilitate an understand of the applications of electrostatics, Electromagnetics and circuit analysis.

Learning outcome:

- Will learn to understand the electrical circuits by finding the current and voltage in the electrical loops.
- Will gain knowledge about electromagnetic oscillations, RLC circuits and electromagnetic theory.

Unit I Electrostatics

(12hrs)

Gauss's law & proof – Gauss's law in differential form – Gauss's law and Coulomb's law – Laplace and Poisson's equation – Applications: Electric field due to an uniformly charged sphere – field due to two concentric spherical conductors – Field of a line charge – Field of a charged conductor – Force on the surface of a charged conductor – Demonstration of mechanical force – **Worked out examples.**

Unit II Capacitors and Magnetic field

(12hrs)

Parallel plate capacitor – Cylindrical capacitor – Spherical capacitor – Guard Ring Capacitor – Energy stored in a capacitor – Force of attraction between capacitor plates – Dielectric constant - Dielectric strength .

Magnetic field due to steady current : Bio-Savart Law - Ampere's circuital law and proof – Applications of Ampere's law – **B** near a long wire – B for a Solenoid – B for a Toroid – Character of **B** lines and the divergence of **B** – Ampere's law in curl form – **Worked out examples.**

Unit III Electromagnetic Induction (12hrs)

Inductor and inductance – Self inductance – Physical significance of self inductance – Self inductance of a Solenoid – Two parallel wires – Toroidal coil of circular cross section – Energy stored in magnetic field – Measurement of self inductance by Rayleigh's method – Mutual inductance – Mutual inductance of concentric solenoids – Relation between mutual inductance and self inductance – Inductances in series and in parallel Measurement of mutual inductance – **Worked out examples.**

Unit IV Electromagnetic oscillations (12hrs)

Simple R-L circuit: Growth and decay of current (Helmholtz Equation) –RC Circuit Charge and discharge of a condenser – Determination of high resistance by leakage method – Series LCR circuit – Charge and discharge – **Worked out examples.**

A.C circuit: A Parallel (or Anti) resonant circuit – Parallel resonant circuit when inductance L have some resistance – Condition for unity power factor – Current magnification – Selectivity of a parallel resonance circuit – Comparative study of a series resonant and parallel resonant circuit – Power in AC circuit – Choke coil – **Worked out examples.**

Unit V Circuit Analysis (12hrs)

Classification of circuits – Laws and Theorems for Circuit Analysis: Superposition theorem – Thevenin's theorem – Norton's theorem – Maximum power transfer theorem – **Worked out examples.**

Electromagnetic theory: Basic equations – Maxwell's equations in free space – Electromagnetic waves in free space – Electromagnetic waves in isotropic non-conducting media – Index of refraction.

Book for study:

1. Electricity and Magnetism, Dr. K.K. Tewari, S.Chand & Co. Ltd., New Delhi, Revised edition 2011.

Books for reference:

1. Electricity and Magnetism, R. Murugesan, S.Chand & Co. Ltd., New Delhi, 1995 edition.
2. Electricity and Magnetism, A.S.Mahajan, A.A. Rangawala, Tata McGraw Hill Publishing Co.Ltd, New Delhi, 1998 edition.

B.Sc. Physics Semester VI

Part III - Core X - Digital Electronics and Microprocessors 615P10

Credits: 4

Hours: 75 (C-60, A-10, Tu-5)

Preamble:

The digital electronics and digital devices with the integrated circuit technology are playing a significant role in the day-to-day life. The designing and fabrication technology of these devices paves a vivid understanding at the UG level. Also the binary logic with which these digital devices operate would facilitate the students to learn and appreciate the applications of the digital devices.

Objectives:

- To familiarize the technology involved in the manufacturing of the linear and digital ICs and their applications
- To instill the foundation level knowledge in the digital circuits for arithmetic, logic and sequential operations such as counting, storing etc.

Learning Outcome:

- Students will learn about the step-by-step industrial method of IC fabrication.
- Students will develop an understanding of binary concepts, circuits which generate binary outputs and also the arithmetic and logic operations carried out by circuits such as Microprocessors.

Unit I Arithmetic Circuits**(11hrs)**

Binary addition – Binary subtraction – Logic gates – NAND and NOR as Universal gates – Postulates of Boolean Algebra – Theorems of Boolean Algebra – Simplification of Boolean expressions using Karnaugh maps and gates – Half adder – Full adder – Half subtractor – Full subtractor – Encoder – Decimal to BCD encoder – Decoder – Seven-segment decoders – **Worked out examples.**

Unit II Sequential circuits**(10hrs)**

Flip flops – RS flip flop – D flip flop – JK flip flop – Asynchronous counter – MOD-16 ripple counter – Synchronous counter – Decade counter and wave forms – Shift registers – Serial IN Serial OUT Shift registers – Ring counter – application to digital clock.

Unit III IC Technology and its applications**(11hrs)**

Introduction – Advantages of ICs-Classification by structure and function – IC terminology – IC technology: Fabrication of components like transistors, diodes, resistors and capacitors – Operational amplifiers – Ideal OPAMP – Virtual ground and summing point – Applications – Inverting amplifier – Non-inverting amplifier – Adder, Subtractor – Peaking amplifier – **Worked out examples.**

Unit IV Memory**(9hrs)**

Semiconductor memory – Characteristics – RAM – ROM – ROM, PROMs and EPROMs : Programming – EEPROM : Flash memory – RAMs – SRAM – Sequential programming logic devices – PLD – CPLD – Magnetic memory – Magnetic recording – Magnetic bubble memories.

Unit V INTEL 8085 Microprocessor**(11hrs)**

Organization of a Microprocessor based system – Operating system – Single board Microprocessors – Microprocessor INTEL 8085 – Architecture details – Instruction Format – Instruction set of 8085 – Microprocessor addressing modes (with examples) – Programs to add two 8 bit numbers, to subtract two 8 bit numbers, to sort 8 bit numbers in ascending and descending order.

Books for study:

1. Basic electronics solid state, B.L.Theraja, S.Chand & Co. Ltd., Reprint 2002, New Delhi (**Unit I**).
2. Digital Principles and applications, A.P.Malvino and D.P.Leach, McGraw Hill Publishing 4th edition (**Unit II, III & IV**).
3. Microprocessor, Architecture Programing and Application with 8085, Ramesh S.Gaonkar, Penram International Publishing, 3rd edition (**Unit V**).

4. Digital Electronics and Microcomputers, R.K.Gaur, Dhanpat Rai Publications , 3rd Revised and enlarged Edition (**Unit V**).

Books for Reference:

1. Introduction to Microprocessors, Aditya Mathur.
2. Digital Principles and applications, A.P. Malvino and D.P. Leach, McGraw Hill Publishing 3rd and 6th edition, New Delhi.

B.Sc. Physics

Semester VI

Part III - Elective III - Programming in C

615PE3

Credits: 4

Hours: 60 (C-56, A-4)

Preamble:

C has emerged as the language of choice for most of the scientific applications due to speed, portability and compactness of code. This paper enables the student to understand the high level language and to specialize in C programming.

Objectives:

- Bring about an understanding of the programming concepts of C language.
- To familiarize the C programming features such as structures, file management, error handling etc.

Learning outcome:

- Students will be able to write programmes for scientific and mathematical problems.
- Students will learn the applications of the language for coding purpose during their higher studies and research etc., because of its versatility.

Unit I

(12hrs)

Constants, Variables and Data types Basic structure of a C program – Character set – C tokens – Key words and identifiers – Constants, Variables – Data types – Declaration of variables – Assigning values to variables – Defining symbolic constants.

Operators and expressions - Arithmetic operators – Relational operators – Logical operators – Assignment operators – Increment and Decrement operators – Conditional operators – Bit wise operators – Special operators – Arithmetic expressions – Evaluation of expressions – Precedence of operators – Mathematical functions.

Unit II

(11hrs)

Managing input and output operations - Reading a character – Writing a character – Formatted input – Formatted output.

Decision Making and Branching - Decision making with if statement – Simple if statement – The ..if. else statement – Nesting of if...else statement – The else... if ladder – The switch statement – The ? Operator – The go to statement.

Unit III

(11hrs)

Decision Making and Looping - The While statement – The do statement – The for statement – Jumps in loops.

Arrays – One dimensional arrays – Declaration of one dimensional arrays – Initialization of one dimensional arrays – Two dimensional arrays – Initializing two dimensional arrays.

Unit IV (11hrs)

Handling of character arrays and strings – Declaring and initializing string variables – Reading strings from terminal – Writing string to screen – String handling functions.

User defined functions: Elements of user defined function – Definition of function – Return values and their types – Function calls – Function declaration – Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns values – Recursion.

Unit V (11hrs)

Structure – Defining a structure – Declaring structure variable – Accessing a structure member – Structure initialization – Structures within structures.

File management in C – Defining and opening a file – Closing a file – Input/Output operations on files – Error handling in files.

Book for study:

1. Programming in ANSI C, E.Balagurusamy, Tata McGraw Hill Publishing Co. Ltd., 3rd edition, 2004, New Delhi.

Books for reference:

1. Let us C, Yashavant Kanetkar, BPB Publications, 3rd edition, 1999, New Delhi.
2. Spoken Tutorial Project (C) as e-Resource for Learning, IIT, Mumbai under National Mission on Education through ICT, MHRD, Govt. of India.
www.spoken-tutorial.org
3. A text book on C : Fundamentals, Data Structures and Problem Solving, E.Karthikeyan, Prentice Hall India Learning Private Limited, 2008 edition.

B.Sc. Physics

Semester VI

Part III – Core Practical IV

615PP4

Credits: 6

Hours: 90

LIST OF PRACTICALS

(A minimum of 15 experiments)

(Use of LabView software)

1. Stoke's formula – Spectrometer.
2. Measurement of thermo e.m.f. using thermo couple and Potentiometer
3. Absolute measurement of mutual inductance – B.G.
4. High resistance by charging – B.G.
5. Determination of divergence & Beam spot of the laser source.
6. Measurement of Numerical aperture – Optical fiber & Laser source
7. Determination of fiber attenuation – Optical fiber & Laser source

8. Characteristics of Photo detector – Laser Source
9. Determination of particle size (Nano particles)
10. Determination of charge to mass ratio of an electron
11. Logic gates using discrete components & Verification of gates – OR, AND, NOT, NAND, NOR & XOR using IC's.
12. NAND gates as universal building block.
13. NOR gates as universal building block
14. J-K and R-S flip-flop using ICs.
15. R-S flip-flop using NAND and NOR gates.
16. Half adder and Full adder using ICs.
17. Half subtractor and Full subtractor using ICs.
18. Decade counter using ICs.
19. Addition & Subtraction of two 8 bit numbers using 8085 microprocessor.
20. Ascending & descending order of an array using INTEL 8085 microprocessor.
21. Synthesis of Nano particles.
22. Coating of Nano film.
23. Conductivity studies of Nano films.

B.Sc Physics

Semester VI

Summer Internship / Training

615PS4

Credits: 3

Hours: 30

Preamble:

Measurement systems are traditionally used to measure physical and electrical quantities, such as mass, temperature, pressure, capacitance and voltage etc. However, they can also be designed to locate things or events, such as the epicenter of an earthquake, employees in a building, partial discharges in a high voltage power cable, or a land mine. Often, a measurement system is called upon to discriminate and count objects, such as red blood cells, or fish of a certain size swimming past a checkpoint. A measurement system is often made a part of the control system. The old saying *‘if you can’t measure it, you can’t control it’* is certainly a valid axiom for both the Control Technician as well as an Instrumentation engineer.

Knowledge of instrumentation is critical in light of the highly sensitive and precise requirements of modern processes and systems. Rapid development in instrumentation technology coupled with the adoption of new standards makes a firm, up-to-date foundation of knowledge more important than ever in most science and engineering fields. Based on the requirement of these knowledge and expertise for the Industry, the students are acquainted with latest equipments and testing methods and also the calibration by undergoing a Hands-on Training in Calibration and measurements during their Internship programme.

Objectives:

- ❖ To familiarize the latest Equipments and Standards available for various levels such as Industry standards, Research standards, laboratory standards etc. To learn the techniques of operation of the devices for the purpose.

- ❖ To learn and perform practical work with equipments and observe various parameters related to errors, corrections, drifts, noise, repeatability, reproducibility, accuracy and precision.
- ❖ To make a record of these and conduct analysis of the results to disclose about the safety and security of the instruments and also their accuracy in the parametric measurements.

Learning Outcome:

- ❖ Students will gain a knowledge about the availability of testing methods and calibration techniques.
- ❖ Students will be familiarized about the equipments and will be able to handle them with care during the programme as well as for future.
- ❖ Will acquire an understanding about the parametric measurements and the need to conduct the testing for the purpose.
- ❖ Will be able to interpret on the results obtained by conducting the analysis in-depth and thus generating the an awareness about validity and performance of the equipments.

Curriculum Framework for the students admitted in the academic year 2015-2016

Department of Physics

Curriculum Design

Sri G.V.G Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

B.Sc Physics

Scheme of Examination – CBCS Pattern

Sem	Course code	Course Title	Ins Hrs/ week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
I	115TA1/ 115MY1/ 115HD1/ 115FR1 115EN1	Part I - Language I	6	3	25	75	100	4
	115P01	Part II - English I Part III - Core I- Mechanics and Properties of Matter	6	3	25	75	100	4
		Core Practical I	3	-	-	-	-	-
	115AP1	Allied I-Chemistry I	4	3	25	50	75	3
		Allied Chemistry Practical	2	-	-	-	-	-
	115EVS	Part IV - Environmental Studies	2	2	50	-	50	2
II	215TA2/ 215MY2/ 215HD2/ 215FR2 215EN2	Part I - Language II	6	3	25	75	100	4
	215P02	Part II - English II Part III - Core II - Heat and Thermodynamics	6	3	25	75	100	4
	215PP1	Core Practical I	3	3	40	60	100	4
	215AP2	Allied II- Chemistry II	4	3	25	50	75	3
	215APP	Allied Chemistry Practical	2	3	20	30	50	2
	215VEC	Part IV - Value Education	2	2	50	-	50	2
III	315TA3/ 315MY3/ 315HD3/ 315FR3 315EN3 315P03	Part I - Language III	6	3	25	75	100	4
		Part II - English III Part III - Core III- Optics	6	3	25	75	100	4
		Core Practical II	3	-	-	-	-	-
	315AP3	Allied III - Mathematics I	6	3	25	75	100	4
		Part IV						
	315PS1	Skill Based Course I- Mechanical Instrumentation	3	3	75	-	75	3
	315NSE	Non-Major Elective Course I: Science in everyday life	2	2	50	-	50	2

IV	415TA4/ 415MY4/ 415HD4/ 415FR4 415EN4 415P04	Part I - Language IV	6	3	25	75	100	4
		Part II- English IV	6	3	25	75	100	4
		Part III- Core IV- Waves and Oscillations	4	3	25	75	100	4
	416PP2	Core Practical II	3	3	40	60	100	4
	415AP4	Allied IV- Mathematics II	6	3	25	75	100	4
	415PS2	Part IV- Skill Based Course -II Medical Instrumentation	3	3	75	-	75	3
	415NGA	Non-Major Elective Course II: General Awareness (On-line)	-	1	50	-	50	2
	415GIS	Information Security	2	2	50	-	Grade	Grade
	415ALP	Advanced Learners Course I - Space Physics	-	3	-	100	100	3*
V	515P05	Part III - Core V- Mathematical Physics	5	3	25	75	100	4
	515P06	Core VI- Atomic and Solid State Physics	4	3	25	75	100	4
	515P07	Core VII- Electronic Devices and Circuits	4	3	25	75	100	4
	515PP3	Core Practical III	6	3	40	60	100	4
	515PE1	Elective I – Nanosciences	4	3	25	75	100	4
	515PE2	Elective II – Project and Viva - voce	4	3	50	50	100	4
	515PS3	Part IV- Skill Based Course-III Electrical and Electronic Instrumentation	3	3	75	-	75	3
VI	615P08	Part III - Core VIII- Electricity and Magnetism	5	3	25	75	100	4
	615P09	Core IX - Quantum Mechanics and Relativity	5	3	25	75	100	4
	615P10	Core X - Digital Electronics and Microprocessors	5	3	25	75	100	4
	615PE3	Elective III- Programming in C	4	3	25	75	100	4
	615PP4	Core Practical IV	6	3	40	60	100	4
	615PPE	Elective Practical Programming in C	2	3	20	30	50	2
	615PS4	Part IV-Skill Based Course-IV Institutional Training	3	-	75	-	75	3
		Part V- Extension activity	-	-	50	-	50	2
	615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5							
	615ALP	Advanced Learners Course II - Energy Physics	-	3	-	100	100	3*
Total			3500			140		

B.Sc Physics

Semester I

Part III - Core I - Mechanics and Properties of Matter 115P01

Credits: 4

Hours: 105 (C-80, A-10, Tu-15)

Preamble:

The purpose of this paper is to give an introductory account of basic ideas in conservation principles and properties of matter.

Objectives:

- To enable the students in order to learn the basic principles, theory and concepts of Matter and Mechanics.
- To impart knowledge about the physical properties of liquids such as viscosity and surface tension of liquids.

Learning outcome:

- Will be able to understand the conservation laws and gravity governing the bodies in motion.
- Will be able to acquire knowledge about elasticity, viscosity and surface tensional properties of matter.

Unit I Conservation Laws

(16hrs)

Conservation laws in general – Concepts of work, power and energy – Conservative forces – Energy – Conservative force as negative gradient of potential energy – Law of conservation of momentum – Centre of mass – Motion of the Centre of mass – Centre of mass frame of reference – Collision – Calculation of final velocities of colliding particles.

Unit II Gravitation

(16hrs)

Kepler's law of motion – Derivation of law of gravitation – Newton's universal law of gravitation – Determination of 'G' by Boy's method – Merits of Boy's method – Acceleration due to gravity – Compound pendulum – Bar pendulum – Points of suspension and oscillations are interchangeable – Minimum time period – **Worked out examples.**

Unit III Elasticity

(18hrs)

Definitions – Yield point, Elastic limit – Elastic fatigue – Poisson's ratio – Poisson's ratio for Rubber – Work done in Deforming a body – Bulk modulus (Relation between K , Y and σ) Modulus of Rigidity – Relation between elastic constants (Y , η , K and σ) – Twisting of a cylinder – Torsion pendulum – Bending of beams – Bending moment – Cantilever – Beam supported at its ends and loaded in the middle – I Section girders – Determination of elastic constants by Searle's method – **Worked out examples.**

Unit IV Viscosity

(16hrs)

Stream line motion and Turbulent flow – Poiseuille's formula – Correction to Poiseuille's formula – Poiseuille's experiment (Variable pressure head)-Ostwald's viscometer – Terminal velocity and Stoke's formula – Stoke's method – Variation of viscosity with temperature and pressure – Friction and lubrication – Searle's viscometer – Rankine's method for the determination of viscosity of gas.

Unit V Surface tension

(14hrs)

Surface tension – Explanation of surface tension on kinetic theory – Work done in increasing the area of a surface – Work done in blowing a bubble – Angle of contact – Spreading of one liquid over another – Pressure difference across a liquid surface – Excess pressure inside a curved liquid surface – Force between two plates separated by a thin layer of a liquid – Determination of surface tension of a liquid by Jaeger's method – Variation of surface tension with temperature – Quincke's method – Interfacial surface tension between two liquids – **Worked out examples.**

Books for study:

1. Mechanics, D.S.Mathur, N.Chand & Company, 2nd edition (**Unit I**).
2. Properties of Matter, Brijlal N.Subramanyam Eurasia Publishing house, New Delhi, 2nd edition (**Unit II, III**).
3. Properties of Matter and Acoustics, R.Murugesan & Kiruthiga Sivaprasath, Chand & Co. 2012 edition (**Unit IV and V**).

Books for reference:

1. Mechanics and Electrodynamics, Brijlal, N.Subramanyam and Jivan, Sehan,Eurasia Publishing House Private Ltd, New Delhi, Revised and enlarged edition, 2005.
2. Elements of Properties of Matter, D.S Mathur,Shyamalal Charitable trust, New Delhi, Reprint, 2010.

B.Sc. Physics

Semester II

Part III - Core II – Heat and Thermodynamics

215P02

Credits: 4

Hours: 105 (C-80, A-10, Tu-15)

Preamble:

The revolution in Physics can be attributed to the study of Thermodynamics and Statistical Physics. A deep understanding of Thermodynamics is essential in order to appreciate the environmental concepts in Physics.

Objectives:

- To impart knowledge about behavior of gases and concepts about low temperature Physics
- To study about the Thermodynamical laws and their applications in day –today life.

Learning outcome:

- Will learn about the behavior of gases.
- Will be able to understand liquefaction process of gases.
- Will gain knowledge about the application of statistics in Thermodynamics.

Unit I Ideal gas and Behavior of real gases

(18hrs)

Three states of Matter – Kinetic model - Kinetic theory of gases – Expression for the pressure Exerted by a gas – Derivation of Gas equation – Derivation of gas laws – Charles law – Boyle's law – Degree of Freedom – Andrew's experiment on

CO₂ – Critical Constants – Behavior of gases at high pressure – Boyle Temperature – Vanderwaal's equation of state – Comparison with Experimental PV Curves – Estimation of critical constants – Constants of Vanderwaal's Equation – Critical Coefficient – Limitations of Vanderwaal's Equation – Reduced Equation of State – Properties of Matter near critical point – Experimental determination – **Worked out examples.**

Unit II Transport phenomena in gases (16hrs)

Joule's Law for a perfect gas (Intermolecular attraction) – Joule-Thomson Effect – Joule-Thomson Porous Plug experiment – Regenerative Cooling (Theory Porous Plug experiment) – Joule-Kelvin effect – Temperature of Inversion – Relation between T_B , T_i and T_c – Mean free path – Sphere of influence – Expression for Mean free path (Clausius Expression) – Viscosity: Transport of momentum – Thermal Conductivity: Transport of Thermal energy – Liquefaction of Hydrogen – Liquefaction of Helium – Properties of liquid He I and He II – Production of low temperature – Adiabatic demagnetization – Measurement of low temperature: (Helium Vapour Pressure Thermometer)

Unit III Thermodynamics (18hrs)

Zeroth law of Thermodynamics – First law of thermodynamics – Application of first law of thermodynamics – Specific heat capacity of a gas – Isochoric process – Isobaric process – Adiabatic process – Isothermal process – Reversible and Irreversible process – Carnot's Ideal heat engine – Carnot's cycle – Carnot's engine and refrigerator – Second law of thermodynamics Carnot's theorem – Clapeyron's Latent heat equation using Carnot's Cycle – Concept of Entropy – Change in Entropy – Change in entropy in a reversible cycle – Change in entropy in an irreversible process – Kelvin's Thermodynamic Scale of Temperature – Third law of thermodynamics : Nernst's Heat Theorem – Maxwell's thermodynamical relations – **Worked out examples.**

Unit IV Statistical aspects of Thermodynamics (14hrs)

Probability – Principle of equal A priori probability – Some basic rules of probability theory – Permutations and Combinations – Macrostate and Microstate – Thermodynamical probability – Fluctuations and their dependence – Constraints on a system – Static and Dynamic systems – Most probable State – Concept of a cell in a component – Phase Space – Applications: One-Dimensional Harmonic Oscillator – Entropy and Probability – Boltzmann's Canonical distribution law – The equipartition of energy – Partition function and its relation with thermodynamic quantities – **Worked out examples.**

Unit V Thermodynamical distribution (14hrs)

Three Kinds of Particles – Maxwell-Boltzmann Energy distribution law – Bose – Einstein distribution law – Photon gas – Fermi-Dirac distribution law – Free Electrons in Metal: Electron gas – Comparison of three statistics – Difference between Classical and Quantum Statistics.

Books for study:

1. Heat and Thermodynamics, Brijlal and Subramaniam, S.Chand & Co. Reprint 2006 (Unit I – V).

Books for reference:

3. Heat and Thermodynamics, S. Singhal & J.B. Agarwal, Pragathi Prakashan Publishing, Reprint 1995.
4. Text book of Heat and Thermodynamics, J.B. Rajam & C.L. Arora, Chand & Co. 10th Reprint.

B.Sc. Physics**Semester I & II****Part III – Core Practical I****215PP1****Credits: 3****Hours: 45****LIST OF PRACTICALS**

(A minimum of 15 experiments)

1. Acceleration due to gravity – Compound pendulum.
2. Rigidity modulus of the material of the wire & Moment of Inertia of the disc – Torsion pendulum.
3. Rigidity modulus of the material of the rod – Static torsion.
4. Young's modulus – Uniform bending – Pin & Microscope.
5. Young's modulus – Non-uniform bending – Pin & Microscope.
6. Surface tension and interfacial tension – drop weight method.
7. Co-efficient of viscosity of highly viscous liquids (castor oil) – Stoke's method.
8. Co-efficient of viscosity of water and comparison of radii of capillary tubes – Poiseuille's flow.
9. μ of the material of the prism – Spectrometer.
10. Resolving power of a grating – Minimum deviation – Spectrometer
11. Melting point of wax using thermistor – ohm's law.
12. Calibration of low range voltmeter – Potentiometer.
13. Calibration of high range ammeter – Potentiometer.
14. Impedance and power factor of an Inductive circuit.
15. Verification of laws of stretched string & determination of unknown frequency of the tuning fork – Sonometer.
16. Study of characteristics of a Junction diode.
17. Thermal conductivity of a bad conductor (cardboard) – Lee's disc method.
18. Specific heat capacity of a liquid – Joule's calorimeter.
19. Y , η , σ – Searle's double bar pendulum.
20. Frequency of an electrically maintained tuning fork – Melde's string.

B.S.c Mathematics / B.Sc. Chemistry**Semester I & II****Allied Physics Practicals****215AMP/215ACP****Credits:****Hours: 30****LIST OF PRACTICALS**

(A minimum of 15 experiments)

1. Acceleration due to gravity – Compound pendulum
2. Young's modulus – Non-uniform bending – Optic lever, Scale and Telescope.

3. Young's modulus – Cantilever depression – Scale and Telescope.
4. Rigidity modulus of the material of the wire – Torsion Pendulum.
5. Rigidity modulus of the material of the rod – Static torsion.
6. AC frequency – Sonometer
7. Calibration of low range voltmeter – Potentiometer.
8. Calibration of high range ammeter – Potentiometer.
9. Measurement of resistance – Potentiometer.
10. Temperature co-efficient of resistance – Ohm's law - Thermistor.
11. Characteristics of a Zener diode.
12. Characteristics of FET.
13. Characteristics of a junction diode.
14. Verification of AND, OR, NOT, NAND, NOR & XOR gates – IC's.
15. Half adder & Full adder using IC's.
16. Half subtractor & Full subtractor using IC's.
17. NAND as universal building block.
18. De-Morgan's theorem using logic gates.
19. NOR as universal building block.
20. Solving Boolean equations using gates.

**B.Sc. Physics
Semester III**

Part IV - Skill Based Course I - Mechanical Instrumentation 315PS1

Credits: 3

Hours: 45 (C-40, A-5)

Preamble:

Experiment is an act or operation carried out under condition determined by experimental in order to discover some unknown principle and effect to test establish and illustrate some suggested or known truth. Experimentation is vital for progress in any field where information is lagging. The measurements and the correct interpretation thereof might be used to study the functioning of different components which comprise a particular system, determine the cause of malfunctioning of the system and have a thorough understanding of its operation.

Objectives:

- To provide a good foundation in measurement concepts.
- To introduce knowledge of the parameters that needs to be measured.
- To provide a knowledge of the functioning of instruments for parametric measurement.

Learning outcome:

- Will learn the characteristics of each type instrument and the errors associated in the measurement.
- Will acquire information about the working principle and the parameters of measurements

Unit I Characteristics of instruments and measurements system (8 hrs)

Methods of measurements – Classification of instruments – Analog and digital modes of operation – Static characteristics – True value – Static error – Static correction –

Scale range and Scale pan – Reproducibility and Drift – Repeatability – noise – Accuracy and Precision – Significant figures – Limiting errors – Types of errors – Gross errors – Systematic errors – Instrumental errors – Observational errors – Random errors.

Unit II Production and measurement of low pressure (8 hrs)

Exhaust pumps – Characteristics – Rotary oil pumps – Mercury pumps (Geissler pumps) – Diffusion-Condensation pumps – Measurement of low pressure – The Bourdon gauge – McLeod gauge – The Pirani resistance gauge – Ionization gauge (Hot cathode) – Knudsen gauge.

Unit III Measurement of Temperature (8hrs)

Electrical resistance thermometer: Platinum resistance thermometer – Salient features of resistance wire thermometers – Thermocouple thermometer – Thermocouple construction – Measurement of thermocouple output – Advantages and Disadvantages – Optical pyrometers – Disappearing filament type.

Unit IV Measurement of flow and liquid level (8 hrs)

Turbine flow meter – Orifice flow meter – Hot wire Anemometer – Measurement of liquid level: Resistive method – Capacitive method – Inductive method – Measurement of liquid level using float.

Unit V Measurement of Humidity and thickness (8 hrs)

Hygrometer – Dew point hygrometer – Surface conductivity method – Measurement of thickness: Inductive method – Measurement of thickness using ultra sonic vibrations – Nuclear radiation method.

Books for study:

1. Electrical and Electronic Measurements and instrumentation, A.K.Sawhney – Dhanpat Rai & Sons Publications – 1991 Revised 4th Edition.
2. Industrial Instrumentation, K.Krishnaswamy and S. Vijaya chitra – New age International Publishers 1st edition – Reprint 2008.

Books for Reference:

1. Instrumentation Devices and Systems, C.S. Rangan, G.R.Sharma and V.S.V.Mani–11th Reprint 1992, TataMcGraw Hill Publishing Ltd, New Delhi.
2. Experimental methods for Engineers, J.P.Holman – Fifth edition – Mc Graw, Hill International Book Company.

B.Sc. Physics

Semester IV

Core IV - Waves and Oscillations

415P04

Credits: 4

Hours: 60 (C-54, A-3, Tu-3)

Preamble:

Sound is a stimulus that acts on the sense of hearing. It is the sensation that is received by our ear. The science of sound generally known as Acoustics which is a branch of physics dealing with the external disturbances which give rise to the above sensation. It explains the

nature, phenomenon, and laws of sound generation and propagation. A medium of material nature is necessary for the propagation of sound. The propagation of sound through a medium takes place by transfer of disturbance from particle to particle by their to and fro motion.

Objectives:

- To provide knowledge about waves, oscillations and acoustics.
- To bring about an understanding on the velocities of sound and its variation for the temperature, pressure, etc.

Learning Outcome:

- Will be able to understand the concept of waves and its nature.
- Will be able to appreciate the effect of sound waves as it vibrates inside & outside the building as a branch of acoustics.

Unit I Damped Harmonic Oscillator

(12hrs)

Damped vibrations – Power dissipation – Quality factor – Moving coil Galvanometer – Damping on the moving part of the galvanometer: Mechanical damping – Electromagnetic damping Logarithmic decrement – Electromagnetic damping correction.

Driven Harmonic Oscillator: Driven or forced harmonic oscillator – Sharpness of Resonance – Power absorption in driven oscillator – Quality factor – Bandwidth and selectivity of Resonant circuit.

Unit II Waves

(11hrs)

Waves-nature, production and propagation – Equation of progressive wave – Forms of the wave equation – Longitudinal waves – Water waves – General wave motion – Characteristic of wave motion – Transmission energy – Sound waves – Sound wave in a gas – Pressure variation in a sound wave – Energy density of a wave – **Worked out examples.**

Unit III Superposition of waves

(11hrs)

Principle of Super position – Stationary waves – Characteristic of a stationary wave – Analytical treatment of stationary waves – Nature of stationary waves – Pressure and density changes at displacement nodes and antinodes – Distribution of energy in a stationary wave – Phenomena of beats-Beats and modulation – Square-law detector – Wave velocity and particle velocity – Group velocity and waves in dispersive media.

Unit IV Velocity of Sound

(11hrs)

Origin of Sound – Velocity of longitudinal waves in gases – Newton's formula for velocity of sound – Effect of temperature and pressure on velocity of sound in gases – Effect of density, humidity and wind – Velocity of sound in water – Velocity of sound in air – Velocity of sound in Isotropic Solids.

Ultrasonics – Determination of velocity of ultrasonic waves – Production – Magnetostriction oscillators – Applications of ultrasonics – Medical applications – Chemical effects.

Unit V Acoustics and Ultrasonics

(11hrs)

Acoustics – Reverberation – Sabine's Reverberation formula – Determination of Absorption Co-efficient – Factors Affecting the Acoustics of Buildings – Sound Distribution in an Auditorium – Requisites for good Acoustics.

Ultrasonics-Production of Ultrasonic waves: Magnetostriction Oscillator – Piezoelectric Oscillator – Acoustic grating – Applications of Ultrasonic waves.

Books for study:

1. A Text book of Waves and Oscillations, Ashok K.Ganguli,S.Chand & Company Ltd, Reprint 1994 (**Unit I,II&III**).
2. A Text book of Sound, N.Subrahmanyam, Brijlal, Vikas Publishing House Pvt. Ltd, Reprint, 2006 (**Unit IV & V**).

Books for Reference:

1. Waves and Oscillations, N.Subrahmanyam Brijlal,Vikas Publishing house Pvt.Ltd.,3rd Reprint 2005.
2. A Text book of Sound, M.Ghoush, S.Chand &company Ltd, Reprint 1989.

B.Sc. Physics
Semester III & IV
Part III - Core Practical II **416PP2**

Credits:4

Hours: 45

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Calibration of high range voltmeter – Potentiometer.
2. Calibration of very low range Ammeter – Potentiometer
3. Temperature co-efficient of resistance of a coil – Carey-Foster's bridge.
4. Comparison of e.m.fs of two cells – B.G.
5. Figure of merit of B.G.
6. Moment of the magnet due to the field along the axis of the coil – Magnetometer.
7. Magnetic flux density due to the field along the axis of the coil – Magnetometer.
8. Wavelength of colors of Mercury spectrum – Grating – Normal Incidence Method – Spectrometer
9. i-d curve Spectrometer
10. Determination of Hartmann's constants – Spectrometer
11. Wavelength of LASER source – Grating
12. Refractive Index of liquid – Hollow prism and Laser Source
13. Determination of AC frequency – Sonometer.
14. Q factor of a series resonant circuit.
15. Q factor of a parallel resonant circuit.
16. Low pass, high pass & band pass filters.
17. Study of characteristics of a Zener diode.
18. Construction of low voltage power supply using diodes.
19. Tracing of Lissajou's figures – CRO.
20. Reconstruction of a Hologram – Demonstration
21. Measurement of Blood sugar, Blood Pressure & Hemoglobin – Demonstration

B.Sc. Physics

Semester IV

Part IV - Skill Based Course II - Medical Instrumentation 415PS2

Credits: 3

Hours: 45 (C-4, A-5)

Preamble:

Medical instrumentation is in the designing and developing era and every year the hospitals and research institutes are adding modern medical equipments for the medical study. Therefore, it is necessary for every student to understand the Physics principles and functioning of various medical equipments. This paper would enable the students to acquire knowledge about the functioning of some of these medical equipments.

Objectives:

- To familiarize the Biomedical assist devices.
- To develop an understanding about the working principle of specialized medical equipments like CT scan, MRI, Ultra sonogram.

Learning outcome:

- Will be able to know the names of the hospital equipments and their purpose.
- Will be able to learn and appreciate the Physics principles of the equipments.

Unit I Electrodes

(8 hrs)

Transport of ions through the cell membrane – Resting and action potentials – Characteristics of resting potential – Design and Components of the Bio-medical instrument system – Electrodes- half cell potential – Electrode paste – Metallic Microelectrode – Depth and Needle electrode – Surface electrode – Chemical Electrode – pH Electrode.

Unit II Bio Potential Recorders

(8hrs)

Characteristics of the recording system – Mechanical functions of the heart – Electro Cardiography – Origin of Cardiac Action potential – ECG lead configurations – ECG recording setup – Practical considerations for ECG recording – Analysis of recorded ECG signals

Unit III Physiological Assist Devices

(8hrs)

Pacemakers – Energy requirements to excite heart muscle – Methods of stimulation – External and Internal Pacemakers – Different modes of operation – Ventricular asynchronous pacemaker – Pacemaker batteries – Lithium cells.

Defibrillators – Internal and External defibrillators – synchronized DC defibrillator – Model of the heart lung machine – Oxygenators – Bubble oxygenators – Blood pumps – Non-Pulsatile pump – Kidney machine – Renal function – Dialysis – Peritoneal dialysis.

Unit IV Operation Theatre Equipment**(8hrs)**

Surgical diathermy : Electro surgery techniques – Electrosurgical diathermy unit – Range and area of irritation of different diathermy techniques – Ventilators – Anesthesia machine – Flow meters – Electromagnetic blood flow meters.

Unit V Advances in Biomedical Instrumentation**(8hrs)**

Endoscopes – Computer tomography – Principle – CT scanner – Thermography – Infrared thermography – Ultrasonic imaging systems: Ultrasonic propagation through tissues – Display modes – A Mode – B Mode – T-M Mode – Recording devices – Ultrasonic imaging instrumentation

Magnetic resonance imaging: Magnetic Resonance phenomenon – MRI instrumentation.

Book for study:

Biomedical Instrumentation, Dr.M.Arumugam, Anuradha Agencies, Vidyakaruppur, Kumbakonam, 2nd edition 6th Reprint, 2003.

Books for reference:

1. Biomedical Instrumentation and Measurements, Leslie Cromwell and Fred S.Weibel Printice Hall of India Rt,New Delhi.
2. Hand book Biomedical Instrumentation, R.S Khandpur, Tata Mc Graw Hill publishing co, 9th Edition 1996

B.Sc. Physics**Semester V****Part III - Core V - Mathematical Physics****515P05****Credits: 4****Hours: 75 (C-60, A-5, Tu-10)****Preamble:**

All Physical phenomena are represented by simple and compact expressions of mathematics. For proper understanding of the basic concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity as well as other areas of Physics, the topics such as Vector calculus, Differential equations and Numerical methods are required. Therefore “Mathematical Physics” is introduced in the fifth semester as Core Course V.

Objectives:

- To enable the learners to understand Vector calculus
- To learn about the kinds of differential equations and partial differential equations in Physics
- To Study about some of the numerical methods.

Learning Outcome:

- Will be able to learn the application of mathematics to problems in physics.

- Will be able to understand the development of mathematical methods suitable for applications and for the formulation of physical theories.

Unit I Vectors- I

(12hrs)

Line, Surface and Volume integrals – Divergence and Curl of a vector function – Simple Problems – Important vector identities – Gauss divergence theorem and Proof – Problems using Gauss divergence theorem – Equation of Continuity – Euler's equation of motion – Bernoulli's equation.

Unit II Vectors- II

(12hrs)

Stoke's theorem and Proof – Problems using Stoke's theorem – Green's theorem and its Proof using Gauss divergence theorem – Green's theorem in a plane – Classification of vector fields

Orthogonal curvilinear coordinates – Gradient, Divergence, Laplacian and Curl in terms of orthogonal curvilinear coordinates – Spherical polar coordinates and differential operators – Cylindrical coordinates and differential operators.

Unit III Differential equations

(12hrs)

Bessel's differential equation – Bessel's function of first kind – Bessel's half orders – Recurrence formulae for $J_n(x)$ – Generating Function for $J_n(x)$ – Laguerre's Differential Equation and Laguerre Polynomials – Generating Function for Laguerre Polynomials – Radrigue's Formula for Laguerre Polynomials – Recurrence relations for Laguerre Polynomials.

Unit IV Classical Mechanics

(12hrs)

Constraints and degrees of freedom – Holonomic and non-holonomic constraints – Generalised co-ordinates – Generalised notations – Generalised displacement – Generalised velocity – Generalised momentum – Generalised force.

Hamilton's variational principle – Deduction of Lagrange's equations of motion from Hamilton's principle for conservative system – D'Alembert's principle – Lagrange's equations from D'Alembert's principle for Conservative system – Application of Lagrange's equation of motion – Simple Pendulum.

Unit V Numerical Methods

(12hrs)

Solution of algebraic equations – Bisection method – Newton-Raphson method – Solution of linear algebraic equation – Gauss elimination method.

Numerical integration – Quadrature formula for equidistant co-ordinates – Trapezoidal rule – Simpson's rule – Numerical solution of ordinary differential equations – Taylor's series method – Euler's method – Fourth order Runge-Kutta method.

Semester V

Part III - Core VII - Electronic devices and circuits 515P07

Credits: 4

Hours: 60 (C-54, A-3, Tu-3)

Preamble:

The field of electronics has occupied the major areas of applications in the field of science and technology. A basic knowledge about the electronic devices and circuits would help the students appreciate their practical applications.

Objectives:

- To impart a knowledge about the semiconductor devices and their behaviors.
- To educate their practical applications in various electronic circuitry along with their advantages and disadvantages.

Learning Outcome:

- Students will become familiar to the devices such as special diodes, transistors and their characteristics.
- Students will be able to appreciate the application of these devices in the circuits like power supply, amplifiers, signal generators etc.

Unit I Special diodes**(10hrs)**

Introduction – PN-Junction diode – V-I Characteristics – Diode-current equation – Effect of Temperature on Diode Characteristics – Static and Dynamic resistance of a diode – Zener diode – V-I Characteristics – Schottky diode – V-I Characteristics – Schottky diode applications – Varactor diode – Specifications – Application in tuning circuits – LED – LED voltage drop and current – Multicolour LED.

Unit II Rectifiers, Filters and Regulated Power Supply**(11hrs)**

Half wave rectifier – Average values of output voltage and load current – PIV of HWR – Full wave rectifier – Centre-tapped full wave rectifier – Average values of output voltage and load current – Bridge rectifiers – PIV of Bridge rectifiers – Advantages and Disadvantages – Ripple factor and efficiency of HWR and FWR – TUF – Comparison – **Worked out examples.**

Filters – Inductor filter – Capacitor filter – LC filters – π -Filters – **Worked out examples.**

Voltage regulator – Zener diode shunt regulator – Working – Optimum value of current limiting resistor – Disadvantages – IC voltage regulators : Fixed positive linear voltage regulator – Complete DC power supply circuit – **Worked out examples.**

Unit III Bipolar Junction Transistor**(11 hrs)**

BJT – Operations of BJT (NPN , PNP) – Current gain in CB and CE Configuration – Relation between current gain α and β – Current gain in CC Configuration – Leakage current in CE BJT – Characteristics of CE Configuration – Maximum power dissipation in BJT – D.C operating point and load line – Drawing D.C load line – Q point and maximum undistorted output – Stability factor – Voltage divider bias – Stability of voltage divider bias – Classification of amplifiers – Single stage Common Emitter transistor amplifier – Analysis of CE amplifiers – CE amplifier parameters – Frequency response – Gain stability in CE amplifier – Characteristics and uses of CE amplifiers – **Worked out examples.**

Unit IV Transistor Amplifiers**(11hrs)**

Power amplifiers – Difference between power and voltage amplifiers – Performance parameter – Class A amplifiers – Characteristics – Class B amplifiers – Characteristics and power relation – Class B push-pull amplifiers – Crossover

distortion – Efficiency – Feedback amplifiers – Principle – Advantages and disadvantages – **Worked out examples.**

Unit V Transistor Oscillators and wave shaping circuits (11hrs)

Classification of oscillators – Oscillatory circuit – The Barkhausen criterion – Hartely oscillator – Collpitt's oscillator – Multivibrators – Astable multivibrator – Types of wave-shaping circuits – Linear wave shaping circuits – Differentiating circuits – Applications – Generation of narrow pulse from square wave – Integrating circuits – Applications – Generation of triangular wave forms from square wave – Clamping circuits – Voltage doubler.

Books for study:

3. A Text book of Applied Electronics, R.S.Sedha, Chand & Co. Ltd., 1st edition, Reprint 1998, NewDelhi.
4. Basic Electronics Solid state, B.L. Theraja, Chand & Co.Ltd., 1st edition 1998 , Reprint 2002, NewDelhi.

Books for Reference:

2. Foundations of electronics, D.Chattopadhyay & Others, Wiley Eastern Ltd., Edition 1993.
2. Principles of Electronics, Albert Malvino, Tata McGraw Hill Publishing.

Semester V

Part III - Core Practical III

515PP3

Credits: 4

Hours: 90

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Cauchy's constants – Spectrometer.
2. i – d Curve and refractive index ' μ ' – Spectrometer.
3. Absolute measurement of capacity – B.G.
4. High resistance by leakage – B.G.
5. Band gap energy of a Thermistor.
6. Study of absorption of laser light on various filters – Demonstration.
7. Characteristics of LED – Laser Source
8. Study of magnetic field with current
9. Determination of magnetic susceptibility and paramagnetic materials
10. Determination of compressibility of liquids-Acousto optic effect
11. Wave shaping circuits – Generation of square wave from triangular wave and triangular wave from square wave.
12. Transistor characteristics (PNP or NPN)
13. Voltage Doubler.
14. Single stage RC coupled amplifier.

15. Construction of Half wave, Full wave and Bridge wave rectifier and tracing their output wave forms.
16. IC regulated power supply (5V regulator using 7805).
17. Hartley oscillator using BJT
18. Colpitt's oscillator using BJT.
19. Inverting and Non-Inverting amplifier using OPAMP 741
20. Adder and subtractor using OPAMP 741
21. Peaking Amplifier using OPAMP 741

B.Sc. Physics
Semester V
Part III - Elective I - Nano Sciences **515PE1**

Credits: 4

Hours: 60 (C-56, A-4)

Preamble:

“There’s Plenty of Room at the Bottom” – so said Richard Feymann describing a process by which the ability to manipulate individual atoms and molecules might be developed, using one set of precise tools to build and operate, another a smaller set and so on down to the needed scale.

Nanotechnology mainly consists of the processing of separation, consolidation and deformation of materials by one atom or molecule. The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes(CNTs). At present the practice of Nanotechnology embraces both Stochastic and deterministic approach.

Objectives:

- To impart knowledge about properties and synthesis of Nanomaterials
- To develop an understanding about characterization techniques and applications of Nanomaterials.

Learning outcome:

- Will learn about the basic classification of nanomaterials and special Nanomaterials
- Will acquire knowledge about Nanomaterials, analytical instrumentation and applications in cosmetics, textiles, sensors etc.,

Unit I Generations of Nanomaterials and Properties (13hrs)

Nanotechnology Generation – Definition of Nanoscience, Nanotechnology – Surface to Volume Ratio at Nanoscale – Mechanical properties – Thermal properties – Optical properties – Electrical properties – Magnetic properties.

Unit II Classification and Special Nanomaterials (13hrs)

Classification of Nanomaterials: 2D, 1D and 0D Nanomaterials – Fullerene – Carbon Nano tubes – Types of Nanotubes – Synthesis of CNT – Properties of CNT – Applications of CNT – Porous Silicon.

Unit III Nanomaterial Synthesis (13hrs)

Top Down and Bottom up Techniques – Chemical methods of synthesis: Sol-Gel method – Hydrothermal synthesis – Microwave synthesis.

Physical methods of synthesis: High energy Ball milling – Laser ablation – Sputter deposition – Plasma Arc discharge.

Unit IV Characterization Techniques (13hrs)

(Portion covers Instrumentation, working principle and analysis technique towards Nanoscale).

Electron Microscopes: SEM – AFM

Nano manipulator – Nanotweezers.

Optical Microscope: Confocal Microscope

Diffraction Method: X-ray Diffraction Technique Debye-Scherrer Relation

Unit V Applications of Nanomaterials (13hrs)

Nano sensors : Nano pressure sensor – Bio sensors

Nano electronics: Single Electron Transistor

Nanotechnology in energy : Quantum Dot solar cells

Nanotechnology in textiles: Characteristics of nano finishing in garments – UV protection of textiles – Antibacterial textiles

Nano technology in Cosmetics :Sun screen lotion – Anti ageing creams-Tattoos.

Books for study:

1. Nanotechnology Principles and Practices, Sulabha K Kulkarni, 2nd edition, Capital publishing company, New Delhi.
2. Introduction to NanoScience and Nanotechnology, K.K.Chattopadhyaya and A.N Banerjee First Edition, PHI learning Private Ltd., New Delhi.
3. Nanotechnology, Technology Revolution of 21st Century, Er. Rakesh Rathi, S.Chand &Company Ltd, New Delhi, 1st edition 2009.
4. Nanomaterials, Nanotechnologies and Design, Micheael F.Ashby, Paulo J. Ferreira, Daniel L. Schodel, First Printed in India 2011, Elsevier India Pvt. Ltd.

B.Sc. Physics

Semester V

Part III – Elective II- Project and Viva - voce

Credits: 4

515PE2

Hours: 60

Objectives:

- To motivate the students to do project at micro level in Physics.
- To familiarize the students with the recent areas of research in Physics
- To develop independent thinking of students
- To explore the knowledge about the experimental methods
- To enhance the presentation skills in the report working
- To raise the confidence level of students in pursuing higher studies and research in future

B.Sc. Physics
Semester VI
Part III - Core VIII - Electricity and Magnetism **615P08**

Credits: 4

Hours: 75 (C-60, A-5, Tu-10)

Preamble:

Electricity, Magnetism and Electromagnetic theory are subject topics of all times. These topics have many applications in our day-to-day life.

Objectives:

- To impart the knowledge about the basic concepts of electric and magnetic field.
- To facilitate an understand of the applications of electrostatics, Electromagnetics and circuit analysis.

Learning outcome:

- Will learn to understand the electrical circuits by finding the current and voltage in the electrical loops.
- Will gain knowledge about electromagnetic oscillations, RLC circuits and electromagnetic theory.

Unit I Electrostatics **(12hrs)**

Gauss's law & proof – Gauss's law in differential form – Gauss's law and Coulomb's law – Laplace and Poisson's equation – Applications: Electric field due to an uniformly charged sphere – field due to two concentric spherical conductors – Field of a line charge – Field of a charged conductor – Force on the surface of a charged conductor – Demonstration of mechanical force – **Worked out examples.**

Unit II Capacitors and Magnetic field **(12hrs)**

Parallel plate capacitor – Cylindrical capacitor – Spherical capacitor – Guard Ring Capacitor – Energy stored in a capacitor – Force of attraction between capacitor plates – Dielectric constant - Dielectric strength .

Magnetic field due to steady current : Bio-Savart Law - Ampere's circuital law and proof – Applications of Ampere's law – **B** near a long wire – **B** for a Solenoid – **B** for a Toroid – Character of **B** lines and the divergence of **B** – Ampere's law in curl form – **Worked out examples.**

Unit III Electromagnetic Induction **(12hrs)**

Inductor and inductance – Self inductance – Physical significance of self inductance – Self inductance of a Solenoid – Two parallel wires – Toroidal coil of circular cross section – Energy stored in magnetic field – Measurement of self inductance by Rayleigh's method – Mutual inductance – Mutual inductance of concentric solenoids – Relation between mutual inductance and self inductance – Inductances in series and in parallel Measurement of mutual inductance – **Worked out examples.**

Unit IV Electromagnetic oscillations

(12hrs)

Simple R-L circuit: Growth and decay of current (Helmholtz Equation) –RC Circuit Charge and discharge of a condenser – Determination of high resistance by leakage method – Series LCR circuit – Charge and discharge – **Worked out examples.**

A.C circuit: A Parallel (or Anti) resonant circuit – Parallel resonant circuit when inductance L have some resistance – Condition for unity power factor – Current magnification – Selectivity of a parallel resonance circuit – Comparative study of a series resonant and parallel resonant circuit – Power in AC circuit – Choke coil – **Worked out examples.**

Unit V Circuit Analysis

(12hrs)

Classification of circuits – Laws and Theorems for Circuit Analysis: Superposition theorem – Thevenin's theorem – Norton's theorem – Maximum power transfer theorem – **Worked out examples.**

Electromagnetic theory: Basic equations – Maxwell's equations in free space – Electromagnetic waves in free space – Electromagnetic waves in isotropic non-conducting media – Index of refraction.

Book for study:

1. Electricity and Magnetism, Dr. K.K. Tewari, S.Chand & Co. Ltd., New Delhi, Revised edition 2011.

Books for reference:

1. Electricity and Magnetism, R. Murugesan, S.Chand & Co. Ltd., New Delhi, 1995 edition.
2. Electricity and Magnetism, A.S.Mahajan, A.A. Rangawala, Tata McGraw Hill Publishing Co.Ltd, New Delhi, 1998 edition.

B.Sc. Physics

Semester VI

Part III - Core X - Digital Electronics and Microprocessors 615P10

Credits: 4

Hours: 75 (C-60, A-10, Tu-5)

Preamble:

The digital electronics and digital devices with the integrated circuit technology are playing a significant role in the day-to-day life. The designing and fabrication technology of these devices paves a vivid understanding at the UG level. Also the binary logic with which these digital devices operate would facilitate the students to learn and appreciate the applications of the digital devices.

Objectives:

- To familiarize the technology involved in the manufacturing of the linear and digital ICs and their applications
- To instill the foundation level knowledge in the digital circuits for arithmetic, logic and sequential operations such as counting, storing etc.

Learning Outcome:

- Students will learn about the step-by-step industrial method of IC fabrication.
- Students will develop an understanding of binary concepts, circuits which generate binary outputs and also the arithmetic and logic operations carried out by circuits such as Microprocessors.

Unit I Arithmetic Circuits**(11hrs)**

Binary addition – Binary subtraction – Logic gates – NAND and NOR as Universal gates – Postulates of Boolean Algebra – Theorems of Boolean Algebra – Simplification of Boolean expressions using Karnaugh maps and gates – Half adder – Full adder – Half subtractor – Full subtractor – Encoder – Decimal to BCD encoder – Decoder – Seven-segment decoders – **Worked out examples.**

Unit II Sequential circuits**(10hrs)**

Flip flops – RS flip flop – D flip flop – JK flip flop – Asynchronous counter – MOD-16 ripple counter – Synchronous counter – Decade counter and wave forms – Shift registers – Serial IN Serial OUT Shift registers – Ring counter – application to digital clock.

Unit III IC Technology and its applications**(11hrs)**

Introduction – Advantages of ICs-Classification by structure and function – IC terminology – IC technology: Fabrication of components like transistors, diodes, resistors and capacitors – Operational amplifiers – Ideal OPAMP – Virtual ground and summing point – Applications – Inverting amplifier – Non-inverting amplifier – Adder, Subtractor – Peaking amplifier – **Worked out examples.**

Unit IV Memory**(9hrs)**

Semiconductor memory – Characteristics – RAM – ROM – ROM, PROMs and EPROMs : Programming – EEPROM : Flash memory – RAMs – SRAM – Sequential programming logic devices – PLD – CPLD – Magnetic memory – Magnetic recording – Magnetic bubble memories.

Unit V INTEL 8085 Microprocessor**(11hrs)**

Organization of a Microprocessor based system – Operating system – Single board Microprocessors – Microprocessor INTEL 8085 – Architecture details – Instruction Format – Instruction set of 8085 – Microprocessor addressing modes (with examples) – Programs to add two 8 bit numbers, to subtract two 8 bit numbers, to sort 8 bit numbers in ascending and descending order.

Books for study:

1. Basic electronics solid state, B.L.Theraja, S.Chand & Co. Ltd., Reprint 2002, New Delhi (**Unit I**).
2. Digital Principles and applications, A.P.Malvino and D.P.Leach, McGraw Hill Publishing 4th edition (**Unit II, III & IV**).
3. Microprocessor, Architecture Programming and Application with 8085, Ramesh S.Gaonkar, Penram International Publishing, 3rd edition (**Unit V**).

4. Digital Electronics and Microcomputers, R.K.Gaur, Dhanpat Rai Publications, 3rd Revised and enlarged Edition (**Unit V**).

Books for Reference:

1. Introduction to Microprocessors, Aditya Mathur.
2. Digital Principles and applications, A.P. Malvino and D.P. Leach, McGraw Hill Publishing 3rd and 6th edition, New Delhi.

B.Sc. Physics
Semester VI
Part III - Elective III - Programming in C **615PE3**

Credits: 4

Hours: 60 (C-56, A-4)

Preamble:

C has emerged as the language of choice for most of the scientific applications due to speed, portability and compactness of code. This paper enables the student to understand the high level language and to specialize in C programming.

Objectives:

- Bring about an understanding of the programming concepts of C language.
- To familiarize the C programming features such as structures, file management, error handling etc.

Learning outcome:

- Students will be able to write programmes for scientific and mathematical problems.
- Students will learn the applications of the language for coding purpose during their higher studies and research etc., because of its versatility.

Unit I **(12hrs)**

Constants, Variables and Data types Basic structure of a C program – Character set – C tokens – Key words and identifiers – Constants, Variables – Data types – Declaration of variables – Assigning values to variables – Defining symbolic constants.

Operators and expressions - Arithmetic operators – Relational operators – Logical operators – Assignment operators – Increment and Decrement operators – Conditional operators – Bit wise operators – Special operators – Arithmetic expressions – Evaluation of expressions – Precedence of operators – Mathematical functions.

Unit II **(11hrs)**

Managing input and output operations - Reading a character – Writing a character – Formatted input – Formatted output.

Decision Making and Branching - Decision making with if statement – Simple if statement – The ..if. else statement – Nesting of if...else statement – The else... if ladder – The switch statement – The ? Operator – The go to statement.

Unit III**(11hrs)**

Decision Making and Looping - The While statement – The do statement – The for statement – Jumps in loops.

Arrays – One dimensional arrays – Declaration of one dimensional arrays – Initialization of one dimensional arrays – Two dimensional arrays – Initializing two dimensional arrays.

Unit IV**(11hrs)**

Handling of character arrays and strings – Declaring and initializing string variables – Reading strings from terminal – Writing string to screen – String handling functions.

User defined functions: Elements of user defined function – Definition of function – Return values and their types – Function calls – Function declaration – Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns values – Recursion.

Unit V**(11hrs)**

Structure – Defining a structure – Declaring structure variable – Accessing a structure member – Structure initialization – Structures within structures.

File management in C – Defining and opening a file – Closing a file – Input/Output operations on files – Error handling in files.

Book for study:

1. Programming in ANSI C, E.Balagurusamy, Tata McGraw Hill Publishing Co. Ltd., 3rd edition, 2004, New Delhi.

Books for reference:

1. Let us C, Yashavant Kanetkar, BPB Publications, 3rd edition, 1999, New Delhi.
2. Spoken Tutorial Project (C) as e-Resource for Learning, IIT, Mumbai under National Mission on Education through ICT, MHRD, Govt. of India.
www.spoken-tutorial.org
3. A text book on C : Fundamentals, Data Structures and Problem Solving, E.Karthikeyan, Prentice Hall India Learning Private Limited, 2008 edition.

B.Sc. Physics**Semester VI****Part III – Core Practical IV****615PP4****Credits: 6****Hours: 90****LIST OF PRACTICALS**

(A minimum of 15 experiments)

(Use of LabView software)

1. Stoke's formula – Spectrometer.
2. Measurement of thermo e.m.f. using thermo couple and Potentiometer
3. Absolute measurement of mutual inductance – B.G.
4. High resistance by charging – B.G.
5. Determination of divergence & Beam spot of the laser source.
6. Measurement of Numerical aperture – Optical fiber & Laser source
7. Determination of fiber attenuation – Optical fiber & Laser source

8. Characteristics of Photo detector – Laser Source
9. Determination of particle size (Nano particles)
10. Determination of charge to mass ratio of an electron
11. Logic gates using discrete components & Verification of gates – OR, AND, NOT, NAND, NOR & XOR using IC's.
12. NAND gates as universal building block.
13. NOR gates as universal building block
14. J-K and R-S flip-flop using ICs.
15. R-S flip-flop using NAND and NOR gates.
16. Half adder and Full adder using ICs.
17. Half subtractor and Full subtractor using ICs.
18. Decade counter using ICs.
19. Addition & Subtraction of two 8 bit numbers using 8085 microprocessor.
20. Ascending & descending order of an array using INTEL 8085 microprocessor.
21. Synthesis of Nano particles.
22. Coating of Nano film.
23. Conductivity studies of Nano films.

Curriculum Framework for the students admitted in the academic year 2014-2015

Department of Physics

B.Sc. Physics

Semester wise distribution with Scheme of Examination & Credits

Sem	Title of the course	Credits	Exam Hrs (ESE)	Marks CIA	Marks ESE	Total
I	Part I Language I	3	3	25	75	100
	Part II English I	3	3	25	75	100
	Part III Core I Kinetic theory, Thermodynamics & Statistical Thermodynamics	6	3	25	75	100
	Allied I Chemistry I	4	3	15	60	75
	Part IV Environmental Studies	2	-	50	-	50
	Part I Language II	3	3	25	75	100
	Part II English II	3	3	25	75	100
	Part III Core II Optics and Spectroscopy	4	3	25	75	100
	Part III Core III Properties of matter and Sound	4	3	25	75	100

II	Core Practical I	2	3	40	60	100
	Allied I Chemistry II	4	3	15	60	75
	Allied Chemistry Practical	2	3	20	30	50
	ALC I Energy Physics	*3	3	-	100	100
	Part IV Value Education	2	-	50	-	50
III	Part I Language III	3	3	25	75	100
	Part II English III	3	3	25	75	100
	Part III Core IV Mathematical Physics	6	3	25	75	100
	Allied III Mathematics I	5	3	25	75	100
	Part IV Skill Based Course Instrumentation I Mechanical Instrumentation	3	-	100	-	100
	Part IV Non-Major Elective	2	-	75	-	75
IV	Part I Language IV	3	3	25	75	100
	Part II English IV	3	3	25	75	100
	Part III Core V Atomic, Nuclear & Particle Physics	5	3	25	75	100
	Core Practical II	2	3	40	60	100
	Allied IV Mathematics II	5	3	25	75	100
	Part IV Skill Based Course Instrumentation II Medical Instrumentation	3	-	100	-	100
	Part IV General Awareness	2	Online Test	75	-	75
	ALC II Space Physics	*3	-	-	100	100
	Extension Activities	1	-	50	-	50
V	Part III Core VI Nanotechnology I	4	3	25	75	100
	Core VII Electricity and Magnetism	4	3	25	75	100
	Core VIII Solid State Physics	4	3	25	75	100
	Core IX Electronic Devices & Circuits	4	3	25	75	100

	Elective I Programming in C(Theory & Practical)	5	3	40	60	100
	Core Practical III	2	3	40	60	100
	Part IV Skill Based Course Instrumentation III Electrical and Electronic Instrumentation	3	-	100	-	100
VI	Part III Core X- Nanotechnology II	4	3	25	75	100
	Core XI Quantum Mechanics and Relativity	4	3	25	75	100
	Core XII Laser Physics and Fiber Optics	4	3	25	75	100
	Elective II Digital Electronics & Microprocessor	4	3	25	75	100
	Elective III MATLAB (Theory & Practical)	5	3	40	60	100
	Core, Digital Electronics & Microprocessor Practical IV	2	3	40	60	100
	Part IV Skill Based Course Instrumentation Institutional Training	3	-	100	-	100
	ALC III Thin Film Technology	*3	3	-	100	100

B.Sc Physics – Semester I

Part III Core I

Subject Code: 112P01

Kinetic Theory, Thermodynamics and Statistical Thermodynamics (90 hours)

The revolution in Physics can be attributed to the study of thermodynamics and statistical physics. A deep understanding of thermodynamics is essential in order to appreciate the modern concepts in Physics.

Module I

(18hrs)

Kinetic theory of gases – Expression for the pressure of the gas – Kinetic interpretation of temperature – Derivation of gas laws - Charles law – Boyle's law - Mean free path – Viscosity of gases – Thermal conductivity of gases – Andrew's experiment on CO₂ - Amagat's experiment – Behavior of gases at high pressures – Vanderwaal's equation of state – Critical constants – Coefficients of Vanderwaal's constants – Properties of matter near the critical point – Experimental determination of critical constants – **Problems of direct applications.**

Module II

(18hrs)

Intermolecular attraction – Porous Plug experiment – Theory - Temperature of Inversion – Relation between T_B, T_i and T_c – Liquefaction of Hydrogen - Liquefaction of Helium – Properties of liquid He I and He II – Production of low temperature – Adiabatic demagnetization –

Measurement of low temperature – Helium Vapour Pressure Thermometer - Conversion of magnetic temperature to Kelvin temperature.

Module III

(18hrs)

First law of thermodynamics – Application of first law of thermodynamics – Specific heat capacity of a gas – Isothermal process – Adiabatic process – Isochoric process – Isobaric process – Gas equation during an adiabatic process – Irreversible process – Reversible process – Second law of thermodynamics – Carnot's engine and refrigerator – Carnot's theorem – Absolute zero and work Scale – Work scale and Ideal gas scale – Clapeyron's Latent heat equation – Entropy – Change in entropy in a reversible process – Change in entropy in an irreversible process – Third law of thermodynamics – Maxwell's thermodynamical relations – **Problems of direct applications.**

Module IV

(18hrs)

First order phase transitions in thermodynamical process – Thermodynamical functions – Gibb's function – Enthalpy.

Statistical thermodynamics: Probability - Probability of particular distribution of N particles in two boxes – Most probable distribution and fluctuation – Phase space – Thermodynamical probability – Systems in thermal equilibrium – Probability and entropy – Probability of a perfect gas - Boltzmann canonical distribution – Partition function – Energy states of a quantum oscillator – **Problems of direct applications in Probability.**

Module V

(18hrs)

Statistical equilibrium – Probability theorems in statistical thermodynamics – Classical Vs Quantum statistics – Maxwell - Boltzmann distribution law – Maxwell – Boltzmann distribution and Ideal gas - Fermi –Dirac distribution law – Electron gas – Bose – Einstein distribution law – Photon gas - Comparison of three statistics.

Books for study:

1. Modules I, II, III and V : Heat and Thermodynamics - Brijlal and Subramaniam, S.Chand & Co. Reprint 2006.
2. Module IV : Thermodynamics and Statistical Physics - Sharma and Sarkar, Himalaya publishing house, 3rd edition.

Books for reference:

1. Heat and Thermodynamics : S. Singhal & J.B. Agarwal , Pragathi Prakashan publishing, reprint 1995.
2. Text book of Heat and Thermodynamics : J.B. Rajam & C.L. Arora, Chand & Co. 10th reprint.

B.Sc Physics – Semester II

Part III Core III

Subject Code: 212P03

Properties of Matter and Sound (52 hours)

Preamble:

The purpose of this paper is to give an introductory account of basic ideas in conservation principles and properties of matter. The module Acoustics is introduced to know about the application of sound and ultrasonic waves in various fields.

Module I Gravitation

(10hrs) Kepler's

law of motion – Derivation of law of gravitation – Determination of 'G' by Boy's method – Merits

of Boy's method – Acceleration due to gravity – Compound pendulum – Theory – Bar pendulum – Points of suspension and oscillations are interchangeable – **Problems of direct applications.**

Module II Elasticity

(11hrs)

Definitions – Yield point, Elastic limit – Elastic fatigue – Poisson's ratio for Rubber – Work done in Deforming a body – Bulk modulus (Relation between K , Y and σ) Modulus of Rigidity – Relation between elastic constants (Y , η , K and σ) – Twisting of a cylinder – Torsion pendulum – Bending of beams – Bending moment – Cantilever – Beam supported at its ends and loaded in the middle – I Section girders - Determination of elastic constants by Searle's method – Problems of direct applications.

Module III Viscosity and surface tension

(11hrs)

Stream line motion and Rate of flow - Equation of continuity - Energy of a liquid in motion – Viscosity – Correction to Poiseuille's Equation – Rotation viscometer – Surface tension – Examples of surface tension – Determination of surface tension of a liquid by Jaeger's method – Problems of direct applications.

Module IV Production and Measurement of low Pressure

(10hrs) Exhaust

pumps – characteristics – Rotary oil pumps – Mercury pumps (Geissler pumps) – Diffusion-Condensation pumps — Measurement of low pressure – The Bourdon gauge – McLeod gauge – The Pirani resistance gauge – Ionization gauge (Hot cathode)

Module V Acoustics

(10hrs) Free

vibrations – Undamped vibrations – Damped vibrations – Forced vibrations – Origin of sound – Practical applications: Gramophone – Microphone & Loud speaker – Tape recorder – Reverberation – Sabine's reverberation formula – Factors affecting the Acoustics of buildings – Sound distribution in an Auditorium – Requisites for good Acoustics .

Ultrasonics - Production of ultrasonic wave – Piezo electric oscillator – Determination of velocity of ultrasonic waves.

Books for study:

1. Module I and IV : Elements of Properties of Matter – D.S Mathur ,Shyama
lal Charitable trust, New Delhi. Revised and enlarged
edition 1992, Reprint 2010.
2. Module II and III :Mechanics and Electrodynamics – Brijlal
N.Subramanyam and Jivan Sehan, Eurasia Publishing
House Private Ltd,
New Delhi, Revised and enlarged edition 2005.
3. Module V : A Text book of sound – N.Subramanyam Brijlal, Vikas
publishing House Pvt Ltd, NewDelhi, 2nd Revised edition,
reprint 2006.

Books for reference:

1. Mechanics : D.S.Mathur, N.Chand & Company, 2nd edition.
- 2.Waves & Oscillations : Ashok K.Ganguly, S.Chand & Company Ltd, 1st edition,
reprint 1994.

**B.Sc Physics
Semester I & II**

Part III – Core Practical I

Subject Code: 212PP1

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Acceleration due to gravity - Compound pendulum.
2. Rigidity modulus of the material of the wire & moment of inertia of the disc - Torsion pendulum.
3. Rigidity modulus of the material of the rod - Static torsion.
4. Young's modulus – Uniform bending – Pin & Microscope.
5. Young's modulus – Non-uniform bending – Pin & Microscope.
6. Surface tension and interfacial tension – drop weight method.
7. Co-efficient of viscosity of highly viscous liquids (castor oil) – Stoke's method.
8. Co-efficient of viscosity of water and comparison of radii of capillary tubes – Poiseuille's flow.
9. μ of the material of the prism - Spectrometer.
10. Resolving power of a grating – Minimum deviation – Spectrometer
11. Melting point of wax using thermistor – ohm's law.
12. Calibration of low range voltmeter - Potentiometer.
13. Calibration of high range ammeter - Potentiometer.
14. Impedance and power factor of an Inductive circuit.
15. Verification of laws of stretched string & determination of unknown frequency of the tuning fork - Sonometer.
16. Study of characteristics of a Junction diode.
17. Thermal conductivity of a bad conductor (cardboard) – Lee's disc method.
18. Specific heat capacity of a liquid – Joule's calorimeter.
19. Y, η, σ – Searle's double bar pendulum.
20. Frequency of an electrically maintained tuning fork – Melde's string.

B.Sc Physics – Semester I & II

Allied Physics Practical

Subject Code: 212ACP/212AMP

(For B.Sc Chemistry & B.Sc Mathematics)

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Acceleration due to gravity - Compound pendulum
2. Young's modulus – Non-uniform bending – Optic lever, Scale and Telescope.
3. Young's modulus – Cantilever depression – Scale and Telescope.
4. Rigidity modulus of the material of the wire - Torsion Pendulum.
5. Rigidity modulus of the material of the rod – Static torsion.
6. AC frequency - Sonometer
7. Calibration of low range voltmeter - Potentiometer.
8. Calibration of high range ammeter - Potentiometer.
9. Measurement of resistance - Potentiometer.
10. Temperature co-efficient of resistance – Ohm's law - Thermistor .
11. Characteristics of a Zener diode.

12. Characteristics of FET.
13. Characteristics of a junction diode.
14. Verification of AND, OR, NOT, NAND, NOR & XOR gates - IC's.
15. Half adder & Full adder using IC's.
16. Half subtractor & Full subtractor using IC's.
17. NAND as universal building block.
18. De-Morgan's theorem using logic gates.
19. NOR as universal building block.
20. Solving Boolean equations using gates.

B.Sc. Physics – Semester III

Part III Core IV

Subject Code:312P04

Mathematical Physics (75 hours)

Preamble:

All Physical phenomena are represented by simple and compact expressions of mathematics. For proper understanding of the basic concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity as well as other areas of Physics, the topics such as Vector calculus, Differential equations and Numerical methods are required. Therefore “Mathematical Physics” is introduced in the third semester as Core Course IV.

Module I

(15hrs)

Line, Surface and Volume integrals- Divergence and Curl of a vector-Vector identities - Gauss divergence theorem and Proof - Problems using Gauss divergence theorem - Equation of Continuity- Euler's equation of motion- Bernoulli's equation.

Module II

(15hrs)

Stoke's theorem and Proof- Problems using Stoke's theorem- Green's theorem and its Proof using Gauss divergence theorem- Green's theorem in a plane- Classification of vector fields

Orthogonal curvilinear coordinates - Gradient, Divergence, Laplacian and Curl in terms of orthogonal curvilinear coordinates- Spherical polar coordinates and differential operators- Cylindrical coordinates and differential operators.

Module III

(15hrs)

Legendre differential equation and Legendre functions: Solution of Legendre's Equation in descending power of x - Generating function of Legendre polynomial - Rodrigue's formula for Legendre polynomials- Recurrence formulae.

Bessel's differential equation- Bessel's function of first kind- Bessel's half orders- Recurrence formulae for $J_n(x)$.

Module IV Classical Mechanics

(15hrs)

Constraints and degrees of freedom – Holonomic and non- holonomic constraints – Generalised co-ordinates – Generalised notations – Generalised displacement – Generalised velocity – Generalised momentum – Generalised force

Hamilton's variational principle – Deduction of Lagrange's equations of motion from Hamilton's principle for conservative system - D'Alembert's principle – Lagrange's equations from D'Alembert's principle for Conservative system – Application of Lagrange's equation of motion – Simple Pendulum.

Module V Numerical Methods**(15hrs)**

Solution of algebraic equations- Bisection method- Newton - Raphson method- Solution of linear algebraic equation - Gauss elimination method

Numerical integration - Quadrature formula for equidistant co-ordinates - Trapezoidal rule - Simpson's rule - Numerical solution of ordinary differential equations - Taylor's series method- Euler's method - Fourth order Runge-Kutta method.

Books for study:

1. Module I, II, & III : Mathematical physics - Satya Prakash, Sultan & sons- 5th revised edition reprint 2010.
2. Module IV : Classical Mechanics – Dr. S.L. Gupta, Dr.V. Kumar & Dr. H.V. Sharma, Pragati Prakashan Publishing, Meerut , 21st edition.
3. Module V : Numerical methods - A.Singaravelu- Meenakshi publications- 2nd edition.

Books for Reference:

1. Mathematical Physics – Rajput, Pragathi Prakashan, Meerut 1995 edition.
2. Numerical methods for Scientists and Engineers Shastry

B.Sc. Physics – Semester III**Part IV Skill Based Course Instrumentation I****Subject Code:312PS1****Mechanical Instrumentation (38 hrs)****Module I****(8 hrs)**

Characteristics of instruments and measurements system : Methods of measurements – classification of instruments – analog and digital modes of operation – static characteristics – true value – static error – static correction – scale range and scale pan – reproducibility and drift – repeatability – noise – accuracy and precision – significant figures.

Errors in measurements: Limiting errors – Types of errors – Gross errors – systematic errors – instrumental errors – observational errors – random errors.

Module II (Principle & Working)**(8 hrs)**

Measurement of linear velocity: Electromagnetic transducers – Moving magnet type and moving coil type velocity transducers.

Measurement of angular velocity: DC and AC Tachometer generator.

Measurement of vibrations: Seismic transducers – LVDT – accelerometers – quantities involved in vibration measurement.

Module III (Principle & Working)**(7hrs)**

Measurement of Temperature: Electrical resistance thermometer: Platinum resistance thermometer – salient features of resistance wire thermometers – Thermocouple thermometer – Thermocouple construction - Measurement of thermocouple output – advantages and disadvantages - optical pyrometers – disappearing filament type.

Module IV (Principle & Working)**(7 hrs)**

Measurement of flow: Turbine flow meter – Orifice flow meter – hot wire anemometer

Measurement of Liquid level: Resistive method – capacitive method – inductive method -
Measurement of liquid level using float.

Module V (Principle & Working)**(8 hrs)**

Measurement of Humidity: Hygrometer – Dew point hygrometer - surface conductivity method.

Measurement of thickness: Inductive method - Measurement of thickness using ultra sonic vibrations – Nuclear radiation method.

Books for study:

1. Electrical and Electronic : A.K.Sawhney – Dhantpat Rai & Sons
Measurements and instrumentation Publications – 1991 Revised Fourth Edition
2. Industrial Instrumentation : K.Krishnaswamy and S. Vijaya chitra –
New age international Publishers
First edition – Reprint 2008.

Books for Reference:

1. Instrumentation Devices and Systems : C.S. Rangan, G.R.Sharma and V.S.V.Mani – Eleventh reprint 1992 TataMcGraw Hill Publishing Ltd, New Delhi
- 2.Experimental methods for Engineers :J.P.Holman – Fifth edition – Mc Graw Hill International Book Company.

B.Sc. Physics – Semester IV**Part IV Skill Based Course Instrumentation II****Subject Code:412PS2****Medical Instrumentation (38 hours)****Preamble:**

Medical instrumentation is in the designing and developing era and every year the hospitals and research institutes are adding modern medical equipments for the medical study. Therefore, it is necessary for every student to understand the physics principles and functioning of various medical equipments. This paper would enable the students to acquire knowledge about the functioning of some of these medical equipments.

Module I: Electrodes**(8 hrs)**

Transport of ions through the cell membrane - Resting and action potentials- Characteristics of resting potential – Design and Components of the Bio-medical instrument system - Electrodes- half cell potential – Electrode paste – Metallic Microelectrode -*Depth and Needle electrode - Surface electrode - Chemical Electrode - pH Electrode

Module II: Bio Potential Recorders**(7 hrs)**

Characteristics of the recording system – Mechanical functions of the heart - Electro Cardiography - Origin of Cardiac Action potential - ECG lead configurations - ECG recording setup - Practical considerations for ECG recording - Analysis of recorded ECG signals

Module III: Physiological Assist Devices**(8hrs)**

Pacemakers – Energy requirements to excite heart muscle - Methods of stimulation – External and Internal Pacemakers - Different modes of operation - Ventricular asynchronous pacemaker – Pacemaker batteries – Lithium cells

Defibrillators - Internal and External defibrillators - synchronized DC defibrillator - Model of the heart lung machine – Oxygenators – Bubble oxygenators - Blood pumps – Non – Pulsatile pump - Kidney machine – Renal function – Dialysis – Peritoneal dialysis.

Module IV : Operation Theatre Equipment**(7hrs)**

Surgical diathermy : Electro surgery techniques – Electrosurgical diathermy unit - Range and area of irritation of different diathermy techniques – Ventilators - Anesthesia machine – Flow meters – Electromagnetic blood flow meters.

Module V: Advances in Biomedical Instrumentation**(8hrs)**

Computer tomography – Principle – CT scanner – Thermography - Infrared thermography

Ultrasonic imaging systems : Ultrasonic propagation through tissues – Display modes – A Mode – B Mode – T-M Mode - Recording devices - Ultrasonic imaging instrumentation

Magnetic resonance imaging : Magnetic Resonance phenomenon - MRI instrumentation.

Book for study:

Biomedical Instrumentation : Dr.M.Arumugam, Anuradha Agencies, Vidyakaruppur, Kumbakonam, 2nd edition 6th reprint, 2003.

Books for reference:

1. Biomedical Instrumentation and measurements : Leslie Cromwell and Fred S.Weibel printice Hall of India Rt, New Delhi.
2. Hand book Biomedical Instrumentation. : R.S Khandpur, Tata Mc Graw Hill publishing co, 9th Edition 1996

B.Sc Physics - Semester III & IV**Part III Core Practical II****Subject Code: 212PP2****LIST OF PRACTICALS****(A minimum of 15 experiments)**

1. Calibration of high range voltmeter - Potentiometer.
2. Calibration of very low range Ammeter - Potentiometer
3. Temperature co-efficient of resistance of a coil - Carey–Foster’s bridge.
4. Comparison of e.m.fs of two cells - B.G.
5. Figure of merit of B.G.
6. Constant of B.G. - Solenoid inductor method.
7. Comparison of Resistances – B.G.
8. Moment of the magnet due to the field along the axis of the coil - Magnetometer.
9. Magnetic flux density due to the field along the axis of the coil - Magnetometer.
10. Determination of AC frequency - Sonometer.
11. Q factor of a series resonant circuit.
12. Q factor of a parallel resonant circuit.
13. Low pass, high pass & band pass filters.

14. Tracing of Lissajou's figures - CRO.
15. Study of characteristics of a Zener diode.
16. Wavelength of colours of Mercury spectrum – Grating – normal incidence method – Spectrometer
17. Determination of Hartmann's constants – Spectrometer
18. Wavelength of LASER source – Grating
19. Refractive Index of liquid – Hollow prism and Laser Source
20. Reconstruction of a Hologram – Demonstration
21. Measurement of Blood sugar, Blood Pressure & Hemoglobin - Demonstration

Course designed by : B.Nirmala
 Course reviewed by : T.V.Banumathi
 Checked by : T.V.Banumathi

B.Sc Physics – Semester III & IV

Part III Allied Physics Practical

Subject Code: 412ADP

(For B.Sc Mathematics CA)

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Acceleration due to gravity - Compound pendulum
2. Young's modulus – Non-uniform bending – Optic lever, Scale and Telescope.
3. Young's modulus – Cantilever depression – Scale and Telescope.
4. Rigidity modulus of the material of the wire - Torsion Pendulum.
5. Rigidity modulus of the material of the rod – Static torsion.
6. AC frequency - Sonometer
7. Calibration of low range voltmeter - Potentiometer.
8. Calibration of high range ammeter - Potentiometer.
9. Measurement of resistance - Potentiometer.
10. Temperature co-efficient of resistance – Ohm's law - Thermistor .
11. Characteristics of a Zener diode.
12. Characteristics of FET.
13. Characteristics of a junction diode.
14. Verification of AND, OR, NOT, NAND, NOR & XOR gates - IC's.
15. Half adder & Full adder using IC's.
16. Half subtractor & Full subtractor using IC's.
17. NAND as universal building block.
18. De-Morgan's theorem using logic gates.
19. NOR as universal building block.
20. Solving Boolean equations using gates.

B.Sc. Physics - Semester V

Part III Core VI

Subject Code:510P06

Nanotechnology I

Nanomaterials: Synthesis & Characterization (65 hours)

Preamble:

“There's Plenty of Room at the Bottom” – so said Richard Feymann describing a process by which the ability to manipulate individual atoms and molecules might be developed, using one set of precise tools to build and operate, another a smaller set and so on down to the needed scale.

Nanotechnology mainly consists of the processing of separation, consolidation and deformation of materials by one atom or molecule.

The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes(CNTs).

At present the practice of Nanotechnology embraces both Stochastic and deterministic approach.

Module I Introduction to Nanomaterials & Synthesis (13hrs)

Nanotechnology generation - Definition of Nanoscience, Nanotechnology – Low Dimensional Materials: 2D, 1D, 0D

Top Down and Bottom up Techniques – Chemical methods of synthesis : Sol-Gel method – Hydrothermal synthesis – Sonochemical synthesis – Microwave synthesis.

Module II Nanomaterials Synthesis (13hrs)

Physical methods of synthesis: Plasma Arc discharge – Sputter Deposition : DC sputtering, RF sputtering – Evaporation: Thermal evaporation , Electron beam evaporation.- Chemical vapour deposition – Types of CVD process – Pulsed Laser Deposition – Molecular beam Epitaxy - Ball Milling.

Module III Properties of Nanomaterials (13hrs)

Surface to Volume Ratio at Nanoscale – Mechanical properties – Thermal properties – Electrical properties – Magnetic properties – Optical properties – Acoustic properties.

Module IV Characterization Techniques (13hrs)

(Portion covers Instrumentation, working principle and analysis technique towards Nanoscale).

Electron Microscopes: SEM – TEM – SPM – STM – AFM.

Optical Microscope: Confocal Microscope

Diffraction Method: X-ray Diffraction Technique Debye–Scherrer Relation,

Particle Size Analyzer, Spectroscopy Method: (UV-VIS –NIR) Spectrometer.

Module V (13hrs)

Manipulating Nanomaterials

Nanomanipulator – Nanotweezers – Atom Manipulation – Photolithography – Electron Beam Lithography – Dip Pen Nanolithography.

Special Nano materials

New forms of Carbon – Fullerene – Carbon Nano tubes - Types of Nanotubes – Synthesis CNT – Properties of CNT – Graphene – Porous Silicon

Books for study:

- | | |
|---|--|
| 1. Nanotechnology Principles and Practices | : Sulabha K Kulkarni, Second edition, Capital publishing company, New Delhi |
| 2. Introduction to NanoScience and Nanotechnology | : K.K.Chattopadhyaya and A.N Banerjee First Edition, PHI learning Private Ltd., New Delhi |
| 3. Nanotechnology | : Technology Revolution of 21st Century: Er. Rakesh Rathi, S.Chand &Compan Ltd, New Delhi, First edition 2009 |
| 4. Nanomaterials , Nanotechnologies And Design | : Micheael F.Ashby, PauloJ. Ferreira, Daniel L. Schodel, First Printed in India 2011, Elsevier India Pvt. Ltd. |

B.Sc. Physics - Semester V

Part III Core VII

Subject Code:512P07

Electricity and Magnetism (52 hours)

Preamble:

Electricity, Magnetism and Electromagnetic theory are a time bounded subject which has many applications in our day-to-day life. This paper enables the students to understand the concept of electric and magnetic field, production of electromagnetic waves and their significance.

Module I

(10hrs)

Electrostatics : Gauss's law & proof – Gauss's law in differential form – Gauss's law and Coulomb's law - Laplace and Poisson's equation – Applications: Electric field due to an uniformly charged sphere - field due to two concentric spherical conductors – Field of a line charge - Field of a charged conductor - Force on the surface of a charged conductor - Demonstration of mechanical force – **Problems of direct applications.**

Module II

(11hrs)

Capacitors: Parallel plate capacitor - Cylindrical capacitor - Spherical capacitor – Energy stored in a capacitor - Force of attraction between capacitor plates - Types of capacitors according to shape and dielectrics - Dielectric constant - Dielectric strength – **Problems ***.

Magnetic field due to steady current : Ampere's circuital law and proof - Applications of Ampere's law - **B** near a long wire – **B** for a Solenoid – **B** for a Toroid – Character of **B** lines and the divergence of **B** - Ampere's law in curl form – **Problems of direct applications.**

Module III

(10hrs)

Electromagnetic Induction: Inductor and inductance – Self inductance - Physical significance of self inductance – Self inductance of a Solenoid – Two parallel wires – Toroidal coil of circular cross section – Energy stored in magnetic field - Measurement of self inductance by Rayleigh's method – Mutual inductance – Mutual inductance of concentric solenoids - Relation between mutual inductance and self inductance - Inductances in series and in parallel Measurement of mutual inductance – **Problems of direct applications.**

Module IV

(11hrs)

Electromagnetic oscillations : Growth and decay of current in a circuit containing L and R (Helmholtz Equation) – RC Circuit Charge and discharge of a condenser — Determination of high resistance by leakage method – Series LCR circuit - charge and discharge. **Problems of direct applications..**

A.C circuit: A Parallel (or Anti) resonant circuit - Parallel resonant circuit when inductance L have some resistance – Condition for unity power factor – Current magnification - Selectivity of a parallel resonance circuit – Comparative study of a series resonant and parallel resonant circuit – Power in AC circuit - Choke coil – **Problems of direct applications.**

Module V

(10hrs)

Circuit Analysis: Superposition theorem- Thevenin's theorem – Norton's theorem- Maximum power transfer theorem – **Problems of direct applications.**

Electromagnetic theory: Basic equations - Maxwell's equations in free space – Electromagnetic waves in free space – Electromagnetic waves in isotropic non - conducting media – Index of refraction - Energy density of Electromagnetic wave and Poynting theorem.

Book for study:

Electricity and Magnetism : K.K. Tewari, S Chand & Company Ltd
Reprint 2007 , New Delhi.

Books for reference:

1. Electricity and Magnetism : R. Murugesan, S.Chand &Co. Ltd., New Delhi, 1995 Edition.
2. Electricity and Magnetism : A.S.Mahajan, A.A. Rangawala
Tata McGraw Hill Publishing Co.Ltd, New Delhi 1998 edition.

B.Sc. Physics - Semester V**Part III Core IX****Subject Code:512P09****Electronic devices and circuits (52 hours)****Preamble:**

The field of electronics has occupied the major areas of applications in the field of science and technology. A basic knowledge about the electronic devices and circuits would help the students appreciate their practical applications.

Module I Special diodes**(10hrs)**

Introduction – PN-Junction diode – V-I Characteristics – Diode-current equation – Effect of Temperature on diode Characteristics - Static and Dynamic resistance of a diode – Zener diode – V-I Characteristics – Tunnel diode – V-I Characteristics - Diode Parameters and applications – Varactor diode – Specifications – Application in tuning circuits – LED – LED voltage drop and current – Multicolour LED.

Module II Rectifiers, Filters and Regulated Power Supply**(11hrs)**

Half wave rectifier – Average values of output voltage and load current – PIV of HWR – Full wave rectifier – Centre-tapped full wave rectifier – Average values of output voltage and load current – Bridge rectifiers – PIV of Bridge rectifiers – Advantages and Disadvantages – Ripple factor and efficiency of HWR and FWR – TUF – Comparison – – **Problems of direct Application*.**

Filters – Inductor filter – Capacitor filter – LC filters - π -Filters – – **Problems of direct Application*.** Voltage regulator – Zener diode shunt regulator – Working – Transistor series regulator – Shunt-circuit protection against overload – Monolithic IC voltage regulator – Adjustable voltage regulator – Complete DC power supply circuit – **Problems of direct Application*.**

Module III Transistor Amplifiers**(11hrs)**

Transistor action – CE configuration and characteristics –DC operating point and Load line – Q point and maximum undistorted output – Factors affecting stability of Q-point – Stability factor – Transistor biasing – Voltage divider bias – Stability of voltage divider bias – Classification of amplifiers – Common Emitter transistor amplifier – Amplifier parameters – RC couple amplifier – Frequency response – Advantages , disadvantages and applications (qualitative only) – Power amplifiers – Difference between voltage and power amplifiers – Performance parameters – Class B amplifiers – Class B push-pull amplifiers – Crossover distortion – Efficiency – Feedback amplifiers – Principle – Advantages and disadvantages – Types of feedback – Emitter follower – – **Problems of direct Application*.**

Module IV Field Effect Transistors and Switching devices

(10hrs)

Junction Field Effect Transistor – Operations – Characteristics – JFET parameters – Comparison between FET and BJT – MOSFET – Depletion type – Enhancement type – Characteristics – Advantages of N-channel over P-channel – Handling precautions.

Thyristors – SCR operation – Triggering ON and OFF – VI characteristics – SCR applications (qualitative only) – UJT – Equivalent circuit – Operation – Characteristics – UJT relaxation oscillator (circuit diagram with applications).

Module V Oscillators and wave shaping circuits

(10hrs)

Classification of oscillators – The Barkhausen criterion – Hartely oscillator – Collpitt's oscillator – RC oscillators - Basic principles of RC oscillator – Phase-shift oscillator – Multivibrators – Astable, monostable and bistable multivibrator - Schmitt trigger.

Types of wave-shaping circuits – Linear wave shaping circuits – Differentiating circuits – Applications – Generation of narrow pulse from square wave – Integrating circuits – Generation of triangular wave forms from square wave – Non-linear wave shaping circuits – Clippers – Positive and negative clippers – Biased clippers – Clamping circuits – Practical clamper – Voltage doubler.

Books for study:

1. A Text book of Applied Electronics: R.S.Sedha, Chand & Co. Ltd., 1st edition, reprint 1998, NewDelhi
2. Basic Electronics Solid state :B.L. Theraja, Chand & Co.Ltd., 1st edition 1998 reprint 2002, NewDelhi

Books for Reference:

1. Foundations of electronics : D.Chattopadhyay & Others, Wiley Eastern Ltd., Edition 1993.
2. Principles of Electronics : Albert Malvino, Tata McGraw Hill Publishing.

B.Sc. Physics - Semester V

Part III Elective I

Subject Code:512PE1

Programming in C (75 hours)

(Theory & Practical)(52 +23 hours)

Preamble:

C has emerged as the language of choice for most of the scientific applications due to speed, portability and compactness of code. This paper enables the student to understand the high level language and to specialize in C programming.

Module I

(11hrs)

Constants, Variables and Data types - Character set – C tokens – Key words and identifiers – Constants, Variables – Data types – Declaration of variables – Assigning values to variables – Defining symbolic constants – Basic structure of a C program.

Operators and expressions - Arithmetic operators – Relational operators – Logical operators – Assignment operators – Increment and Decrement operators – Conditional operators – Bit wise operators – Special operators – Arithmetic expressions – Evaluation of expressions – Precedence of operators – Mathematical functions.

Module II

(11hrs)

Managing input and output operations - Reading a character – Writing a character – Formatted input – Formatted output.

Decision Making and Branching - Decision making with if statement – Simple if statement – The ..if. else statement – Nesting of if...else statement – The else... if ladder – The switch statement – The ? Operator – The go to statement.

Module III

(10hrs)

Decision Making and Looping - The While statement – The do statement – The for statement – Jumps in loops.

Arrays - One dimensional arrays – Declaration of one dimensional arrays – Initialization of one dimensional arrays – Two dimensional arrays - Initializing two dimensional arrays – Multi dimensional arrays.

Module IV

(10hrs)

Handling of character arrays and strings - Declaring and initializing string variables – Reading strings from terminal – Writing string to screen – Arithmetic operation on functions

User defined functions: Elements of user defined function – Definition of function - Return values and their types – Function calls – Function declaration – Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns a value – Nesting of functions – Recursion.

Module V

(10hrs)

Structure - Defining a structure – Declaring structure variable – Accessing a structure member – Structures within structures.

File management in C - Defining and opening a file – Closing a file – Input/Output operations on files – Error handling in files.

Books for study:

Programming in ANSI C

: E.Balagurusamy, Tata McGraw Hill
Publishing Co. Ltd., 3rd edition, 2004,
Delhi.

New

Books for reference:

1. Physics through C Programming

: S.Palaniswamy, Pragati Prakashan
Publishers, edition, 2004, U.P.

2. Let us C

: Yashavant Kanetkar, BPB Publications,
3rd edition, 1999, New Delhi.

LIST OF PROGRAMS

1. Temperature conversion.
2. Roots of a quadratic equation.
3. Matrix multiplication.
4. Ascending and Descending order of an array.
5. Computation of AC current in a circuit that contains resistance, inductance and capacitance in series.
6. Program using Simpson's rule and Trapezoidal rule.
7. Projectile problem.
8. Program for fourth order Runge - Kutta method.
9. Product of factorials of n numbers using recursion.
10. Program using string handling functions.

11. Arranging Strings in alphabetical order
12. Mark list using files.

B.Sc. Physics - Semester V
Part IV Skill Based Course Instrumentation III **Subject Code:512PS3**

Electrical and Electronic Instrumentation (38 hrs)

Module I Electro mechanical operating instruments (8hrs)

Torque and deflection of the galvanometer – Steady state deflection – Dynamic behavior – Damping mechanism – Permanent Magnet Moving Coil Mechanism (PMMC) – D’Arsonval Movement

Power, energy and Power factor Measurements – Electrodynamometer – Wattmeter – Power factor meter.

Module II Ammeters, Voltmeters and Ohmmeters (7hrs)

DC Ammeters – shunt resistor – Ayrton shunt - DC Voltmeters – Multiplier Resistor – Multirange Voltmeter – Voltmeter Sensitivity – Series Type Ohmmeter – Shunt type Ohmmeter - Multimeter or VOM – Calibration of DC instruments.

Module III Oscilloscopes (8hrs)

Oscilloscope block diagram – CRT – Electrostatic – Deflection – Screens – Graticules – CRT circuits – Vertical deflection system - Horizontal deflection system – Oscilloscope techniques – Determination of frequency – Digital storage oscilloscope – Block diagram explanation only.

Module IV Data converters, Analog and Digital data acquisition systems. (8hrs)

Digital to analog converters – Basic inputs and outputs - Weighted resistor network technique – Analog to Digital converters – Basic inputs and outputs - Successive approximation technique.

A/D data acquisition systems – Block diagram – Interfacing transducers to electronic control and measuring systems – Instrumentation amplifier – Voltage to current converter (current loop) – Digital to Analog multiplexing – Analog to Digital Multiplexing.

Module V Computer controlled – Test systems (7hrs)

Testing a Radio receiver – Instruments used in computer controlled instrumentation – Frequency counter for operation with IEEE 488 bus – Signal generator interfaced with IEEE 488 bus – IEEE 488 electrical interface.

Books for study:

- | | |
|---------------------------------------|---|
| Modules I, II, III, IV & V | : Modern Electronic Instrumentation and Measurement technique - Albert D Helfrick and William D.Hooper – Prentice Hall of India – India reprint 2008,New Delhi. |
| Module IV (partly) | : PC based instrumentation concepts and practice – N.Mathivanan – Prentice Hall & India – 2007 print – New Delhi. |

Book for Reference :

A course in Electrical and Electronic Measurements and Instrumentation
edition 2007, Reprint 2008.

: A.K.Sawhney, Dhanapat Rai & Sons
publications, 18th revised and enlarged

B.Sc Physics - Semester V**Part III Core Practical III****Subject Code:510PP3****LIST OF PRACTICALS**
(A minimum of 15 experiments)

1. Cauchy's constants - Spectrometer.
2. I – d Curve – Spectrometer
3. Absolute measurement of capacity - B.G.
4. High resistance by leakage - B.G.
5. Band gap energy of a thermistor.
6. Study of absorption of laser light on various filters - Demonstration.
7. Characteristics of LED – Laser Source
8. Wave shaping circuits – Clipping and Clamping circuits.
9. Characteristics of FET.
10. Characteristics of UJT.
11. Voltage doubler.
12. Single stage RC coupled amplifier.
13. Emitter follower.
14. IC regulated power supply.
15. Hartley oscillator using BJT
16. Colpitt's oscillator using BJT.
17. Relaxation oscillator - UJT.
18. Astable multivibrator using BJT
19. Adder and subtractor – OPAMP
20. Differentiator and integrator - OPAMP
21. Inverting and Non-inverting amplifier – OPAMP
22. Peaking Amplifier - OPAMP

B.Sc. Physics - Semester VI**Part III Core X****Subject Code:610P10****Nanotechnology II****Nanomaterials : Applications(75 hours)****Module I Nanoelectronics****(15hrs)**

Quantum Electronic Devices – Upcoming Electronic Devices: Electrons in Mesoscopic Structure – Short Channel MOS Transistor – Split Gate Transistor – Electron Wave Transistor – Electron Spin Transistor – Quantum Cellular Automata – Quantum Dot Array - Tunnel Effect and Tunneling Elements, Tunnel Diode, Resonant Tunneling Diode - Principle of SET – SET Circuits.
(Basic structure & Principle only)

Module II Nanosensors**(15hrs)**

Existing Nano Sensors - Electronic tongue and nose – Selected R&D for individual nanosensors – Electrochemical sensors – Nanosensors in space - Nanopressure sensor- Physical sensors - Chemical sensors –Biosensors- Nanosensor production methods - Easy-to-make nanosensors.

Module III Nanomedicine**(15hrs)**

Approach to developing nanomedicines – Various kinds of nanosystems: Nano shells, Nanopores, Tectodendrimers – Products for Nanodrug administration: Nanoparticle-drug system for oral administration, Nasal administration and Ocular administration – Nanotechnology in diagnostic applications – Materials for use in Diagnostic and Therapeutic applications: Gold Nanoparticles, Quantum dots, Magnetic Nanoparticles.

Module IV Nanotechnology in Optics, Photonics & Solar Energy**(15hrs)**

Properties of Light & Nanotechnology – Interaction of Light & Nanotechnology : photon trapping and Plasmons, dielectric constant, refractive index – Imaging – New Low Cost Energy Efficient Windows & Solar Absorbers based on Nano particles.

Nanotechnology for energy: Thermo electricity – Nanotechnology for energy : Solar - Nanotechnology for energy: Hydrogen.

Module V Nanotechnology in Environment, Textiles & Cosmetics**(15hrs)**

Water cleaning and Purification – Air cleaning and purification – Air pollution reduction – Soil Remediation

Characteristics of nano finishing in garments – Functional, intelligent and smart textiles - Waterproof Textiles – Breathable Textiles - UV Protection Textiles - Odor Control Textiles – Anti-Static Textiles - Anti-Bacterial Textiles - Dust Free Textiles – Stain Resistant Textiles.

Sun Screen Lotion – Anti ageing Creams – Hair coloring – Tattoos.

Books for Study:

1. Nano Electronics & Nano Systems : K. Goser, P. Glosekotter, V. Dienstuhl, Springer, 2004.
2. Nanotechnology : Technology Revolution of 21st Century: Er. Rakesh Rathi, S.Chand &Company Ltd, New Delhi, First edition 2009
3. Nano: The Essentials Understanding Nanoscience and Nanotechnology : T. Pradeep , Tata McGraw-Hill Publishing Company, Second reprint 2008.
4. Nanotechnology – Basic Science & Emerging Technologies : Mick Wilson, Michelle Simmons and Burkhard Raguse, (1 / e) Overseas Press India Pvt. Ltd., 2005.
5. Nanomaterials , Nanotechnologies And Design : Micheal F.Ashby, Pauloj. Ferreira, Daniel L. Schodel, First Printed in India 2011, Elsevier India Pvt. Ltd.

B.Sc. Physics – Semester VI**Part III Core XII****Subject Code:612P12****Laser Physics and Fiber Optics (52 hours)****Preamble:**

The objective of introducing this paper is to present a comprehensive overview of the present day status of laser technology and optical fiber stating their principles and various applications including optical communications.

Module I (10hrs)

Optical coherence - Quantum transitions - Absorption of light - Spontaneous and Stimulated emission of light - Active medium - Population inversion - Methods of creating population inversion - *Ruby laser - Nd :YAG laser - Organic dye laser - *Helium - Neon laser - Argon laser.

Module II (11hrs)

CO₂ laser – Excimer laser – chemical lasers – semiconductor lasers – Applications of laser – Industrial applications – Medical Applications – Applications in entertainment industry - Holography – Applications in laser printing – Application in meteorology.

Module III (10hrs)

Physical nature of optical fiber – Basic laws and definitions involved in optical fiber – Fiber classification – Step index multimode fiber – Graded index fiber – Step index single mode fiber – Acceptance angle, Acceptance cone and Numerical aperture of a fiber – Optical fiber bundles and cables.

Module IV (10hrs)

Fiber fabrication – Rod-in-tube method – Double crucible method – Outside vapour phase oxidation – Chemical vapour deposition method - Modified chemical vapour deposition – Fiber Optic materials – Glass fibers – Plastic fibers - Fiber splices, Connectors and Couplers – Fiber attenuation – Dispersion in Optical fiber.

Module V (11hrs)

Typical communication system – Transmitter light sources LED – Modulation technique – Pulse modulation – Receiver – Optical detector – Photo detector - Avalanche photo detector – Demodulation techniques – Optical repeater – Multiplexing and Demultiplexing – Wavelength Division multiplexing - Optical telecommunication system.

Books for study:

1. Laser Physics and Applications : Tarasov, Mir Publications
2. Optic fiber and Laser : Anuradha de, New age Intl. Publishers 2004 edition, New Delhi.
3. Optical Fiber Communications : Gerd Keiser, Tata Mc Graw Hill Publishers.

Books for Reference:

1. ABC of Laser : Masilamani, Anuradha agencies, first edition, 1996, Kumbakonam.
2. Fiber Optic Technology and application : Stewart D. Personick, Khanna Publishers, 3rd reprint, New Delhi.
3. Laser Principles, Types and applications : K.R.Nambiyar, New age Intl. Publications, New Delhi.

B.Sc Physics – Semester VI**Part III Elective II****Subject Code:612PE2****Digital Electronics and Microprocessors (52 hours)****Preamble:**

The digital electronics and digital devices with the integrated circuit technology are playing a significant role in the day-to-day life. The designing and fabrication technology of these devices paves a vivid understanding at the UG level. Also the binary logic with which these digital devices operate would facilitate the students to learn and appreciate the applications of these digital devices.

Module I IC Technology and its applications (11hrs)

Introduction – Advantages of ICs-Classification by structure and function – IC terminology – Fabrication of components like transistors, diodes, resistors and capacitors – Operational amplifiers – Ideal OPAMP – Virtual ground and summing point – Applications – Inverting amplifier – Non-inverting amplifier – Adder, Subtractor, Integrator and Differentiator – Input offset voltage – Peaking amplifier – **Problems of direct applications.**

Module II Arithmetic Circuits (11hrs)

Binary addition – Binary subtraction – Logic gates – NAND and NOR as Universal gates – Postulates of Boolean Algebra – Theorems of Boolean Algebra – Simplification of Boolean expressions using Karnaugh maps and gates – Half adder – Full adder – Half subtractor – Full subtractor – Binary adder / Subtractor – Multiplexers – Demultiplexers – Decoder – Seven-segment decoders – **Problems of direct applications.**

Module III Sequential circuits (10hrs)

Flip flops – RS flip flop – Clocked RS flip flop – Edge triggered RS flip flop – D flip flop – Edge triggered JK flip flop – JK master/slave flip flop – Asynchronous counter – Synchronous counter – MOD 5 counter and wave forms – Decade counter and wave forms – Ring counter – application to digital clock.

Module IV Registers and Memory devices (9hrs)

Shift registers – Serial IN Serial OUT – Serial IN parallel OUT – Parallel IN serial OUT – Parallel IN Parallel OUT.

Semiconductor memories – ROM, PROM, and EPROM – RAM – Dynamic RAM – Magnetic bubble memories – ROM application to seven-segmented visible display.

Module V INTEL 8085 Microprocessor (11hrs)

Organization of a microprocessor based system – Operating system – Single board microprocessors – Microprocessor INTEL 8085 – Architecture details – Instruction Format/Instruction set of 8085 – Machine cycle of 8085 – Op code fetch and memory load machine cycle (for Instruction code 4FH-MOV C,A & 3EH-MVI A,32H only) – Microprocessor addressing modes (with examples) – Programs to add two 8 bit numbers, to subtract two 8 bit numbers, to sort 8 bit numbers in ascending and descending order.

Books for study:

1. Module I : Basic electronics solid state – B.L.Theraja, S.Chand & Co. Ltd., Reprint 2002, New Delhi.
2. Module II,III & IV : Digital Principles and applications – A.P.Malvino and D.P.Leach, McGraw Hill Publishing fourth edition.
3. Module V : Microprocessor, Architecture, Programing and Application with 8085 – Ramesh S.Gaonkar, Penram International Publishing, Third edition.
4. Module V : Digital Electronics and Microcomputers – R.K.Gaur, Dhanpat Rai Publications, Third Revised and Enlarged Edition.

Books for Reference:

1. Introduction to Microprocessors : Aditya Mathur.
2. Digital Principles and applications : A.P. Malvino and D.P. Leach, McGraw Hill Publishing 3rd and 6th edition, New Delhi.

B.Sc. Physics – Semester VI**Part III Elective III****Subject Code:612PE3****MATLAB (65 hours)****Theory and Practicals (35+30 hours)****Preamble:**

MATLAB is an integrated technical computing environment that combines numerical computation, advanced graphics and visualization and a high level programming language. This paper helps the student to solve scientific and numerical problems in an easy and quicker way.

Module I**(7hrs)**

MATLAB windows – Working in the Command Window – Arithmetic operations with scalars – order of Precedence – Display formats – Elementary Math built-in functions – Assignment operator – Rules about variable names

Creating a one dimensional array - Creating a two dimensional array – zeros, ones and eye commands – Transpose operator - Array addressing - adding elements to a matrix – deleting elements – Built – in – functions in handling arrays.

Module II**(7hrs)**

Mathematical operations with arrays : array addition and subtraction – Array Multiplication – array division – element – by – element operations – Relational operations – Logical operations

Trigonometric and exponential functions – character strings - Command line functions, Inline functions – Anonymous functions - Programs.

Module III**(7hrs)**

Script files : Creating and saving a script file – Running a script file – input to a script file – output commands – disp command – fprintf command

Creating a Function File – function definition line – input and output arguments – Local and Global variables – saving a function file

for loops – while loops – if – elseif – else statements – Switch – case – otherwise – break statement – Programs.

Module IV**(7hrs)**

Conditional statements : if ... end structure – if .. else ... end structure – if .. elseif .. else ... end structure – switch – case statement –

Loops : for ...end loops – while .. end loops - Nested loops and nested conditional statements – break and continue commands.

Module V**(7hrs)**

Two dimensional plots : Plot command line specifiers – Property name and Property value – fplot command

Plotting multiple graphs in the same plot – Formatting a plot : x label , y label, title, legends, text – subscript and superscript - axis command – grid command – formatting a plot using the plot editor

Book for study:

MATLAB An introduction with Applications : Amos Gilat
Wiley India Pvt Ltd, New Delhi

Books for reference:

1. MATLAB 7 : Rudra Pratap, 1st edition, 2006, Oxford University Press, 2002 edition
2. MATLAB and its Applications in Engineering : Raj Kumar Bansal, Ashok Kumar Goel and Manoj Kumar Sharma, Published by Dorling Kindersley (India) PvtLtd..
3. A guide to MATLAB :Brian R. Hunt, Ronald L. Lipsman and Jonathan M.Rosenberg, Cambridge University Press, 1st edition, reprinted 2003.

MATLAB Practicals

1. Temperature Conversion
2. Projectile Motion
3. Resistances in series and in parallel and Electrical resistive network analysis.
4. Lissajou's Figures.
5. Low Pass and High Pass Filters
6. Series Resonant Circuit
7. Parallel Resonant Circuit
8. AC to DC Converter.
9. Numerical integration – Simpson's rule and Trapezoidal rule.
10. Model creations using relational and logical operators.
11. Mean, variance and standard deviation.
12. Voltage divider.
13. Particle in a box – one dimension

B.Sc Physics - Semester VI

Part III Core, Digital Electronics & Microprocessor Practical IV Subject Code:610PP4

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Stoke's formula - Spectrometer.
2. Measurement of thermo e.m.f. using thermo couple and Potentiometer
3. Absolute measurement of mutual inductance - B.G.
4. High resistance by charging - B.G.
5. Determination of divergence & Beam spot of the laser source.
6. Measurement of Numerical aperture – optical fiber & Laser source
7. Determination of fiber attenuation – optical fiber & Laser source
8. Characteristics of Photo detector – Laser Source
9. Determination of particle size (Nano particles)
10. Synthesis of Nano particles.
11. Coating of Nano film.

12. Conductivity studies of Nano films.
13. Logic gates using discrete components & Verification of gates – OR, AND, NOT, NAND, NOR & XOR using IC's.
14. NAND & NOR gates as universal building block.
15. J-K and R-S flip-flop using IC's and Ring counter.
16. Half adder and Full adder using IC's.
17. Half subtractor and Full subtractor using IC's.
18. Decade counter using IC's.
19. Addition & Subtraction of two 8 bit numbers using 8085 microprocessor.
20. Ascending & descending of an array using 8085 microprocessor.

Curriculum Framework for the students admitted in the academic year 2013-2014

Department of Physics

B.Sc. Physics

Semester wise distribution with Scheme of Examination & Credits

Sem	Title of the course	Credits	Exam Hrs (ESE)	Marks CIA	Marks ESE	Total
I	Part I Language I	3	3	25	75	100
	Part II English I	3	3	25	75	100
	Part III Core I Kinetic theory, Thermodynamics & Statistical Thermodynamics	6	3	25	75	100
	Allied I Chemistry I	4	3	15	60	75
	Part IV Environmental Studies	2	-	50	-	50
II	Part I Language II	3	3	25	75	100
	Part II English II	3	3	25	75	100
	Part III Core II Optics and Spectroscopy	4	3	25	75	100
	Part III Core III Properties of matter and Sound	4	3	25	75	100
	Core Practical I	2	3	40	60	100
	Allied I Chemistry II	4	3	15	60	75
	Allied Chemistry Practical	2	3	20	30	50
	ALC I Energy Physics	*3	3	-	100	100
	Part IV Value Education	2	-	50	-	50

III	Part I Language III	3	3	25	75	100
	Part II English III	3	3	25	75	100
	Part III Core IV Mathematical Physics	6	3	25	75	100
	Allied III Mathematics I	5	3	25	75	100
	Part IV Skill Based Course Instrumentation I Mechanical Instrumentation	3	-	100	-	100
	Part IV Non-Major Elective	2	-	75	-	75
IV	Part I Language IV	3	3	25	75	100
	Part II English IV	3	3	25	75	100
	Part III Core V Atomic, Nuclear & Particle Physics	5	3	25	75	100
	Core Practical II	2	3	40	60	100
	Allied IV Mathematics II	5	3	25	75	100
	Part IV Skill Based Course Instrumentation II Medical Instrumentation	3	-	100	-	100
	Part IV General Awareness	2	Online Test	75	-	75
	ALC II Space Physics	*3	-	-	100	100
	Extension Activities	1	-	50	-	50
V	Part III Core VI Nanotechnology I	4	3	25	75	100
	Core VII Electricity and Magnetism	4	3	25	75	100
	Core VIII Solid State Physics	4	3	25	75	100
	Core IX Electronic Devices & Circuits	4	3	25	75	100
	Elective I Programming in C(Theory & Practical)	5	3	40	60	100
	Core Practical III	2	3	40	60	100
	Part IV Skill Based Course Instrumentation III Electrical and Electronic Instrumentation	3	-	100	-	100
VI	Part III Core X- Nanotechnology II	4	3	25	75	100

Core XI Quantum Mechanics and Relativity	4	3	25	75	100
Core XII Laser Physics and Fiber Optics	4	3	25	75	100
Elective II Digital Electronics & Microprocessor	4	3	25	75	100
Elective III MATLAB (Theory & Practical)	5	3	40	60	100
Core, Digital Electronics & Microprocessor Practical IV	2	3	40	60	100
Part IV Skill Based Course Instrumentation Institutional Training	3	-	100	-	100
ALC III Thin Film Technology	*3	3	-	100	100

B.Sc Physics – Semester I

Part III Core I

Subject Code: 112P01

Kinetic Theory, Thermodynamics and Statistical Thermodynamics (90 hours)

Preamble:

The revolution in Physics can be attributed to the study of thermodynamics and statistical physics. A deep understanding of thermodynamics is essential in order to appreciate the modern concepts in Physics.

Module I

(18hrs)

Kinetic theory of gases – Expression for the pressure of the gas – Kinetic interpretation of temperature – Derivation of gas laws - Charles law – Boyle's law - Mean free path – Viscosity of gases – Thermal conductivity of gases – Andrew's experiment on CO₂ - Amagat's experiment – Behavior of gases at high pressures – Vanderwaal's equation of state – Critical constants – Coefficients of Vanderwaal's constants – Properties of matter near the critical point – Experimental determination of critical constants – **Problems of direct applications.**

Module II

(18hrs)

Intermolecular attraction – Porous Plug experiment – Theory - Temperature of Inversion – Relation between T_B , T_i and T_c – Liquefaction of Hydrogen - Liquefaction of Helium – Properties of liquid He I and He II – Production of low temperature – Adiabatic demagnetization – Measurement of low temperature – Helium Vapour Pressure Thermometer - Conversion of magnetic temperature to Kelvin temperature.

Module III

(18hrs)

First law of thermodynamics – Application of first law of thermodynamics – Specific heat capacity of a gas – Isothermal process – Adiabatic process – Isochoric process – Isobaric process - Gas equation during an adiabatic process – Irreversible process – Reversible process – Second law of thermodynamics – Carnot's engine and refrigerator – Carnot's theorem - Absolute zero and work Scale – Work scale and Ideal gas scale - Clapeyron's Latent heat equation – Entropy –

Change in entropy in a reversible process – Change in entropy in an irreversible process – Third law of thermodynamics – Maxwell's thermodynamical relations – **Problems of direct applications.**

Module IV

(18hrs)

First order phase transitions in thermodynamical process – Thermodynamical functions – Gibb's function – Enthalpy.

Statistical thermodynamics: Probability - Probability of particular distribution of N particles in two boxes – Most probable distribution and fluctuation – Phase space – Thermodynamical probability – Systems in thermal equilibrium – Probability and entropy – Probability of a perfect gas - Boltzmann canonical distribution – Partition function – Energy states of a quantum oscillator – **Problems of direct applications in Probability.**

Module V

(18hrs)

Statistical equilibrium – Probability theorems in statistical thermodynamics – Classical Vs Quantum statistics – Maxwell - Boltzmann distribution law – Maxwell – Boltzmann distribution and Ideal gas - Fermi –Dirac distribution law – Electron gas – Bose – Einstein distribution law – Photon gas - Comparison of three statistics.

Books for study:

1. Modules I, II, III and V : Heat and Thermodynamics - Brijlal and Subramaniam, S.Chand & Co. Reprint 2006.
2. Module IV : Thermodynamics and Statistical Physics - Sharma and Sarkar, Himalaya publishing house, 3rd edition.

Books for reference:

1. Heat and Thermodynamics : S. Singhal & J.B. Agarwal , Pragathi Prakashan publishing, reprint 1995.
2. Text book of Heat and Thermodynamics : J.B. Rajam & C.L. Arora, Chand & Co. 10th reprint.

B.Sc Physics – Semester II

Part III Core III

Subject Code: 212P03

Properties of Matter and Sound (52 hours)

Preamble:

The purpose of this paper is to give an introductory account of basic ideas in conservation principles and properties of matter. The module Acoustics is introduced to know about the application of sound and ultrasonic waves in various fields.

Module I Gravitation

(10hrs)

Kepler's law of motion – Derivation of law of gravitation – Determination of 'G' by Boy's method – Merits of Boy's method – Acceleration due to gravity – Compound pendulum – Theory – Bar pendulum – Points of suspension and oscillations are interchangeable – **Problems of direct applications.**

Module II Elasticity

(11hrs)

Definitions – Yield point, Elastic limit – Elastic fatigue – Poisson's ratio for Rubber – Work done in Deforming a body – Bulk modulus (Relation between K, Y and σ) Modulus of Rigidity – Relation between elastic constants (Y, η , K and σ) – Twisting of a cylinder – Torsion

pendulum – Bending of beams – Bending moment – Cantilever – Beam supported at its ends and loaded in the middle – I Section girders - Determination of elastic constants by Searle's method – **Problems of direct applications.**

Module III Viscosity and surface tension (11hrs)

Stream line motion and Rate of flow - Equation of continuity - Energy of a liquid in motion – Viscosity – Correction to Poiseuille's Equation – Rotation viscometer – Surface tension – Examples of surface tension – Determination of surface tension of a liquid by Jaeger's method – **Problems of direct applications.**

Module IV Production and Measurement of low Pressure (10hrs)

Exhaust pumps – characteristics – Rotary oil pumps – Mercury pumps (Geissler pumps) – Diffusion-Condensation pumps — Measurement of low pressure – The Bourdon gauge – McLeod gauge – The Pirani resistance gauge – Ionization gauge (Hot cathode)

Module V Acoustics (10hrs)

Free vibrations – Undamped vibrations – Damped vibrations – Forced vibrations – Origin of sound – Practical applications: Gramophone – Microphone & Loud speaker – Tape recorder – Reverberation – Sabine's reverberation formula – Factors affecting the Acoustics of buildings – Sound distribution in an Auditorium – Requisites for good Acoustics .

Ultrasonics - Production of ultrasonic wave – Piezo electric oscillator – Determination of velocity of ultrasonic waves.

Books for study:

1. Module I and IV : Elements of Properties of Matter – D.S Mathur ,Shyamala Charitable trust, New Delhi. Revised and enlarged edition 1992, Reprint 2010.
2. Module II and III : Mechanics and Electrodynamics – Brijlal N.Subramanyam and Jivan Sehan, Eurasia Publishing House Private Ltd, New Delhi, Revised and enlarged edition 2005.
3. Module V : A Text book of sound – N.Subramanyam Brijlal, Vikas publishing House Pvt Ltd, NewDelhi, 2nd Revised edition, reprint 2006.

Books for reference:

1. Mechanics : D.S.Mathur, N.Chand & Company, 2nd edition.
- 2.Waves & Oscillations : Ashok K.Ganguly, S.Chand & Company Ltd, 1st edition, reprint 1994.

**B.Sc Physics
Semester I & II**

Part III – Core Practical I

Subject Code: 212PP1

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Acceleration due to gravity - Compound pendulum.
2. Rigidity modulus of the material of the wire & moment of inertia of the disc - Torsion pendulum.
3. Rigidity modulus of the material of the rod - Static torsion.
4. Young's modulus – Uniform bending – Pin & Microscope.

5. Young's modulus – Non-uniform bending – Pin & Microscope.
6. Surface tension and interfacial tension – drop weight method.
7. Co-efficient of viscosity of highly viscous liquids (castor oil) – Stoke's method.
8. Co-efficient of viscosity of water and comparison of radii of capillary tubes – Poiseuille's flow.
9. μ of the material of the prism - Spectrometer.
10. Resolving power of a grating – Minimum deviation – Spectrometer
11. Melting point of wax using thermistor – ohm's law.
12. Calibration of low range voltmeter - Potentiometer.
13. Calibration of high range ammeter - Potentiometer.
14. Impedance and power factor of an Inductive circuit.
15. Verification of laws of stretched string & determination of unknown frequency of the tuning fork - Sonometer.
16. Study of characteristics of a Junction diode.
17. Thermal conductivity of a bad conductor (cardboard) – Lee's disc method.
18. Specific heat capacity of a liquid – Joule's calorimeter.
19. Y , η , σ – Searle's double bar pendulum.
20. Frequency of an electrically maintained tuning fork – Melde's string.

B.Sc Physics – Semester I & II

Allied Physics Practical

Subject Code: 212ACP/212AMP

(For B.Sc Chemistry & B.Sc Mathematics)

LIST OF PRACTICALS

(A minimum of 15 experiments)

1. Acceleration due to gravity - Compound pendulum
2. Young's modulus – Non-uniform bending – Optic lever, Scale and Telescope.
3. Young's modulus – Cantilever depression – Scale and Telescope.
4. Rigidity modulus of the material of the wire - Torsion Pendulum.
5. Rigidity modulus of the material of the rod – Static torsion.
6. AC frequency - Sonometer
7. Calibration of low range voltmeter - Potentiometer.
8. Calibration of high range ammeter - Potentiometer.
9. Measurement of resistance - Potentiometer.
10. Temperature co-efficient of resistance – Ohm's law - Thermistor .
11. Characteristics of a Zener diode.
12. Characteristics of FET.
13. Characteristics of a junction diode.
14. Verification of AND, OR, NOT, NAND, NOR & XOR gates - IC's.
15. Half adder & Full adder using IC's.
16. Half subtractor & Full subtractor using IC's.
17. NAND as universal building block.
18. De-Morgan's theorem using logic gates.
19. NOR as universal building block.
20. Solving Boolean equations using gates.

B.Sc. Physics – Semester III

Part III Core IV

Subject Code:312P04

Mathematical Physics (75 hours)

Preamble:

All Physical phenomena are represented by simple and compact expressions of mathematics. For proper understanding of the basic concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity as well as other areas of Physics, the topics such as Vector calculus, Differential equations and Numerical methods are required. Therefore “Mathematical Physics” is introduced in the third semester as Core Course IV.

Module I

(15hrs)

Line, Surface and Volume integrals- Divergence and Curl of a vector-Vector identities - Gauss divergence theorem and Proof - Problems using Gauss divergence theorem - Equation of Continuity- Euler’s equation of motion- Bernoulli’s equation.

Module II

(15hrs)

Stoke’s theorem and Proof- Problems using Stoke’s theorem- Green’s theorem and its Proof using Gauss divergence theorem- Green’s theorem in a plane- Classification of vector fields

Orthogonal curvilinear coordinates - Gradient, Divergence, Laplacian and Curl in terms of orthogonal curvilinear coordinates- Spherical polar coordinates and differential operators- Cylindrical coordinates and differential operators.

Module III

(15hrs)

Legendre differential equation and Legendre functions: Solution of Legendre’s Equation in descending power of x - Generating function of Legendre polynomial - Rodrigue’s formula for Legendre polynomials- Recurrence formulae.

Bessel’s differential equation- Bessel’s function of first kind- Bessel’s half orders- Recurrence formulae for $J_n(x)$.

Module IV Classical Mechanics

(15hrs)

Constraints and degrees of freedom – Holonomic and non- holonomic constraints – Generalised co-ordinates – Generalised notations – Generalised displacement – Generalised velocity – Generalised momentum – Generalised force

Hamilton’s variational principle – Deduction of Lagrange’s equations of motion from Hamilton’s principle for conservative system - D’Alembert’s principle – Lagrange’s equations from D’Alembert’s principle for Conservative system – Application of Lagrange’s equation of motion – Simple Pendulum.

Module V Numerical Methods

(15hrs)

Solution of algebraic equations- Bisection method- Newton - Raphson method- Solution of linear algebraic equation - Gauss elimination method

Numerical integration - Quadrature formula for equidistant co-ordinates - Trapezoidal rule - Simpson’s rule - Numerical solution of ordinary differential equations - Taylor’s series method- Euler’s method - Fourth order Runge-Kutta method.

Books for study:

1. Module I, II, & III : Mathematical physics - Satya Prakash, Sultan & sons- 5th revised edition reprint 2010.

2. Module IV : Classical Mechanics – Dr. S.L. Gupta, Dr.V. Kumar & Dr. H.V. Sharma, Pragati Prakashan Publishing, Meerut , 21st edition.
3. Module V : Numerical methods - A.Singaravelu-Meenakshi publications- 2nd edition.

Books for Reference:

1. Mathematical Physics – Rajput, Pragathi Prakashan, Meerut 1995 edition.
2. Numerical methods for Scientists and Engineers Shastry

B.Sc. Physics – Semester III

Part IV Skill Based Course Instrumentation I

Subject Code:312PS1

Mechanical Instrumentation (38 hrs)

Module I

(8 hrs)

Characteristics of instruments and measurements system : Methods of measurements – classification of instruments – analog and digital modes of operation – static characteristics – true value – static error – static correction – scale range and scale pan – reproducibility and drift – repeatability – noise – accuracy and precision – significant figures.

Errors in measurements: Limiting errors – Types of errors – Gross errors – systematic errors – instrumental errors – observational errors – random errors.

Module II (Principle & Working)

(8 hrs)

Measurement of linear velocity: Electromagnetic transducers – Moving magnet type and moving coil type velocity transducers.

Measurement of angular velocity: DC and AC Tachometer generator.

Measurement of vibrations: Seismic transducers – LVDT – accelerometers – quantities involved in vibration measurement.

Module III (Principle & Working)

(7hrs)

Measurement of Temperature: Electrical resistance thermometer: Platinum resistance thermometer – salient features of resistance wire thermometers – Thermocouple thermometer – Thermocouple construction - Measurement of thermocouple output – advantages and disadvantages - optical pyrometers – disappearing filament type.

Module IV (Principle & Working)

(7 hrs)

Measurement of flow: Turbine flow meter – Orifice flow meter – hot wire anemometer

Measurement of Liquid level: Resistive method – capacitive method – inductive method - Measurement of liquid level using float.

Module V (Principle & Working)

(8 hrs)

Measurement of Humidity: Hygrometer – Dew point hygrometer - surface conductivity method.

Measurement of thickness: Inductive method - Measurement of thickness using ultra sonic vibrations – Nuclear radiation method.

Books for study:

1. Electrical and Electronic Measurements and instrumentation : A.K.Sawhney – Dhanpat Rai & Sons Publications – 1991 Revised Fourth Edition
2. Industrial Instrumentation : K.Krishnaswamy and S. Vijaya chitra – New age international Publishers
First edition – Reprint 2008.

Books for Reference:

1. Instrumentation Devices and Systems : C.S. Rangan, G.R.Sharma and V.S.V.Mani – Eleventh reprint 1992 TataMcGraw Hill Publishing Ltd, New Delhi
- 2.Experimental methods for Engineers :J.P.Holman – Fifth edition – Mc Graw Hill International Book Company.

B.Sc. Physics – Semester IV**Part IV Skill Based Course Instrumentation II****Subject Code:412PS2****Medical Instrumentation (38 hours)****Preamble:**

Medical instrumentation is in the designing and developing era and every year the hospitals and research institutes are adding modern medical equipments for the medical study. Therefore, it is necessary for every student to understand the physics principles and functioning of various medical equipments. This paper would enable the students to acquire knowledge about the functioning of some of these medical equipments.

Module I: Electrodes**(8 hrs)**

Transport of ions through the cell membrane - Resting and action potentials- Characteristics of resting potential – Design and Components of the Bio-medical instrument system - Electrodes- half cell potential – Electrode paste – Metallic Microelectrode -*Depth and Needle electrode - Surface electrode - Chemical Electrode - pH Electrode

Module II: Bio Potential Recorders**(7 hrs)**

Characteristics of the recording system – Mechanical functions of the heart - Electro Cardiography - Origin of Cardiac Action potential - ECG lead configurations - ECG recording setup - Practical considerations for ECG recording - Analysis of recorded ECG signals

Module III: Physiological Assist Devices**(8hrs)**

Pacemakers – Energy requirements to excite heart muscle - Methods of stimulation – External and Internal Pacemakers - Different modes of operation - Ventricular asynchronous pacemaker – Pacemaker batteries – Lithium cells

Defibrillators - Internal and External defibrillators - synchronized DC defibrillator - Model of the heart lung machine – Oxygenators – Bubble oxygenators - Blood pumps –Non – Pulsatile pump - Kidney machine – Renal function – Dialysis – Peritoneal dialysis.

Module IV : Operation Theatre Equipment**(7hrs)**

Surgical diathermy : Electro surgery techniques – Electrosurgical diathermy unit - Range and area of irritation of different diathermy techniques – Ventilators - Anesthesia machine – Flow meters – Electromagnetic blood flow meters.

Module V: Advances in Biomedical Instrumentation**(8hrs)**

Computer tomography – Principle – CT scanner –Thermography - Infrared thermography
Ultrasonic imaging systems : Ultrasonic propagation through tissues – Display modes – A Mode – B Mode – T-M Mode - Recording devices - Ultrasonic imaging instrumentation
Magnetic resonance imaging : Magnetic Resonance phenomenon - MRI instrumentation.

Book for study:

Biomedical Instrumentation : Dr.M.Arumugam, Anuradha Agencies,
Vidyakaruppur, Kumbakonam, 2nd edition 6th
reprint, 2003.

Books for reference:

1. Biomedical Instrumentation : Leslie Cromwell and Fred S.Weibel printice
and measurements Hall of India Rt,New Delhi.
2. Hand book Biomedical : R.S Khandpur, Tata Mc Graw Hill publishing co,
Instrumentation. 9th Edition 1996

B.Sc Physics - Semester III & IV**Part III Core Practical II****Subject Code: 212PP2****LIST OF PRACTICALS****(A minimum of 15 experiments)**

1. Calibration of high range voltmeter - Potentiometer.
2. Calibration of very low range Ammeter - Potentiometer
3. Temperature co-efficient of resistance of a coil - Carey-Foster's bridge.
4. Comparison of e.m.fs of two cells - B.G.
5. Figure of merit of B.G.
6. Constant of B.G. - Solenoid inductor method.
7. Comparison of Resistances – B.G.
8. Moment of the magnet due to the field along the axis of the coil - Magnetometer.
9. Magnetic flux density due to the field along the axis of the coil - Magnetometer.
10. Determination of AC frequency - Sonometer.
11. Q factor of a series resonant circuit.
12. Q factor of a parallel resonant circuit.
13. Low pass, high pass & band pass filters.
14. Tracing of Lissajou's figures - CRO.
15. Study of characteristics of a Zener diode.
16. Wavelength of colours of Mercury spectrum – Grating – normal incidence method – Spectrometer
17. Determination of Hartmann's constants – Spectrometer
18. Wavelength of LASER source – Grating
19. Refractive Index of liquid – Hollow prism and Laser Source
20. Reconstruction of a Hologram – Demonstration
21. Measurement of Blood sugar, Blood Pressure & Hemoglobin - Demonstration

B.Sc Physics – Semester III & IV**Part III Allied Physics Practical****Subject Code: 412ADP****(For B.Sc Mathematics CA)****LIST OF PRACTICALS****(A minimum of 15 experiments)**

1. Acceleration due to gravity - Compound pendulum
2. Young's modulus – Non-uniform bending – Optic lever, Scale and Telescope.
3. Young's modulus – Cantilever depression – Scale and Telescope.
4. Rigidity modulus of the material of the wire - Torsion Pendulum.
5. Rigidity modulus of the material of the rod – Static torsion.

6. AC frequency - Sonometer
7. Calibration of low range voltmeter - Potentiometer.
8. Calibration of high range ammeter - Potentiometer.
9. Measurement of resistance - Potentiometer.
10. Temperature co-efficient of resistance – Ohm's law - Thermistor .
11. Characteristics of a Zener diode.
12. Characteristics of FET.
13. Characteristics of a junction diode.
14. Verification of AND, OR, NOT, NAND, NOR & XOR gates - IC's.
15. Half adder & Full adder using IC's.
16. Half subtractor & Full subtractor using IC's.
17. NAND as universal building block.
18. De-Morgan's theorem using logic gates.
19. NOR as universal building block.
20. Solving Boolean equations using gates.

B.Sc. Physics - Semester V

Part III Core VI

Subject Code:510P06

Nanotechnology I

Nanomaterials: Synthesis & Characterization (65 hours)

Preamble:

“There's Plenty of Room at the Bottom” – so said Richard Feynmann describing a process by which the ability to manipulate individual atoms and molecules might be developed, using one set of precise tools to build and operate, another a smaller set and so on down to the needed scale.

Nanotechnology mainly consists of the processing of separation, consolidation and deformation of materials by one atom or molecule.

The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes(CNTs).

At present the practice of Nanotechnology embraces both Stochastic and deterministic approach.

Module I Introduction to Nanomaterials & Synthesis (13hrs)

Nanotechnology generation - Definition of Nanoscience, Nanotechnology – Low Dimensional Materials: 2D, 1D, 0D

Top Down and Bottom up Techniques – Chemical methods of synthesis : Sol-Gel method – Hydrothermal synthesis – Sonochemical synthesis – Microwave synthesis.

Module II Nanomaterials Synthesis (13hrs)

Physical methods of synthesis: Plasma Arc discharge – Sputter Deposition : DC sputtering, RF sputtering – Evaporation: Thermal evaporation , Electron beam evaporation.- Chemical vapour deposition – Types of CVD process – Pulsed Laser Deposition – Molecular beam Epitaxy - Ball Milling.

Module III Properties of Nanomaterials (13hrs)

Surface to Volume Ratio at Nanoscale – Mechanical properties – Thermal properties – Electrical properties – Magnetic properties – Optical properties – Acoustic properties.

Module IV Characterization Techniques (13hrs)

(Portion covers Instrumentation, working principle and analysis technique towards Nanoscale).

Electron Microscopes: SEM – TEM – SPM – STM – AFM.

Optical Microscope: Confocal Microscope

Diffraction Method: X-ray Diffraction Technique Debye–Scherrer Relation,

Particle Size Analyzer, Spectroscopy Method: (UV-VIS –NIR) Spectrometer.

Module V (13hrs)

Manipulating Nanomaterials

Nanomanipulator – Nanotweezers – Atom Manipulation – Photolithography – Electron Beam Lithography – Dip Pen Nanolithography.

Special Nano materials

New forms of Carbon – Fullerene – Carbon Nano tubes - Types of Nanotubes – Synthesis CNT – Properties of CNT – Graphene – Porous Silicon

Books for study:

- | | |
|---|---|
| 1. Nanotechnology Principles and Practices | : Sulabha K Kulkarni, Second edition, Capital publishing company, New Delhi |
| 2. Introduction to NanoScience and Nanotechnology | : K.K.Chattopadhyaya and A.N Banerjee First Edition, PHI learning Private Ltd., New Delhi |
| 3. Nanotechnology | : Technology Revolution of 21st Century: Er. Rakesh Rathi, S.Chand &Company Ltd, New Delhi, First edition 2009 |
| 4. Nanomaterials , Nanotechnologies And Design | : Micheael F.Ashby, Paulo J. Ferreira, Daniel L. Schodel, First Printed in India 2011, Elsevier India Pvt. Ltd. |

B.Sc. Physics - Semester V

Part III Core VII

Subject Code:512P07

Electricity and Magnetism (52 hours)

Preamble:

Electricity, Magnetism and Electromagnetic theory are a time bounded subject which has many applications in our day-to-day life. This paper enables the students to understand the concept of electric and magnetic field, production of electromagnetic waves and their significance.

Module I (10hrs)

Electrostatics : Gauss's law & proof – Gauss's law in differential form – Gauss's law and Coulomb's law - Laplace and Poisson's equation – Applications: Electric field due to an uniformly charged sphere - field due to two concentric spherical conductors – Field of a line charge - Field of a charged conductor - Force on the surface of a charged conductor - Demonstration of mechanical force – **Problems of direct applications.**

Module II

(11hrs)

Capacitors: Parallel plate capacitor - Cylindrical capacitor - Spherical capacitor – Energy stored in a capacitor - Force of attraction between capacitor plates - Types of capacitors according to shape and dielectrics - Dielectric constant - Dielectric strength – **Problems ***.

Magnetic field due to steady current : Ampere's circuital law and proof - Applications of Ampere's law - **B** near a long wire – **B** for a Solenoid – **B** for a Toroid – Character of **B** lines and the divergence of **B** - Ampere's law in curl form – **Problems of direct applications.**

Module III

(10hrs)

Electromagnetic Induction: Inductor and inductance – Self inductance - Physical significance of self inductance – Self inductance of a Solenoid – Two parallel wires – Toroidal coil of circular cross section – Energy stored in magnetic field - Measurement of self inductance by Rayleigh's method – Mutual inductance – Mutual inductance of concentric solenoids - Relation between mutual inductance and self inductance - Inductances in series and in parallel Measurement of mutual inductance – **Problems of direct applications.**

Module IV

(11hrs)

Electromagnetic oscillations : Growth and decay of current in a circuit containing L and R (Helmholtz Equation) – RC Circuit Charge and discharge of a condenser — Determination of high resistance by leakage method – Series LCR circuit - charge and discharge. **Problems of direct applications..**

A.C circuit: A Parallel (or Anti) resonant circuit - Parallel resonant circuit when inductance L have some resistance – Condition for unity power factor – Current magnification - Selectivity of a parallel resonance circuit – Comparative study of a series resonant and parallel resonant circuit – Power in AC circuit - Choke coil – **Problems of direct applications.**

Module V

(10hrs)

Circuit Analysis: Superposition theorem- Thevenin's theorem – Norton's theorem- Maximum power transfer theorem – **Problems of direct applications.**

Electromagnetic theory: Basic equations - Maxwell's equations in free space – Electromagnetic waves in free space – Electromagnetic waves in isotropic non - conducting media – Index of refraction - Energy density of Electromagnetic wave and Poynting theorem.

Book for study:

Electricity and Magnetism : K.K. Tewari, S Chand & Company Ltd
Reprint 2007 , New Delhi.

Books for reference:

1. Electricity and Magnetism : R. Murugesan, S.Chand &Co. Ltd., New Delhi, 1995 Edition.
2. Electricity and Magnetism : A.S.Mahajan, A.A. Rangawala
Tata McGraw Hill Publishing Co.Ltd, New Delhi 1998 edition.

B.Sc. Physics - Semester V

Part III Core IX

Subject Code:512P09

Electronic devices and circuits (52 hours)

Preamble:

The field of electronics has occupied the major areas of applications in the field of science and technology. A basic knowledge about the electronic devices and circuits would help the students appreciate their practical applications.

Module I Special diodes

(10hrs)

Introduction – PN-Junction diode – V-I Characteristics – Diode-current equation – Effect of Temperature on diode Characteristics – Static and Dynamic resistance of a diode – Zener diode – V-I Characteristics – Tunnel diode – V-I Characteristics – Diode Parameters and applications – Varactor diode – Specifications – Application in tuning circuits – LED – LED voltage drop and current – Multicolour LED.

Module II Rectifiers, Filters and Regulated Power Supply

(11hrs)

Half wave rectifier – Average values of output voltage and load current – PIV of HWR – Full wave rectifier – Centre-tapped full wave rectifier – Average values of output voltage and load current – Bridge rectifiers – PIV of Bridge rectifiers – Advantages and Disadvantages – Ripple factor and efficiency of HWR and FWR – TUF – Comparison – **Problems of direct Application***.

Filters – Inductor filter – Capacitor filter – LC filters – π -Filters – **Problems of direct Application***.

Voltage regulator – Zener diode shunt regulator – Working – Transistor series regulator – Short-circuit protection against overload – Monolithic IC voltage regulator – Adjustable voltage regulator – Complete DC power supply circuit – **Problems of direct Application***.

Module III Transistor Amplifiers

(11hrs)

Transistor action – CE configuration and characteristics –DC operating point and Load line – Q point and maximum undistorted output – Factors affecting stability of Q-point – Stability factor – Transistor biasing – Voltage divider bias – Stability of voltage divider bias – Classification of amplifiers – Common Emitter transistor amplifier – Amplifier parameters – RC couple amplifier – Frequency response – Advantages , disadvantages and applications (qualitative only) – Power amplifiers – Difference between voltage and power amplifiers – Performance parameters – Class B amplifiers – Class B push-pull amplifiers – Crossover distortion – Efficiency – Feedback amplifiers – Principle – Advantages and disadvantages – Types of feedback – Emitter follower – **Problems of direct Application***.

Module IV Field Effect Transistors and Switching devices

(10hrs)

Junction Field Effect Transistor – Operations – Characteristics – JFET parameters – Comparison between FET and BJT – MOSFET – Depletion type – Enhancement type – Characteristics – Advantages of N-channel over P-channel – Handling precautions.

Thyristors – SCR operation – Triggering ON and OFF – VI characteristics – SCR applications (qualitative only) – UJT – Equivalent circuit – Operation –Characteristics – UJT relaxation oscillator (circuit diagram with applications).

Module V Oscillators and wave shaping circuits

(10hrs)

Classification of oscillators – The Barkhausen criterion – Hartely oscillator – Collpitt's oscillator – RC oscillators - Basic principles of RC oscillator – Phase-shift oscillator – Multivibrators – Astable, monostable and bistable multivibrator - Schmitt trigger.

Types of wave-shaping circuits – Linear wave shaping circuits – Differentiating circuits – Applications – Generation of narrow pulse from square wave – Integrating circuits – Generation of triangular wave forms from square wave – Non-linear wave shaping circuits – Clippers – Positive and negative clippers – Biased clippers – Clamping circuits – Practical clamper – Voltage doubler .

Books for study:

1. A Text book of Applied Electronics: R.S.Sedha, Chand & Co. Ltd., 1st edition,

- reprint 1998, NewDelhi
 2. Basic Electronics Solid state :B.L. Theraja, Chand & Co.Ltd., 1st edition 1998
 reprint 2002, NewDelhi

Books for Reference:

1. Foundations of electronics : D.Chattopadhyay & Others, Wiley
 Eastern Ltd., Edition 1993.
 2. Principles of Electronics : Albert Malvino, Tata McGraw Hill Publishing.

B.Sc. Physics - Semester V

Part III Elective I

Subject Code:512PE1

**Programming in C (75 hours)
 (Theory & Practical)(52 +23 hours)**

Preamble:

C has emerged as the language of choice for most of the scientific applications due to speed, portability and compactness of code. This paper enables the student to understand the high level language and to specialize in C programming.

Module I

(11hrs)

Constants, Variables and Data types - Character set – C tokens – Key words and identifiers – Constants, Variables – Data types – Declaration of variables – Assigning values to variables – Defining symbolic constants – Basic structure of a C program.

Operators and expressions - Arithmetic operators – Relational operators – Logical operators – Assignment operators – Increment and Decrement operators – Conditional operators – Bit wise operators – Special operators – Arithmetic expressions – Evaluation of expressions – Precedence of operators – Mathematical functions.

Module II

(11hrs)

Managing input and output operations - Reading a character – Writing a character – Formatted input – Formatted output.

Decision Making and Branching - Decision making with if statement – Simple if statement – The ..if. else statement – Nesting of if...else statement – The else... if ladder – The switch statement – The ? Operator – The go to statement.

Module III

(10hrs)

Decision Making and Looping - The While statement – The do statement – The for statement – Jumps in loops.

Arrays - One dimensional arrays – Declaration of one dimensional arrays – Initialization of one dimensional arrays – Two dimensional arrays - Initializing two dimensional arrays – Multi dimensional arrays.

Module IV

(10hrs)

Handling of character arrays and strings - Declaring and initializing string variables – Reading strings from terminal – Writing string to screen – Arithmetic operation on functions

User defined functions: Elements of user defined function – Definition of function - Return values and their types – Function calls – Function declaration – Category of functions – No

arguments and no return values – Arguments but no return values – Arguments with return values
– No arguments but returns a value – Nesting of functions – Recursion.

Module V

(10hrs)

Structure - Defining a structure – Declaring structure variable – Accessing a structure member – Structures within structures.

File management in C - Defining and opening a file – Closing a file – Input/Output operations on files – Error handling in files.

Books for study:

Programming in ANSI C : E.Balagurusamy, Tata McGraw Hill
Publishing Co. Ltd., 3rd edition, 2004, New Delhi.

Books for reference:

1. Physics through C Programming : S.Palaniswamy, Pragati Prakashan Publishers,
1st edition, 2004, U.P.
2. Let us C : Yashavant Kanetkar, BPB Publications,
3rd edition, 1999, New Delhi.

LIST OF PROGRAMS

1. Temperature conversion.
2. Roots of a quadratic equation.
3. Matrix multiplication.
4. Ascending and Descending order of an array.
5. Computation of AC current in a circuit that contains resistance, inductance and capacitance in series.
6. Program using Simpson's rule and Trapezoidal rule.
7. Projectile problem.
8. Program for fourth order Runge - Kutta method.
9. Product of factorials of n numbers using recursion.
10. Program using string handling functions.
11. Arranging Strings in alphabetical order
12. Mark list using files.

B.Sc. Physics - Semester V

Part IV Skill Based Course Instrumentation III

Subject Code:512PS3

Electrical and Electronic Instrumentation (38 hrs)

Module I Electro mechanical operating instruments

(8hrs)

Torque and deflection of the galvanometer – Steady state deflection – Dynamic behavior – Damping mechanism – Permanent Magnet Moving Coil Mechanism (PMMC) – D'Arsonval Movement

Power, energy and Power factor Measurements – Electrodynamometer – Wattmeter – Power factor meter.

Module II Ammeters, Voltmeters and Ohmmeters

(7hrs)

DC Ammeters – shunt resistor – Ayrton shunt - DC Voltmeters – Multiplier Resistor – Multirange Voltmeter – Voltmeter Sensitivity – Series Type Ohmmeter – Shunt type Ohmmeter - Multimeter or VOM – Calibration of DC instruments.

Module III Oscilloscopes

(8hrs)

Oscilloscope block diagram – CRT – Electrostatic – Deflection – Screens – Graticules – CRT circuits – Vertical deflection system - Horizontal deflection system – Oscilloscope techniques – Determination of frequency – Digital storage oscilloscope – Block diagram explanation only.

Module IV Data converters, Analog and Digital data acquisition systems.

(8hrs)

Digital to analog converters – Basic inputs and outputs - Weighted resistor network technique – Analog to Digital converters – Basic inputs and outputs - Successive approximation technique.

A/D data acquisition systems – Block diagram – Interfacing transducers to electronic control and measuring systems – Instrumentation amplifier – Voltage to current converter (current loop) – Digital to Analog multiplexing – Analog to Digital Multiplexing.

Module V Computer controlled – Test systems

(7hrs)

Testing a Radio receiver – Instruments used in computer controlled instrumentation – Frequency counter for operation with IEEE 488 bus – Signal generator interfaced with IEEE 488 bus – IEEE 488 electrical interface.

Books for study:

Modules I, II, III, IV & V

: Modern Electronic Instrumentation and Measurement technique - Albert D Helfrick and William D.Hooper – Prentice Hall of India – India reprint 2008, New Delhi.

Module IV (partly)

: PC based instrumentation concepts and practice – N.Mathivanan – Prentice Hall & India – 2007 print – New Delhi.

Book for Reference :

A course in Electrical and Electronic Measurements and Instrumentation

: A.K.Sawhney, Dhanapat Rai & Sons publications, 18th revised and enlarged edition 2007, Reprint 2008.

B.Sc Physics - Semester V

Part III Core Practical III

Subject Code:510PP3

LIST OF PRACTICALS

(A minimum of 15 experiments)

23. Cauchy's constants - Spectrometer.
24. I – d Curve – Spectrometer
25. Absolute measurement of capacity - B.G.
26. High resistance by leakage - B.G.
27. Band gap energy of a thermistor.
28. Study of absorption of laser light on various filters - Demonstration.
29. Characteristics of LED – Laser Source

30. Wave shaping circuits – Clipping and Clamping circuits.
31. Characteristics of FET.
32. Characteristics of UJT.
33. Voltage doubler.
34. Single stage RC coupled amplifier.
35. Emitter follower.
36. IC regulated power supply.
37. Hartley oscillator using BJT
38. Colpitt's oscillator using BJT.
39. Relaxation oscillator - UJT.
40. Astable multivibrator using BJT
41. Adder and subtractor – OPAMP
42. Differentiator and integrator - OPAMP
43. Inverting and Non-inverting amplifier – OPAMP
44. Peaking Amplifier - OPAMP

B.Sc. Physics - Semester VI

Part III Core X

Subject Code:610P10

Nanotechnology II

Nanomaterials : Applications(75 hours)

Module I Nanoelectronics

(15hrs)

Quantum Electronic Devices – Upcoming Electronic Devices: Electrons in Mesoscopic Structure – Short Channel MOS Transistor – Split Gate Transistor – Electron Wave Transistor – Electron Spin Transistor – Quantum Cellular Automata – Quantum Dot Array - Tunnel Effect and Tunneling Elements, Tunnel Diode, Resonant Tunneling Diode - Principle of SET – SET Circuits.
(Basic structure & Principle only)

Module II Nanosensors

(15hrs)

Existing Nano Sensors - Electronic tongue and nose – Selected R&D for individual nanosensors – Electrochemical sensors –. Nanosensors in space - Nanopressure sensor- Physical sensors - Chemical sensors –Biosensors- Nanosensor production methods - Easy-to-make nanosensors.

Module III Nanomedicine

(15hrs)

Approach to developing nanomedicines – Various kinds of nanosystems: Nano shells, Nanopores, Tectodendrimers – Products for Nanodrug administration: Nanoparticle-drug system for oral administration, Nasal administration and Ocular administration – Nanotechnology in diagnostic applications – Materials for use in Diagnostic and Therapeutic applications: Gold Nanoparticles, Quantum dots, Magnetic Nanoparticles.

Module IV Nanotechnology in Optics, Photonics & Solar Energy

(15hrs)

Properties of Light & Nanotechnology – Interaction of Light & Nanotechnology : photon trapping and Plasmons, dielectric constant, refractive index – Imaging – New Low Cost Energy Efficient Windows & Solar Absorbers based on Nano particles.
Nanotechnology for energy: Thermo electricity – Nanotechnology for energy : Solar - Nanotechnology for energy: Hydrogen.

Module V Nanotechnology in Environment, Textiles & Cosmetics

(15hrs)

Water cleaning and Purification – Air cleaning and purification – Air pollution reduction – Soil Remediation

Characteristics of nano finishing in garments – Functional, intelligent and smart textiles - Waterproof Textiles – Breathable Textiles - UV Protection Textiles - Odor Control Textiles – Anti-Static Textiles - Anti-Bacterial Textiles - Dust Free Textiles – Stain Resistant Textiles.

Sun Screen Lotion – Anti ageing Creams – Hair coloring – Tattoos.

Books for Study:

1. Nano Electronics & Nano Systems : K. Goser, P. Glosekotter, V. Dienstuhl, Springer, 2004.
2. Nanotechnology : Technology Revolution of 21st Century: Er. Rakesh Rathi, S.Chand & Company Ltd, New Delhi, First edition 2009
3. Nano: The Essentials Understanding : T. Pradeep , Tata McGraw-Hill Publishing Nanoscience and Nanotechnology Company, Second reprint 2008.
4. Nanotechnology – Basic Science : Mick Wilson, Michelle Simmons and & Emerging Technologies Burkhard Raguse, (1 / e) Overseas Press India Pvt. Ltd., 2005.
5. Nanomaterials , Nanotechnologies : Micheael F.Ashby, Paulo J. Ferreira, And Design Daniel L. Schodel, First Printed in India 2011, Elsevier India Pvt. Ltd.

B.Sc. Physics – Semester VI

Part III Core XII

Subject Code:612P12

Laser Physics and Fiber Optics (52 hours)

Preamble:

The objective of introducing this paper is to present a comprehensive overview of the present day status of laser technology and optical fiber stating their principles and various applications including optical communications.

Module I

(10hrs)

Optical coherence - Quantum transitions - Absorption of light - Spontaneous and Stimulated emission of light - Active medium - Population inversion - Methods of creating population inversion - *Ruby laser - Nd :YAG laser - Organic dye laser - *Helium - Neon laser - Argon laser.

Module II

(11hrs)

CO₂ laser – Excimer laser – chemical lasers – semiconductor lasers – Applications of laser – Industrial applications – Medical Applications – Applications in entertainment industry - Holography – Applications in laser printing – Application in meteorology.

Module III

(10hrs)

Physical nature of optical fiber – Basic laws and definitions involved in optical fiber – Fiber classification – Step index multimode fiber – Graded index fiber – Step index single mode

fiber – Acceptance angle, Acceptance cone and Numerical aperture of a fiber – Optical fiber bundles and cables.

Module IV

(10hrs)

Fiber fabrication – Rod-in-tube method – Double crucible method – Outside vapour phase oxidation – Chemical vapour deposition method - Modified chemical vapour deposition – Fiber Optic materials – Glass fibers – Plastic fibers - Fiber splices, Connectors and Couplers – Fiber attenuation – Dispersion in Optical fiber.

Module V

(11hrs)

Typical communication system – Transmitter light sources LED – Modulation technique – Pulse modulation – Receiver – Optical detector – Photo detector - Avalanche photo detector – Demodulation techniques – Optical repeater – Multiplexing and Demultiplexing – Wavelength Division multiplexing - Optical telecommunication system.

Books for study:

1. Laser Physics and Applications : Tarasov, Mir Publications
2. Optic fiber and Laser : Anuradha de, New age Intl. Publishers 2004 edition, New Delhi.
3. Optical Fiber Communications : Gerd Keiser, Tata Mc Graw Hill Publishers.

Books for Reference:

1. ABC of Laser : Masilamani, Anuradha agencies, first edition, 1996, Kumbakonam.
2. Fiber Optic Technology and application : Stewart D. Personick, Khanna Publishers, 3rd reprint, New Delhi.
3. Laser Principles, Types and applications : K.R.Nambiyar, New age Intl. Publications, New Delhi.

B.Sc Physics – Semester VI

Part III Elective II

Subject Code:612PE2

Digital Electronics and Microprocessors (52 hours)

Preamble:

The digital electronics and digital devices with the integrated circuit technology are playing a significant role in the day-to-day life. The designing and fabrication technology of these devices paves a vivid understanding at the UG level. Also the binary logic with which these digital devices operate would facilitate the students to learn and appreciate the applications of these digital devices.

Module I IC Technology and its applications

(11hrs)

Introduction – Advantages of ICs-Classification by structure and function – IC terminology – Fabrication of components like transistors, diodes, resistors and capacitors – Operational amplifiers – Ideal OPAMP – Virtual ground and summing point – Applications – Inverting amplifier – Non-inverting amplifier – Adder, Subtractor, Integrator and Differentiator – Input offset voltage – Peaking amplifier – **Problems of direct applications.**

Module II Arithmetic Circuits

(11hrs)

Binary addition – Binary subtraction – Logic gates – NAND and NOR as Universal gates – Postulates of Boolean Algebra – Theorems of Boolean Algebra – Simplification of Boolean expressions using Karnaugh maps and gates – Half adder – Full adder – Half subtractor – Full subtractor – Binary adder / Subtractor – Multiplexers – Demultiplexers – Decoder – Seven-segment decoders – **Problems of direct applications.**

Module III Sequential circuits

(10hrs)

Flip flops – RS flip flop – Clocked RS flip flop – Edge triggered RS flip flop – D flip flop – Edge triggered JK flip flop – JK master/slave flip flop – Asynchronous counter – Synchronous counter – MOD 5 counter and wave forms – Decade counter and wave forms – Ring counter – application to digital clock.

Module IV Registers and Memory devices

(9hrs)

Shift registers – Serial IN Serial OUT – Serial IN parallel OUT – Parallel IN serial OUT – Parallel IN Parallel OUT.

Semiconductor memories – ROM, PROM , and EPROM – RAM – Dynamic RAM – Magnetic bubble memories – ROM application to seven-segmented visible display.

Module V INTEL 8085 Microprocessor

(11hrs)

Organization of a microprocessor based system – Operating system – Single board microprocessors – Microprocessor INTEL 8085 – Architecture details – Instruction Format/Instruction set of 8085 – Machine cycle of 8085 – Op code fetch and memory load machine cycle (for Instruction code 4FH-MOV C,A & 3EH-MVI A,32H only) – Microprocessor addressing modes (with examples) – Programs to add two 8 bit numbers, to subtract two 8 bit numbers, to sort 8 bit numbers in ascending and descending order.

Books for study:

1. Module I : Basic electronics solid state – B.L.Theraja, S.Chand & Co. Ltd., Reprint 2002, New Delhi.
2. Module II,III & IV : Digital Principles and applications – A.P.Malvino and D.P.Leach, McGraw Hill Publishing fourth edition.
3. Module V : Microprocessor, Architecture, Programing and Application with 8085 – Ramesh S.Gaonkar, Penram International Publishing, Third edition.
4. Module V : Digital Electronics and Microcomputers – R.K.Gaur, Dhanpat Rai Publications , Third Revised and Enlarged Edition.

Books for Reference:

1. Introduction to Microprocessors : Aditya Mathur.
2. Digital Principles and applications : A.P. Malvino and D.P.Leach, McGraw Hill Publishing 3rd and 6th edition, New Delhi.

Preamble:

MATLAB is an integrated technical computing environment that combines numerical computation, advanced graphics and visualization and a high level programming language. This paper helps the student to solve scientific and numerical problems in an easy and quicker way.

Module I

(7hrs)

MATLAB windows – Working in the Command Window – Arithmetic operations with scalars – order of Precedence – Display formats – Elementary Math built-in functions – Assignment operator – Rules about variable names

Creating a one dimensional array - Creating a two dimensional array – zeros, ones and eye commands – Transpose operator - Array addressing - adding elements to a matrix – deleting elements – Built – in – functions in handling arrays.

Module II

(7hrs)

Mathematical operations with arrays : array addition and subtraction – Array Multiplication – array division – element – by – element operations – Relational operations – Logical operations

Trigonometric and exponential functions – character strings - Command line functions, Inline functions – Anonymous functions - Programs.

Module III

(7hrs)

Script files : Creating and saving a script file – Running a script file – input to a script file – output commands – disp command – fprintf command

Creating a Function File – function definition line – input and output arguments – Local and Global variables – saving a function file

for loops – while loops – if – elseif – else statements – Switch – case – otherwise – break statement – Programs.

Module IV

(7hrs)

Conditional statements : if ... end structure – if .. else ... end structure – if .. elseif .. else ... end structure – switch – case statement –

Loops : for ...end loops – while .. end loops - Nested loops and nested conditional statements – break and continue commands.

Module V

(7hrs)

Two dimensional plots : Plot command line specifiers – Property name and Property value – fplot command

Plotting multiple graphs in the same plot – Formatting a plot : x label , y label, title, legends, text – subscript and superscript - axis command – grid command – formatting a plot using the plot editor

Book for study:

MATLAB An introduction with Applications

: Amos Gilat

Wiley India Pvt Ltd, New Delhi

Books for reference:

1. MATLAB 7 : Rudra Pratap, 1st edition, 2006, Oxford University Press, 2002 edition
2. MATLAB and its Applications in Engineering : Raj Kumar Bansal, Ashok Kumar Goel and Manoj Kumar Sharma, Published by Dorling Kindersley (India) Pvt Ltd..
3. A guide to MATLAB : Brian R. Hunt, Ronald L. Lipsman and Jonathan M. Rosenberg, Cambridge University Press, 1st edition, reprinted 2003.

MATLAB Practicals

1. Temperature Conversion
2. Projectile Motion
3. Resistances in series and in parallel and Electrical resistive network analysis.
4. Lissajou's Figures.
5. Low Pass and High Pass Filters
6. Series Resonant Circuit
7. Parallel Resonant Circuit
8. AC to DC Converter.
9. Numerical integration – Simpson's rule and Trapezoidal rule.
10. Model creations using relational and logical operators.
11. Mean, variance and standard deviation.
12. Voltage divider.
13. Particle in a box – one dimension

B.Sc Physics - Semester VI**Part III Core, Digital Electronics & Microprocessor Practical IV****Subject Code:610PP4****LIST OF PRACTICALS****(A minimum of 15 experiments)**

1. Stoke's formula - Spectrometer.
2. Measurement of thermo e.m.f. using thermo couple and Potentiometer
3. Absolute measurement of mutual inductance - B.G.
4. High resistance by charging - B.G.
5. Determination of divergence & Beam spot of the laser source.
6. Measurement of Numerical aperture – optical fiber & Laser source
7. Determination of fiber attenuation – optical fiber & Laser source
8. Characteristics of Photo detector – Laser Source
9. Determination of particle size (Nano particles)
10. Synthesis of Nano particles.
11. Coating of Nano film.
12. Conductivity studies of Nano films.
13. Logic gates using discrete components & Verification of gates – OR, AND, NOT, NAND, NOR & XOR using IC's.
14. NAND & NOR gates as universal building block.
15. J-K and R-S flip-flop using IC's and Ring counter.
16. Half adder and Full adder using IC's.
17. Half subtractor and Full subtractor using IC's.
18. Decade counter using IC's.
19. Addition & Subtraction of two 8 bit numbers using 8085 microprocessor.
20. Ascending & descending of an array using 8085 microprocessor.

Curriculum Framework for the students admitted in the academic year 2017-2018

Department of Physics

Curriculum Design

Sri G.V.G. Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

Post Graduate Department of Physics

M.Sc. Physics

Scheme of Examination – CBCS Pattern

Semester	Course Code	Course Title	Ins. Hrs / week	Examination				Credits
				Dur .Hrs	CIA Marks	ESE Marks	Total Marks	
I	17MP01	Core I - Classical Mechanics	5	3	25	75	100	4
	17MP02	Core II - Mathematical Physics I	5	3	25	75	100	4
	17MP03	Core III - Modern optics	4	3	25	75	100	4
	17MP04	Core IV - Semiconductor Circuits and Applications	5	3	25	75	100	4
	17MPP1	Practical I	6	4	40	60	100	4
	17MPE1/ 17MPE2	Elective I: Nano science and Nanotechnology/ Thin film Technology	5 5	3 3	25 25	75 75	100 100	4
II	17MP05	Core V - Mathematical Physics II	5	3	25	75	100	4
	17MP06	Core VI -Quantum Mechanics I	5	3	25	75	100	4
	17MP07	Core VII - Condensed Matter Physics	4	3	25	75	100	4
	17MP08	Core VIII– Statistical Mechanics	4	3	25	75	100	4
	17MPP2	Practical II	6	4	40	60	100	4
	17MPE3 / 17MPE4	Elective II - Digital Electronics and Microprocessors / Energy Physics	4 4	3 3	25 25	75 75	100 100	4
	17MGCS	Cyber Security	2	2	50	-	Grade	Grade

	17MPA1	Advanced Learners Course I - Astrophysics		3	-		100	4*
III	17MP09	Core IX - Quantum Mechanics II	5	3	25	75	100	4
	17MP10	Core X - Electromagnetic Theory	5	3	25	75	100	4
	17MP11	Core XI - Molecular Spectroscopy	5	3	25	75	100	4
	17MP12	Core XII - Nuclear and Particle Physics	4	3	25	75	100	4
	17MPP3	Practical III	6	6	40	60	100	4
	17MPE5 / 17MPE6	Elective III - Analog and Digital Communications Computational Physics (Theory & Practical)	5 5	3 3	25 40	75 60	100 100	4
	17MPIS	Internship/ Summer Fellowship			150	-	150	6
IV	17MPPV	Project and Viva-voce			150	150	300	12
	17MPA2	Advanced Learners Course II - Plasma Physics		3			100	4*

*** Starred credits are treated as additional credits (Optional).**

**M.Sc. Physics
Semester I
Core II - Mathematical Physics I 17MP02**

Credits: 4

Hours: 75(C-60, S-5, Tu-5, A-5)

The main objectives of this course are

- To impart knowledge in the field of tensors and group theory.
- To disseminate knowledge in Laplace and Fourier transforms and its Applications in solving differential equations and periodical wave functions.
- To develop skill in solving problems of partial differential equations.
- To gain a working knowledge of mathematical methods used in physics.

Unit I Tensors

(12 hrs)

Kronocker delta symbol– Scalars, Contra variant Vectors and Covariant Vectors –Tensors of Higher ranks – Algebraic operations of Tensors – Symmetric and

Anti symmetric tensors – Invariant tensors $g_{\mu\nu}$, $g^{\mu\nu}g^\mu_\nu$ – Conjugate or Reciprocal Tensors – Christoffel's 3-index symbols – Transformation laws of Christoffel's symbols.

Unit II Group Theory (12hrs)

Concept of a group – Abelian group – Generators of a finite group – cyclic group – Group multiplication table- subgroups – co-sets – Conjugate elements and classes- Conjugate sub-groups – Isomorphism and Homomorphism – Permutation groups – Cayley's theorem – The group of symmetry of an equilateral triangle – group of symmetry of a square – Reducible and Irreducible Representations .

Unit III Laplace Transforms (12 hrs)

Definition of Laplace Transform – Properties of Laplace Transforms: Linearity Property – Change of scale property – First Translation property and second translation property – Derivative of Laplace Transform – Laplace Transform of the Derivative of a function.

Laplace Transform of Periodic Functions: Saw tooth wave – Square wave- Half wave rectifier – Inverse Laplace Transform – Properties of inverse Laplace transform: Linearity Property – Change of scale property – First translation property – Second translation property.

Application of Laplace Transforms to Differential equations: ordinary differential equation with constant coefficients – Ordinary differential equation with variable coefficients.

*** Unit IV Fourier series and Fourier Transform (12hrs)**

Fourier series – Evaluation of the coefficients of Fourier series – Dirichlet's conditions – Problems – Complex form of Fourier series – Fourier series in the interval $(0,T)$

Fourier Transform – Fourier Sine and Cosine Transforms – Properties of Fourier transform – Fourier transform of a derivative.

Unit V Partial Differential Equations in Physics (12 hrs)

Introduction – Solution of Partial differential equations by the method of separation of variables – Solution of Laplace's equation in Cartesian coordinates-Two dimensional Steady flow heat – Diffusion equation or Fourier equation of heat flow-Two dimensional flow heat – The equation of motion for the vibrating string – D' Alembert's Solution.

*** Self study unit**

C-Contact hours S-Seminar Tu-Tutorial A-Assignment

Book for Study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I - V	Mathematical Physics	Sathyaprakash	Sultan Chand & sons	5 th Revised Edition, 2011

I - V	Mathematical Physics	P.K.Chattopadhyaya	New age index publishers	2 nd Edition, 2013
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Books for Reference:

S.No .	Name of the Book	Authors	Publishers	Year & Edition
1	Mathematical Physics	B.D.Gupta	Vikas Publishing House	4 th Edition, 2010
2	Applied Mathematics for Engineers and Physicists	B.S. Rajput	PragatiPrakashan	25 th Edition, 2014
3	Mathematical Physics	H.K.Dass and Dr. Ramaverma	S.Chand Publication	1 st Edition, 2012
4	Mathematical Physics	Sadri Hassini	Springer International Publication	2 nd Edition, 2013

M.Sc. Physics
Semester I
Core IV-Semiconductor Circuits and Applications 17MP04

Credits: 4

Hours: 75 (C-65, S-4, Tu-3, A-3)

The main objectives of this course are

- To impart knowledge about semiconductor devices.
- To familiarize the basic materials and properties of semiconductors with application to the tunnel diode, photo diodes and SCR.
- To provide knowledge in structure, operational principle, mode and characteristics of FET, UJT and Op-Amp.
- To inculcate an in-depth knowledge in Op-amp & its applications.

Unit I Diodes and Thyristors

(13 hrs)

Introduction – Tunnel diode – Diode parameters – Applications – Photo diodes – Characteristics – Applications – Photoconductive cells – Characteristics – Applications – Liquid crystal display – Solar cells – Thyristors – Applications – Silicon Controlled Rectifiers (SCR) – SCR characteristics and rating – Applications : Temperature controller – Light activated SCR – Diac – Diac in proximity detector – Triac – Triac in Phase (power) control – UJT-Characteristics.

Unit II Field Effect Transistors (13 hrs)

JFET-Construction and operations – Characteristics of JFET: Drain characteristics – Effect of gate to source voltage on drain Characteristics – Transfer Characteristics – Specification sheet of JFET – JFET-Parameters – Comparison between FET and BJT – MOSFETs – Depletion type MOSFET-Construction and operation – Characteristics of Depletion type MOSFET – Enhancement type MOSFET – Construction, operation and characteristics of Enhancement MOSFET – Advantages of N-channel over P-channel MOSFETs – MOSFET handling –CMOS VMOS.

Unit III FET Amplifiers (13 hrs)

Biasing the FET – Gate bias- self bias- setting a Q-point – Setting a Q-point using load line – Voltage divider bias – Current source bias – FET Amplifier – Common Source Amplifier – Analysis of Common Source Amplifier – Effect of AC load on Amplifier Parameters – Effect and external source resistance on voltage gain – FET Amplifier: Low frequency response – High frequency response – Enhancement MOSFET amplifier – Motion detecting system using JFET.

***Unit IV Oscillators (13 hrs)**

Comparison between an amplifier and an oscillator – Barkhausen criterion – FET Hartley oscillator – FET Colpitt's oscillator – Principle of RC oscillator – FET Phase shift oscillator – Wien bridge oscillator – Non sinusoidal oscillator – Astable multivibrator – Monostable multivibrator – Bistable multivibrator – Schmitt trigger – Blocking oscillator – UJT Relaxation oscillator-Problems

Unit V Operational Amplifiers (OP AMPs) (13 hrs)

The Ideal OP-AMP – Inverting, Non-Inverting & Differential Amplifiers – Input offset voltage – Input offset current – CMRR – OP-AMP Characteristics – Open Loop Input Output Characteristics – Frequency Response and Slew rate – OP-AMP Applications : Adder, Subtractor, Integrator, Differentiator – Comparator – Voltage to Current Converter – Current to Voltage Converter – Electronic Analog Computation (Solving simultaneous equations) - Problems

*** Self study unit**

C-Contact hours S-Seminar Tu-Tutorial A-Assignment

Books for study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I	A Text book of Applied Electronics	R.S.Sedha	S.Chand and Company	Reprint 2010

II & III	Electronic Devices and Circuit theory	Robert L.Boylestad and Louis Nashelsky	Prentice Hall of India Private Ltd	9 th Edition, 2008
IV	OP-AMPs & Linear Integrated Circuits	RamakantA.Gay akwad	Prentice Hall of India Private Ltd	9 th Edition, 2008
V	Linear Integrated circuits	D.RoyChoudhury and Shail Jain	New Age International (P) Ltd	10 th Reprint, 1997

Books for Reference:

S.No.	Name of the Book	Authors	Publishers	Year & Edition
1	Basic electronics – Solid state	B.L.Theraja	S.Chand& Co. Ltd, New Delhi	Reprint 2010
2	Integrated Electronics: Analog and Digital Circuits and Systems	Jacob Millman, Christos C.Halkias	McGraw Hill International Book Company	2 nd Edition, 2012

M.Sc.Physics Semester I Practical I

17MPP1

Credits: 4

Hours: 90

List of Practicals

(A minimum of 12 Experiments)

1. Young's Modulus – Hyperbolic Fringe Method
2. Determination of λ – Michelson's Interferometer
3. Measurement of Hall voltage in semiconductors
4. Resistivity Measurement– Four Probe Method
5. Dielectric constant of Benzene and Dipole moment of Acetone
6. Velocity of Ultrasonics in liquids – Ultrasonic Interferometer
7. Characteristics of Photo diode & Photo transistor – Laser Source
8. Inversion temperature of Thermocouple
9. Characteristics of Tunnel Diode
10. Characteristics of FET – BFW 10/11
11. Construction of an Astable Multivibrator
12. RC Coupled Amplifier – Single stage using FET
13. Colpitt's Oscillator

14. Hartley Oscillator
15. IC Regulated power supply ($9 - 0 - \bar{9}$) V
16. Half Adder, Full Adder (NAND circuits)
17. R-S & J-K Flip Flop
18. Construction of a Low pass and a High pass filter using OPAMP 741
19. Construction of an Adder and a Subtractor using OP AMP 741
20. Wien Bridge Oscillator using FET

M.Sc. Physics
Semester I
Elective I - Nano science and Nanotechnology **17MPE1**

Credits: 4

Hours: 75 (C-65, S-5, A-5)

The main objectives of this course are

- To understand the inner concepts of Nanoscience towards material behavior.
- To learn the technology involved in the synthesis of Nanomaterials.
- To develop interpretation skills in the characterization Nanomaterials
- To impart knowledge about upcoming electronic devices and of utilization of nanomaterials in the field of electronics.
- To acquire knowledge about applications in sensors, medicine and textiles.

Unit I Basics for Nanoscience **(13 hrs)**

Definition of Nanoscience and Nanotechnology – Band structure and density of states: Energy bands – Size effects in smaller systems (Pre quantum) – Quantum behavior of nanometric world: Bohr model of hydrogen atom – Infinite potential well: Confined particle in 1D – Potential step: Reflection and tunneling (quantum leak) – Potential box: Trapped particle in 3D(Nanodot) – Electron trapped 2D plane (Nano sheet) – Electrons moving in 1D:Nanowire – Quantum confinement in nano materials.

Unit II Synthesis of nanomaterials **(13 hrs)**

Chemical methods: Surface to volume ratio-2D, 1D and 0D materials– Top Down and Bottom up Techniques for synthesis of Nanomaterials –Growth of nanoparticles(LaMer diagram) –Sol-Gel Method – Hydrothermal synthesis – Sonochemical synthesis – Microwave synthesis.

Physical methods: High Energy Ball Milling method – Methods based evaporation: Physical vapour deposition – Chemical vapour deposition - Sputtering techniques - Lithography using photons (UV-Vis, Lasers or X-rays)

Unit III Analysis techniques **(13 hrs)**

Microscopes: Optical Microscopes – Confocal optical Microscope –Electron microscopy: Introduction – Resolution vs. magnification – Scanning Electron Microscope: SEM techniques – Electron gun – Specimen interaction – Applications – Transmission Electron Microscope – High resolution TEM.

Diffraction techniques: X-ray diffraction – Atomic Scattering factor – Bragg's law diffraction – Diffraction from different types of samples – Crystal structure factor – Diffraction from nanoparticles – X-ray diffractometer.

Unit IV Nano electronics

(13 hrs)

Quantum Electronic Devices: Upcoming Electronic Devices – Electrons in Mesoscopic structures – Examples of Quantum Electronic Devices: Short Channel MOS transistor – Split Gate transistor – Quantum Cellular Automata – Tunneling Element: Tunneling Diode – Resonant Tunneling Diode – Principle of the Single Electron Transistor: The coulomb Blockade – Performance of the Single Electron Transistor.

***Unit V Applications of Nanomaterials**

(13 hrs)

Nano sensors: Types of Nano sensors – Carbon Nano Tube based Sensors – Nanowire sensors Nano sensors in space – Nano pressure sensor – Chemical Sensor- Quantum Dots for Cancer Diagnosis and Therapy – Magnetic Nanoparticles for Imaging and Therapy.

Characteristics of nano finishing in garments –Waterproof Textiles –UV Protection Textiles – Odor Control Textiles –Anti-Bacterial Textiles – Dust Free Textiles – Stain Resistant Textiles.

*** Self study unit**

C-Contact hours S-Seminar A-Assignment

Books for Study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I	Nanotechnology Principles and Practices	Sulabha K Kulkarni	Capital publishing Company	2 nd Edition, 2011
II & III	Introduction to NanoScience and Nanotechnology	K.K.Chattopadhyay &N.Banerjee	PHI Learning Private Ltd	1 st Edition, 2009
IV	Nanomaterials , Nanotechnologies and Design	MicheaelF.Ashby, Pauloj. Ferreira, Daniel L. Schodek	Elsevier India Pvt. Ltd.	Reprint 2013
V	Nano Enabled Sensors	Kourosh Kalantar-zadeh, Benjamin Fry	Springer Publications	Imprint 2008

Books for Reference

S. No.	Name of the Book	Authors	Publishers	Year & Edition
1	Nanotechnology Basic Science & Emerging Technologies	Mick Wilson, Kaali Kannangara, GeoffSmith	Overseas Press India Pvt.Ltd	Reprint 2008
2	Introduction to Nanotechnology	Charles P.Poole Jr., Frank J. Owens	John Wiley sons Inc Publication	2003 Edition
3	Text book of Nanoscience andNanotechnology	B.S.Murthy, P.Shankar, Baldevraj, B.B.Rath and James Murday	University Press Reprint (springer)	1 st Edition, 2013
4	Nanotechnology in Biology and Medicine	Tuan Vo-Dinh	CRC press	2007 Imprint

M.Sc. Physics
Semester II
Core V - Mathematical Physics II 17MP05

Credits: 4

Hours: 75(C-60, S-5, Tu-5, A-5)

The main objectives of this course are

- To educate the concepts related to the various types of differential equations of various order and arriving at solutions.
- To make the students to understand the complex variable concepts and methods & rules that govern the differential equations
- To impart the knowledge about the statistical distribution using probability concepts.
- To make the students to understand the applications of the differential equations and arrive at solutions for physical problems.

Unit I Differential Equations

(12 hrs)

Legendre Differential Equation and Legendre function – Generating function of Legendre Polynomials – Rodrigue’s formula for Legendre polynomials – Recurrence formulae for $P_n(x)$ – Laguerre’s Differential Equation and Laguerre Polynomials – Generating function of Laguerre Polynomials – Recurrence relations for Laguerre polynomials

Unit II Differential Equations**(12 hrs)**

Bessel's Differential Equation and Bessel's function of first kind – Recurrence formulae for $J_n(x)$ – Generating function for $J_n(x)$ – Hermite Differential Equation and Hermite Polynomials – Generating function of Hermite Polynomials – Recurrence formulae for Hermite Polynomials.

Unit III Complex Variables**(12 hrs)**

Review of Algebraic operation on Complex Numbers – Complex Conjugates – Modulus and argument of a complex number – Graphical representation on argand diagram and trigonometric form – Functions of a complex variable – Limit, Continuity and differentiability – Definitions : Analytic function – The necessary and sufficient conditions for $f(z)$ to be analytic : Cauchy-Riemann Differential Equations – Laplace's equations : Harmonic functions – Line integral of a complex function – Cauchy's Integral theorem – Cauchy's Integral Formula – Taylor's series – Cauchy Residue theorem.

Unit IV Probability*(12 hrs)**

Probability: Priori Probability – Empirical Probability – Theorem of total Probability – Binomial theorem of Probability – Measures of central tendency, averages – Measures of dispersion – Karl Pearson's Coefficient of Correlation – Standard deviation as the sum of distribution – Theoretical Distributions: Binomial distribution – Normal distribution – Theory of errors – Line of Regression.

Unit V Numerical Methods**(12hrs)**

Numerical solutions of ordinary differential equations: Taylor series method Modified Euler's method – Fourth order Runge-Kutta method – Numerical Solutions of partial differential equations: Difference quotients and difference equations Solution of elliptic equations – Solution of Laplace's equations

Numerical integration: Quadrature formula for equidistant ordinates – Trapezoidal rule – Simpson's rule – Approximate solution of algebraic and transcendental equations : Newton- Raphson method – Gauss elimination method for solving a system of linear equations.

*** Self study unit****C-Contact hours S-Seminar Tu-Tutorial A-Assignment****Books for Study:**

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I-IV	Mathematical Physics	Sathya prakash	Sultan Chand & sons	5 th Revised Edition, 2011.
V	Numerical Methods	A. Singaravelu	Meenakshi Publication	New Revised Edition, January 2014

Books for Reference:

S.No.	Name of the Book	Authors	Publishers	Year & Edition
1	Mathematical Physics	B.D.Gupta	Vikas Publishing House	4 th Edition, 2010
2	Mathematical Physics	H.K.Dass and Dr. Ramaverma	S.Chand Publication	7 th Edition, 2014
3	Mathematical Physics	P.K.Chattopadhyay	New Age Index Publishers	2 nd Edition, 2013

M.Sc. Physics
Semester II
Core VIII - Statistical Mechanics **17MP08**

Credits: 4**Hours: 60 (C-52, S-4, A-4)****The main objectives of this course are**

- To familiarize the concepts in Classical law of thermodynamics and their applications.
- To identify and describe the statistical nature of concepts in particular: Entropy, Free energy and partition functions.
- To impart knowledge in the statistics for Bose-Einstein, Fermi-Dirac.
- To identify the types of phase transition of physical systems.

Unit I Basic Concepts (10 hrs)

Phase space – volume in phase space– Ensembles: Micro canonical ensembles- Canonical ensemble – Grand canonical ensemble – uses of ensembles – Density of distribution in phase space –Liouville's theorem – Postulate of equal a priori probability – Statistical equilibrium – Thermal equilibrium - Connection between statistical and thermodynamic quantities

***Unit II Classical Distribution Law (10 hrs)**

Microstates and Macrostates – Stirling's approximation –general statistical distribution law – Most probable distribution – Classical Maxwell-Boltzmann distribution –Evaluation of constants in the Maxwell-Boltzmann distribution law – Mean values obtained from distribution law – Gibb's paradox – partition function and its correction with thermodynamics.

Unit III Quantum Statistics (11 hrs)

Transition from Classical State to Quantum state - Identical particles and symmetry requirements - Bose-Einstein statistics - Fermi-Dirac statistics -Maxwell-

Boltzmann statistics –Results of three statistics–Grand canonical ensemble and quantum statistics.

Unit IV Ideal BE and FD gas

(11 hrs)

Bose Einstein Distribution: Energy and pressure of the gas– Bose Einstein condensation – Thermal properties of Bose Einstein gas –Fermi Dirac Distribution: Energy and pressure of the gas – Thermodynamic function of degenerate Fermi Dirac gas: Thermal capacity, Entropy.

Unit V Applications

(10 hrs)

Thermal Properties: Boltzmann transport equation – Thermal conductivity of metal – Brownian movement – Phase Transition: Phase Transition of First and Second kind - Phase Transitions of the Second kind: The Ising Model.

*** Self study unit**

C-Contact hours S-Seminar A-Assignment

Books for Study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I -V	Statistical Mechanics	Gupta & Kumar	Pragathi Prakashan	28 th Edition , 2014
I -V	Statistical Mechanics	Pathria & Paul D. Beale.	Imprint Academic press	3 rd Edition, 2011

Books for Reference:

S. No.	Name of the Book	Authors	Publishers	Year & Edition
1	Statistical Mechanics	B.K.Agarwal and Melvin Eisner	Wiley Eastern	Reprint 2005
2	Statistical Mechanics	B.K.Agarwal and Melvin Eisner	New Age International (P) LTD	3 rd Edition, 2012
3	Fundamentals of Statistical Mechanics	B.B.Laud	New Age International publishers	2 nd Edition, 2012

M.Sc. Physics
Semester II
Practical II

17MPP2

Credits:4

Hours: 90

List of Practicals
(A minimum of 12 Experiments)

1. Young's Modulus – Elliptical Fringe Method
2. Determination of Refractive index of glass –Michelson's Interferometer
3. Determination of Band Gap – Four Probe method
4. Numerical aperture of an optical fibre – Laser source
5. Determination of e/m using Thomson experiment
6. Magnetic Susceptibility- Quinck's method
7. Synthesis of thin Film – Chemical Bath Deposition Method
8. Synthesis of Nano Particles – Chemical Method
9. Synthesis of Nano Particles – Planetary Ball Mill
10. Characteristics of UJT
11. Relaxation Oscillator – UJT
12. RC Coupled amplifier – Two stage (FET/BJT)
13. 555 Timer – Astable Multivibrator
14. Four bit D/A converter using OPAMP
15. Constant current source using OPAMP
16. Half Subtractor, Full Subtractor (NAND circuits)
17. Characteristics of SCR
18. Construction of Integrator, Differentiator using OP AMP
19. 555 Timer – Mono stable Multivibrator
20. INTEL 8085A Microprocessor – Addition and Subtraction of two 8-bit numbers
21. INTEL 8051 MCS Microcontroller – Addition of two 16-bit numbers
22. Microcontroller – Find the maximum number from the given ten 8-bit numbers(INTEL 8051)

M.Sc. Physics
Semester III
Elective III -Analog and Digital Communications 17MPE5

Credits: 4

Hours: 75 (C-65, S-5, A-5)

The main objectives of this course are:

- To equip students with various issues related to analog and digital communication such as modulation, Demodulation, Noise handling, Data conversion and Multiplexing.
- To understand the building blocks of digital communication system.
- To understand and analyze the signal flow in a digital communication system.
- To analyze error performance of a digital communication system in presence of noise and other interferences.
- To understand concept of spread spectrum communication system.

Unit I Antennas and Wave Propagation (13 hrs)

Antennas: Basic considerations – Wire radiator in Space – Terms and Definitions – Effects of Ground on Antennas – Non resonant Antennas: The Rhombic – UHF and Microwave Antennas: Antennas with Parabolic reflectors – Wideband and Special – purpose Antennas: Discone Antenna – Propagation of Waves: Ground waves, Sky waves, Space Waves.

Unit II Modulation Techniques (15 hrs)

Theory of Amplitude Modulation Techniques: Amplitude Modulation Technique, DSBSC, SSB, VSB – Generation of Amplitude Modulated Signals: Generation of AM Signal – Theory of Angle Modulation Techniques: Frequency Modulation, Phase Modulation – Radio Transmitter: AM Transmitters, FM Transmitters (block diagram only) – Receiver Types: Super heterodyne Receiver – FM Receivers (block diagram only).

Unit III Digital Data Communications (14 hrs)

Introduction – Basic Digital communication system: ASK – Coherent ASK detector – Non-Coherent ASK detector – FSK – Demodulation of binary FSK wave – Detection of FSK using PLL – PSK – Detection of binary PSK waves – Differential PSK(DPSK) – M-ary PSK – M-ary PSK Transmitter – M-ary PSK Receiver – Elements of Digital Communication System – Advantages of digital communication.

***Unit IV Broad-Band Communications (12 hrs)**

Time Division multiplexing – Frequency division multiplexing – Computer communication systems – Microwave communication links – Line of Sight – Integrated Service Digital Network (ISDN) – Local Area Network (LAN) – LAN Topologies. Satellite Communications: Introduction– Satellite Communication System – Satellite Orbits – Basic Components of Satellite Communication – Constructural Features – Commonly used frequencies – Satellite Communication in India.

Unit V Mobile and Wireless Communications (11 hrs)

Telecommunication systems: GSM: Mobile services – System Architecture – Radio Interface – Protocols – Handover – Security – New data services (GPRS qualitative only) – Mobile TCP – Wireless Application Protocol(WAP): Architecture – Wireless application environment.

*** Self study unit**

C-Contact hours S-Seminar A-Assignment

Books for Study:

Unit No.	Name of the Book	Authors	Publishers	Year & Edition
I& II	Electronic Communication Systems	George Kennedy, Bernard Davis S.R.M.Prasanna	Tata McGraw Hill Education Pvt Ltd	18 th Reprint 2014
III & IV	Principle of Communication Engineering	Anokh Singh &A.K.Chhabra	S.Chand & Company	Reprint 2013

V	Mobile Communications	Jochen H. Schiller	Pearson Publications Pvt.ltd	11 th Reprint 2013
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Books for Reference:

S. No.	Name of the Book	Authors	Publishers	Year & Edition
1	Analog and Digital communication	J.S.Katre	Mac Milan Publishers	1 st Edition 2011
2	Wireless Digital Communications	Sachin S. Sharma	Laxmi publication Pvt Ltd	1 st Edition 2011
3	Communication Systems	Simon Haykin	Wiley Publication	Reprint 2009

**M.Sc. Physics
Semester III
Practical III**

17MPP3

Credits: 4

Hours: 90

List of Practicals

(A minimum of 12 Experiments)

1. Magnetic Susceptibility–Guoy balance
2. Wavelength of Laser Beam – Fabry Perot Interferometer
3. e/m Magnetron method using CRT
4. Characteristics of Solar Cell – Laser Source
5. Verification of Malus Law & Determination of Brewster's angle – Laser Source
6. Measurement of linear absorption co-efficient of a transparent material (Glass Slide) – Laser Source.
7. Determination of Particle size – Laser Source
8. Electrodeposition method of the particles
9. Conductivity Studies of Nano materials
10. Synthesis of Polymers
11. Crystal growth of materials
12. Construction of Bistable Multivibrator – BJT
13. Up-Down Counter using IC 74190, IC 7447 and LED 71312 (Seven Segment Display)
14. Frequency Modulation using 555 Timer
15. Construction of 12-0-12 V Power Supply – IC 7812 and IC 7912
16. Construction of Band Pass and Band rejection – OPAMP 741
17. Frequency Response of FET Amplifier (BFW10/11)
18. Schmitt Trigger – OPAMP 741 and 555 Timer
19. Sine Wave, Square Wave and Triangular Wave Generation – OPAMP 741

20. Voltage to Frequency Converter – OPAMP (741,709) and BFW10
21. Program to arrange the given ten 8-bit numbers in ascending order – INTEL 8051 Micro Controller.
22. Ascending and Descending order of an array of numbers – INTEL 8085A Microprocessor.

M.Sc. Physics
Semester III
Internship / Summer Fellowship **17MPIS**

Credits: 6

The main objectives of this course are

- To inspire and motivate the young students to take up a career in Science
- To create an awareness on various career options available for young Woman Scientists.
- To explore avenues for entrepreneur development for Woman through Science.
- To develop human resource that is comfortable with both Science and Technology and therefore tuned to converting knowledge into innovation for wealth generation.
- To gain knowledge about the specific areas of research.
- To familiarize the availability of new research equipments.

Total marks: 150

1. Internship report : 75 marks

2. Viva-voce : 75 marks

- a) Presentation prepared : 30 marks
- b) Delivery of knowledge : 20 marks
- c) Response to Q &A : 25 marks

M.Sc. Physics
Semester IV
Project & Viva – voce **17MPPV**

Credits: 12

The main objectives of this course are

- To familiarize the students with the areas of research
- To impart knowledge in the collection of literature, list of references (books as on-line) - as well as references in the text.
- To explore the knowledge about the presentation of experimental methods.
- To facilitate the students about the choice of the material.
- To secure knowledge about the background of the current research.
- To develop the experimental skills in the synthesis of sample.
- To interpret the skills in the analysis of synthesized samples.
- To experience an independent learning.
- To develop a confidence in pursuing research in future.

Project Evaluation

Max. Marks: 300 **Internal: 150 marks,** **External: 150 marks**

Curriculum Framework for the students admitted in the academic year 2016-2017

Department of Physics

Curriculum Design

Sri G.V.G Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

M.Sc Physics

Scheme of Examination – CBCS Pattern

Sem	Course Code	Course Title	Ins. hours	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
I	15MP01	Core I - Classical Mechanics	5	3	25	75	100	4
	15MP02	Core II - Mathematical Physics I	5	3	25	75	100	4
	15MP03	Core III - Modern optics	4	3	25	75	100	4
	15MP04	Core IV - Semiconductor Circuits and Applications	5	3	25	75	100	4
	15MPP1	Practical I	6	4	40	60	100	4
	15MPE1	Elective I: Nano science and Nanotechnology I	5	4	25	75	100	4
II	15MP05	Core V - Mathematical Physics II	5	3	25	75	100	4
	15MP06	Core VI - Quantum Mechanics I	5	3	25	75	100	4
	15MP07	Core VII - Condensed Matter Physics	4	3	25	75	100	4
	15MP08	Core VIII - Digital Electronics and Microprocessors	4	3	25	75	100	4
	15MPP2	Practical II	6	4	40	60	100	4
	15MPE2	Elective II - Nano science and Nanotechnology II	4	3	25	75	100	4
	15MGCS	Cyber Security	2	2	50	-	Grade	Grade
	15MPA1	Advanced Learner's Course I - Astrophysics		3	-		100	4*

III	15MP09	Core IX - Quantum Mechanics II	5	3	25	75	100	4
	15MP10	Core X - Electromagnetic Theory	5	3	25	75	100	4
	15MP11	Core XI - Molecular Spectroscopy	5	3	25	75	100	4
	15MP12	Core XII - Nuclear and Particle Physics	4	3	25	75	100	4
	15MPP3	Practical III	6	4	40	60	100	4
	15MPE3	Elective III - Analog and Digital Communications	5	3	25	75	100	4
	15MPI5	Internship/ Summer Fellowship			75	75	150	6
IV	15MPPV	Project and Viva-voce			150	150	300	12
	15MPA2	Advanced Learners Course II - Plasma Physics		3			100	4*

Total

2250 90

**M.Sc Physics
Semester I
Core I - Classical Mechanics**

15MP01

Credits: 4

Hours: 75 (C-60, S-5, Tu-5, A-5)

Preamble:

For proper understanding of the concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, and Special theory of Relativity as well as other areas of Physics, thorough knowledge in Classical Mechanics is required and therefore it is introduced in the I Semester.

Objectives:

- To gain comprehensive knowledge in the mechanics of system of Particles and Lagrangian & Hamiltonian formulation.
- Providing a platform to apply mathematical knowledge to Physical systems.

Learning outcome:

- Able to apply classical mechanical knowledge to the systems such as Planetary motion, Rigid body dynamic system etc.
- To gain knowledge of physical theory of systems apply concepts learnt to small oscillation system

Unit I Mechanics of a system of Particles and Lagrangian Formulation (14 hrs)

Mechanics of system of Particles: Conservation of Linear momentum, Angular momentum and Energy – Constraints – Holonomic and Non-holonomic constraints – Degrees of freedom – Generalized co-ordinates and Notations for generalized coordinates – Generalized Displacement, Velocity, Acceleration, Momentum and Force.

Variational Principle and Lagrangian Formulation: Hamilton's Variational Principle – Lagrange's equations of motion from Hamilton's Principle for conservative systems – D'Alembert's Principle – Lagrange's equations from D'Alembert's Principle – Deduction of Hamilton's Principle from D'Alembert's Principle – Applications of Lagrange's equations of motion : Linear Harmonic Oscillator, Spherical Pendulum, Isotropic Oscillator, Compound Pendulum

Unit II Hamiltonian Formulation (10 hrs)

View point of Hamiltonian – Hamiltonian – Hamilton's Canonical equations of motion – Physical Significance of H – Deduction of canonical equations from Hamilton's variational Principle – Applications of Hamilton's equations of motion: Simple Pendulum, Isotropic Harmonic oscillator

Unit III Motion under Central force and Rigid Body Dynamics (12 hrs)

Two Body Central force Problem to equivalent one body problem – General features of central force motion: Conservation of energy and Angular momentum – Lagrange's equations of motion - Equation of the orbit – General features of the orbit – Motion under inverse square force: Kepler's Problem – Symmetrical top.

Generalized Coordinates for Rigid body motion – Euler's Angles – Angular momentum of rigid body: Moments and products of inertia – Rotational Kinetic energy of a Rigid body

Unit IV Canonical Transformations and Poisson Brackets (12hrs)

Canonical Transformations – Canonical Transformation equation for simple harmonic oscillator – Condition for a transformation to be canonical – Hamilton-Jacobi partial differential equation and its solution – Solution of harmonic oscillator by Hamilton Jacobi method – Kepler's problem solution by Hamilton Jacobi method – Poisson's Brackets – Invariance of Poisson Brackets under canonical transformations

***Unit V Mechanics of Small Oscillations (12 hrs)**

Stable and Unstable Equilibrium – Two coupled Oscillator – Lagrange's equations of motion for small oscillations – Properties of T, V and ω – Normal coordinates and Normal frequencies of vibration – Systems with few degrees of freedom: Parallel Pendula – Linear triatomic molecule

*** Self study unit**

Books for Study:

- | | |
|------------------------|---|
| 1. Classical Mechanics | : Herbert Goldstein, Addison-Wesley Publications, 14 th Edition, 1978. |
| 2. Classical Mechanics | : Gupta, Kumar, Sharma, Pragati Prakashan Publications, 19 th Edition, 2001. |

Book for Reference:

1. Mathematical Physics with Classical Mechanics : Sathya Prakash, Sultan Chand & sons, 5th Revised and enlarged Edition, Reprint 2011.

M.Sc Physics**Semester I****Core II - Mathematical Physics I****15MP02****Credits: 4****Hours: 75 (C-60, S-5, Tu-5, A-5)****Preamble for Mathematical Physics I & II:**

For proper understanding of the concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity as well as other areas of Physics, thorough knowledge in Differential equations, Tensors, Complex Variables is required. Therefore Mathematical Physics I & II are introduced as Core Papers in I & II Semesters.

Objectives:

- To gain knowledge in the field of tensors, group theory, complex variables and Probability etc.
- To impart knowledge in numerical analysis to solve problems of differential equations, simultaneous equations etc.
- To expose the students about the differential equations and special functions.

Learning outcome:

- Able to solve the physical problems using partial differential equations
- Able to apply Laplace and Fourier transforms to periodical wave functions

Unit I Tensors**(12 hrs)**

n dimensional space – Superscripts and subscripts – Coordinate transformation – Kronocker delta symbol– Scalars , Contra variant Vectors and Covariant Vectors –Tensors of Higher ranks - Algebraic operations of Tensors - Symmetric and Anti symmetric tensors – Invariant tensors $g_{\mu\nu}$, $g^{\mu\nu}$, g^{μ}_{ν} – Conjugate or Reciprocal Tensors – Relative and Absolute Tensors – Line element: Metric tensors – Fundamental Tensors – Christoffel's 3 index symbols – Transformation laws of Christoffel's symbols.

Unit II : Group Theory**(12 hrs)**

Concept of a group – Abelian group – Generators of a finite group – cyclic group – subgroups – co-sets – Conjugate elements and classes – Conjugates sub-groups, Normal sub-groups and factor groups: Conjugate sub-groups - Isomorphism and Homomorphism – Permutation groups – Cayley's theorem – The group of symmetry of an equilateral triangle – group of symmetry of a square – Reducible and Irreducible Representations – Some important theorems on representations - The Orthogonality theorem – Symmetry group of Schrodinger equation – The unitary group.

Unit III Laplace Transforms**(12 hrs)**

Definition of Laplace Transform – Properties of Laplace Transforms: Linearity Property – Change of scale property - First Translation property and second translation property – Derivative of Laplace Transform – Laplace Transform of the Derivative of a function –Laplace Transform of integral

Laplace Transform of Periodic Functions: Saw tooth wave – Square wave- Half wave rectifier- Inverse Laplace Transform – Properties of inverse Laplace transform: Linearity Property – change of scale property - First translation property – second translation property – Convolution theorem.

Application of Laplace Transforms to Differential equations: ordinary differential equation with constant coefficients – ordinary differential equation with variable coefficients.

*** Unit IV : Fourier series and Fourier Transform (12 hrs)**

Fourier series – Evaluation of the coefficients of Fourier series – Dirichlet's conditions – Problems - Complex form of Fourier series – Fourier series in the interval (0,T) Fourier Transform – Fourier Sine and Cosine Transforms – Properties of Fourier transform – Fourier transform of a derivative.

Unit V : Partial Differential Equations in Physics (12 hrs)

Introduction – Solution of Partial differential equations by the method of separation of variables - Solution of Laplace's equation in Cartesian coordinates - Diffusion equation or Fourier equation of heat flow – The equation of motion for the vibrating string – D'Alembert's Solution – Fourier series solution – Oscillations of hanging chain – Vibrations of a rectangular membrane

*** Self study unit**

Book for Study:

- | | |
|-------------------------|--|
| 1. Mathematical Physics | : Sathyaprakash Sultan Chand & sons,
5 th Revised Edition, 2011. |
|-------------------------|--|

Books for Reference:

- | | |
|--|---|
| 1. Mathematical Physics | : B.D.Gupta, Vikas Publishing House , 4 th
Edition, 2010. |
| 2. Applied Mathematics for
Engineers and Physicists | : Pipes Louis A and Harvill Lawrence,
McGraw Hill Publishers |

M.Sc Physics

Semester I

Core IV- Semiconductor Circuits and Applications 15MP04

Credits: 4

Hours: 75 (C-65, S-4, Tu-3, A-3)

Preamble:

The field of electronics has become the most important branch of science and engineering in our society. It is this field in which rapid developments are taking place every day. The electronic devices and gadgets are being used in almost all industries for quality control and automation. Because of growing applications of electronics, in almost all fields, the students of science disciplines have to be taught electronics both at the UG level and PG level.

Objectives:

- To educate about the various electronic devices and their characteristics
- To allow an understanding of their practical applications in our day-today life.

Learning outcome:

- Students will be able to understand the role of semiconductors in the construction of electronic devices which is so vital in our day-today life.
- Students will be able to gain knowledge about the type of electronic devices and the circuits by which they are connected.
- Students will be able to appreciate the applications of the devices.

Unit I Diodes and Thyristors**(13 hrs)**

Introduction – Tunnel diode – Diode parameters – Applications – Photo diodes – Characteristics – Applications – Photoconductive cells – Characteristics – Applications – Liquid crystal display – Solar cells – Thermistors – Applications – Silicon Controlled Rectifiers (SCR) – SCR characteristics and rating – Applications – Temperature controller – Light activated SCR – Diac – Diac in proximity detector – Triac – Triac in Phase (power) control – UJT - Characteristics.

Unit II Field Effect Transistors**(13 hrs)**

JFET- Construction and operations –characteristics of JFET: Drain characteristics – effect of Gate to source voltage on Drain Characteristics-Transfer Characteristics-Specification sheet of JFET– JFET - parameters – Comparison between FET and BJT –MOSFETs–Depletion type MOSFET-Construction and operation –Characteristics of Depletion type MOSFET – Enhancement type MOSFET – Construction, operation and characteristics of Enhancement MOSFET-Advantages of N-channel over P-channel MOSFETs –MOSFET handling – CMOS VMOS.

Unit III FET Amplifiers**(13 hrs)**

Biasing the FET – Gate bias- self bias- setting a Q-point- setting a Q-point using load line – Voltage divider bias – Current source bias – FET Amplifier – Common Source Amplifier – Analysis of Common Source Amplifier – Effect of AC load on Amplifier Parameters – Effect and external source resistance on voltage gain – FET Amplifier:Low frequency response – High frequency response– Enhancement MOSFET amplifier – Motion detecting system using JFET.

Unit IV Oscillators**(13 hrs)**

Comparison between an amplifier and an oscillator – Barkhausen criterion – FET Hartley oscillator – FET Colpitt's oscillator – Principle of RC oscillator – FET Phase shift oscillator – Wien bridge oscillator – Non sinusoidal oscillator – Astable multivibrator – Monostable multivibrator – Bistable multivibrator – Schmitt trigger – Blocking oscillator – UJT Relaxation oscillator.

Unit V Operational Amplifiers (OP AMPs)**(13 hrs)**

The Ideal OP-AMP – Inverting, Non-Inverting & Differential Amplifiers –Input offset voltage – Input offset current – CMRR - OP-AMP Characteristics - Open Loop Input Output Characteristics – Frequency Response and Slew rate – OP-AMP Applications : Adder, Subtractor, Integrator, Differentiator – Comparator – Voltage to Current Converter – Current to Voltage Converter – Electronic Analog Computation.

*** Self study unit**

Books for study:

1. A Text book of Applied Electronics : R.S.Sedha, S.Chand and Company, New Delhi, Revised Edition 2006, Reprint 2010.
2. Electronic Devices and Circuit theory : Robert L.Boylestad and Louis Nashelsky, Pearson education Inc., Prentice hall, 9th Edition, 2008.
3. OP-AMPs & Linear Integrated Circuits (Unit V) : Ramakant A.Gayakwad, Prentice Hall of India Private Ltd., New Delhi, 4th Edition, 2002.
4. Linear Integrated circuits : D.Roy Choudhury and Shail Jain, New Age International (P) Ltd., Publishers, New Delhi, 10th Reprint,1997.

Books for Reference:

1. Basic electronics – Solid state : B.L.Theraja, S.Chand & Co. Ltd, New Delhi, Reprint 2010.
2. Integrated Electronics: Analog and Digital Circuits and Systems : Jacob Millman, Christos C. Halkias, McGraw Hill International Book Company, 24th Printing, 1982.

**M.Sc Physics
Semester I
Practical I**

15MPP1

Credits: 4

Hours: 90

**List of Practicals
(A minimum of 12 Experiments)**

1. Young's Modulus - Hyperbolic Fringe Method
2. Determination of λ - Michelson's Interferometer
3. Measurement of Hall voltage in semiconductors
4. Resistivity Measurement – Four Probe Method
5. Dielectric constant of Benzene and Dipole moment of Acetone
6. Inversion temperature of Thermocouple
7. Velocity of Ultrasonics in liquids – Ultrasonic Interferometer
8. Characteristics of Photo diode & Photo transistor – Laser Source
9. Characteristics of Tunnel Diode
10. Characteristics of FET – BFW 10/11
11. Construction of an Astable Multivibrator
12. RC Coupled Amplifier – Single stage using FET
13. Colpitt's Oscillator using FET BFW 10/11
14. Hartley Oscillator using FET
15. IC Regulated power supply (9 – 0 - 9) \bar{V}

16. Half Adder, Full Adder (NAND)
17. R-S & J-K Flip Flop
18. Construction of a Low pass and a High pass filter using OP AMP
19. Construction of an Adder and a Subtractor using OP AMP
20. Wien Bridge Oscillator using FET

M.Sc Physics
Semester II
Core V Mathematical Physics II

15MP05

Credits: 4

Hours: 75 (C-60, S-5, Tu-5, A-5)

Unit I Differential Equations (12 hrs)

Legendre Differential Equation and Legendre function – Generating function of Legendre Polynomials – Rodrigue’s formula for Legendre polynomials - Recurrence formulae for $P_n(x)$ – Laguerre’s Differential Equation and Laguerre Polynomials - Generating function of Laguerre Polynomials - Rodrigue’s formula for Laguerre polynomials – Recurrence relations for Laguerre polynomials

Unit II : Differential Equations (12 hrs)

Bessel’s Differential Equation and Bessel’s function of first kind – Recurrence formulae for $J_n(x)$ – Generating function for $J_n(x)$ – Jacobi series – Bessel’s integrals – Hermite Differential Equation and Hermite Polynomials - Generating function of Hermite Polynomials – Recurrence formulae for Hermite Polynomials – Orthogonality of Hermite Polynomials.

Unit III Complex Variables (12 hrs)

Review of Algebraic operation on Complex Numbers – Complex Conjugates – Modulus and argument of a complex number – Graphical representation on argand diagram and trigonometric form – Functions of a complex variable – Limit, Continuity and differentiability – Definitions : Analytic function – The necessary and sufficient conditions for $f(z)$ to be analytic : Cauchy-Riemann Differential Equations – Laplace’s equations : Harmonic functions – Line integral of a complex function - Cauchy’s Integral theorem –Cauchy’s Integral Formula –Morera’s theorem – Liouville’s theorem – Taylor’s series - Laurent’s series – Singularities of an Analytic function – Cauchy Residue theorem.

***Unit IV Probability (12 hrs)**

Probability: Priori Probability – Empirical Probability – Theorem of total Probability – Binomial theorem of Probability – Measures of central tendency, averages- Measures of dispersion - Karl Pearson’s Coefficient of Correlation – Standard deviation as the sum of distribution – Theoretical Distributions: Binomial distribution – Poisson’s distribution – Normal distribution – Theory of errors – Line of Regression.

Unit V : Numerical Methods (12 hrs)

Numerical solutions of ordinary differential equations: Taylor series method-Modified Euler’s method – Fourth order Runge- Kutta method –Numerical solutions of partial differential equations: Difference quotients and difference equations Solution of elliptic equations – Solution of Laplace’s equations

Numerical integration: Quadrature formula for equidistant ordinates – Trapezoidal rule – Simpson's rule – Approximate solution of algebraic and transcendental equations : Newton-Raphson method - Gauss elimination method for solving a system of linear equations.

*** Self study unit**

Book for Study:

- | | |
|-------------------------|--|
| 1. Mathematical Physics | : Sathyaprakash Sultan Chand & sons,
5 th Revised Edition, 2011. |
| 2. Numerical Methods | : A. Singaravelu, Meenakshi Publications |

Books for Reference:

- | | |
|--|---|
| 1. Mathematical Physics | : B.D.Gupta, Vikas Publishing House , 4 th
Edition, 2010. |
| 2. Applied Mathematics for
Engineers and Physicists | : Pipes Louis A and Harvill Lawrence,
McGraw Hill Publishers, 1946. |

M.Sc Physics

Semester II

Practical II

15MPP2

Credits: 4

Hours: 90

List of Practicals

(A minimum of 12 Experiments)

1. Young's Modulus - Elliptical Fringe Method
2. Tracing of Hysteresis loop
3. Determination of Refractive index of glass- Michelson's Interferometer
4. Determination of Band Gap - Four Probe method
5. Numerical aperture of an optical fibre-Laser source
6. Synthesis of thin Film – Chemical Bath Deposition Method
7. Synthesis of Nano Particles – Chemical Method
8. Synthesis of Nano Particles – Planetary Ball Mill
9. Characteristics of UJT
10. Relaxation Oscillator – UJT
11. RC Coupled amplifier – Two stage (FET/BJT)
12. 555 Timer – Astable Multivibrator
13. A/D converter & D/A converter
14. Multiplexer and Demultiplexer
15. Half Subtractor, Full Subtractor (NAND)
16. Characteristics of SCR
17. Construction of Integrator, Differentiator using OP AMP
18. 555 Timer – Monostable Multivibrator

19. INTEL 8085A Microprocessor – Addition and Subtraction of two 8-bit numbers
20. Decade Counter with Driver and display
21. INTEL 8051 MCS Microcontroller – Addition of two 16-bit numbers
22. Microcontroller – Find the maximum number from the given ten 8-bit numbers

M.Sc Physics
Semester II
Elective II - Nano science and Nanotechnology II **15MPE2**

Credits: 4

Hours: 60(C-50, A-5, S-5)

Preamble:

Nanotechnology – The new technological revolution with polarizing views, inspiring world vision of transformation and stimulation to develop new tools that can touch all aspects of human society. Nanotechnology has the potential to provide the solution to global challenges that we face such as human health care, energy crisis, climate change and environmental pollution etc.

The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes (CNTs).

Objectives:

- To gain knowledge about different analysis techniques
- understand the inner concepts of Nanoscience towards material behavior
- To learn and appreciate the technology involved in the applications of Nanomaterials

Learning outcome:

- Able to develop interpretation skills in the characterization of Nanomaterials
- Appreciate the technology involved in the applications of Nanomaterials in the field of nano electronics, Nano medicine
- Gain knowledge about different kinds of sensors and sensing materials
- Applications nanoparticles in the field of textiles and in water and air purification

Unit I Analysis techniques-I

(10 hrs)

Microscopes: Optical Microscopes- Confocal optical Microscope-Scanning Probe Microscopy (SPM): Introduction-Basic principle of SPM techniques-Scanning Tunneling Microscope: tunneling current-Local density of states – Applications-General concept and defining characteristics of AFM: Scanned proximity probe microscopes-Laser beam deflection-AFM cantilevers-Piezoceramics-Feedback loop-Alternative imaging modes.

Unit II Analysis techniques-II

(10 hrs)

Electron microscopy: Introduction-Resolution vs magnification-Scanning Electron Microscope-SEM techniques-Electron gun-Specimen interaction- Applications-Transmission Electron Microscope-High resolution TEM.

Diffraction techniques: X-ray diffraction – Atomic Scattering factor –Bragg's law diffraction- Diffraction from different types of samples – Crystal structure factor-Diffraction from nanoparticles-X-ray diffractometer.

Unit III Nanoelectronics

(10 hrs)

Quantum Electronic Devices: Upcoming Electronic Devices - Electrons in Mesoscopic structures - Examples of Quantum Electronic Devices: Short Channel MOS transistor - Split Gate transistor - Quantum Cellular Automata - Tunneling Element: Tunneling Diode - Resonant Tunneling Diode- Principle of the Single Electron Transistor: The coulomb Blockade- Performance of the Single Electron Transistor - SET Circuit Design: Wiring and Drivers.

Unit IV Nanosensors and Nanomedicine

(10 hrs)

Nanosensors: Types of Nano sensors- Carbon Nano Tube based Sensors - Nanowire sensors- Polymeric Nano fibers, Nano composites- Nanoparticles- Nano sensors in space- Nano pressure sensor- Physical sensor – Bio sensors - Gas sensing Mechanism of semiconductors.

Metal Nanoparticles in optical detection and imaging - Quantum Dots: Semiconductors of Light- Photo physics of QDs and its Relevance in Diagnosis- Quantum Dots for Cancer Diagnosis and Therapy- Magnetic Nanoparticles for Imaging and Therapy - Toxicity of nanoparticles - Gold nanoparticles.

***Unit V Nanotechnology in Textiles and Water purification**

(10 hrs)

Characteristics of nano finishing in garments – Functional, intelligent and smart textiles - Waterproof Textiles – Breathable Textiles - UV Protection Textiles - Odor Control Textiles – Anti-Static Textiles - Anti-Bacterial Textiles - Dust Free Textiles – Stain Resistant Textiles.

Water cleaning and purification- Air cleaning and purification- soil Remediation.

*** Self study unit**

Books for study:

1. Introduction to NanoScience and Nanotechnology : K.K.Chattopadhyay and A.N Banerjee, PHI Learning Private Ltd., New Delhi, First Edition, 2009.
2. Nano The essentials : T.Pradeep, Tata McGraw-Hill Education Private Ltd, 4 th reprint, 2010
3. Nano Electronics and Nano systems : K.Goser, P.Glosekotter, J,Dienstuhl, Springer International Edition, 3rd Edition, 2009.
4. Nanotechnology: Technology Revolution of 21st Century : Er. Rakesh Rathi, S.Chand &Company Ltd, First Edition, 2009.
5. Bio-Nanotechnology : Madurai Sharon, Maheswar Sharon, Sunil Pandey, Goldie Oza. Ane Books Pvt Ltd, New Delhi, 2012.
6. Nanomaterials:Nanotechnologies : Michael F Ashby, PauloJ.Ferreira,David L

and Design

Schaaek, BH Publishers, 2011.

Books for Reference:

1. Nano computing : Vishal Sahani, Debabrata Goswami
Tata McGraw Hill Publications, 2008.
2. Nano Enables Sensors : Kourosh Kalantar-zadeh, Benjamin Fry
Springer Publications, 2008.
3. Chemical Sensors An Introduction for Scientists : Peter Gründler, Springer Publications,
and Engineers 2007
4. Nanotechnology in Biology and Medicine : Tuan Vo-Dinh, CRC press, 2007.
5. Environment Applications of nano materials : Glen E Fryxell, Guozhong Cao, Imperial
College press, 2012.

M.Sc Physics

Semester III

Elective III - Analog and Digital Communications

15MPE3

redits: 4

Hours: 75 (C-65, S-5, A-5)

Preamble:

The branch of Communication Electronics and Systems has become the most important area in Science and Technological developments. The signals communicated in the digitalized form require a very narrow band for operation. The development in the Broadband communication, Satellite Communication and Mobile Communication are the visible areas where we are able to visualize a significant success. The Softwares that are used for coding the digital signals has become more important during handling in terms of safety and security in the communication systems. This paper will be able to provide a broad view in analog and digital communications in the above areas.

Objectives:

- To educate about the various communication techniques and their features including Broadband and Mobile communication systems.
- To allow an understanding of their practical applications in our day-today life

Learning Outcome:

- Students will acquire a knowledge of Analog and Digital Communication techniques, the advantages of Digital over Analog systems, their flexibility etc.
- A familiarity in Wireless applications using mobile network and Broadband and Satellite communication can be achieved.

Unit I Antennas and Wave Propagation

(13 Hrs)

Antennas: Basic considerations- Wire radiator in Space-Terms and Definitions-Effects of Ground on Antennas-Directional high frequency Antennas: Dipole Arrays - Non resonant

Antennas-The Rhombic-UHF and Microwave Antennas: Antennas with Parabolic reflectors-Wideband and Special-purpose Antennas: Discone Antenna -Propagation of Waves: Ground waves, Sky waves, Space Waves.

Unit II Modulation Techniques

(15 hrs)

Theory of Amplitude Modulation Techniques: Amplitude Modulation Technique, DSBSC, SSB, VSB – Generation of Amplitude Modulated Signals: Generation of AM Signal, Generation of DSBSC Signal: Balanced Modulator – Theory of Angle Modulation Techniques: Frequency Modulation, Phase Modulation- Radio Transmitter: AM Transmitters, FM Transmitters (block diagram only) – Receiver Types: Super heterodyne Receiver - FM Receivers (block diagram only).

Unit III Digital Data Communic

(14 hrs)

Introduction-Basic Digital communication system: ASK-Coherent ASK detector- Non-Coherent ASK detector- FSK- Demodulation of binary FSK wave-Detection of FSK using PLL- PSK-Detection of binary PSK waves-Differential PSK(DPSK) - M-ary PSK -M-ary PSK Transmitter-M-ary PSK Receiver-Elements of Digital Communication System- Advantages of digital communication.

Unit IV Broad-Band Communications

(12 hrs)

Time Division multiplexing- Frequency division multiplexing- Computer communication systems- Microwave communication links - Line of Sight - Integrated Service Digital Network (ISDN)-Local Area Network (LAN) -LAN Topologies. Satellite Communications: Introduction-Satellite Communication System - Satellite Orbits - Basic Components of Satellite Communication-Constructural Features-Commonly used frequencies-Multiple access: FDMA, TDMA - Satellite Communication in India.

Unit V Mobile and Wireless Communications

(11 hrs)

Telecommunication systems: GSM: Mobile services-System Architecture-Radio Interface-Protocols- Handover- Security-New data services (GPRS qualitative only)-Mobile IP: Goals, assumptions and Requirements- Entities and Terminology-IP Packet Delivery- Mobile TCP - Wireless Application Protocol(WAP): Architecture-Wireless application environment.

Books for Study:

- | | |
|--|---|
| 1. Electronic Communication Systems
(Unit I and II) | : George Kennedy, Bernard Davis,
S.R.M. Prasanna, Tata Mcgraw Hill
Education Pvt Ltd, 2012. |
| 2. Principle of Communication Engineering
(Unit III and IV) | : Anokh Singh, A.K.Chhabra,
S.Chand& Company, 2013. |
| 3. Mobile Communications
(Unit V) | : Jochen H.Schiller, Pearson
Publications Pvt.ltd, Second edition, 2003. |

Books for Reference:

- | | |
|--|--|
| 1. Analog and Digital communication | : J.S.Katre, Macmillan Publishers, 2011 |
| 2. Wireless Digital Communications
Modulation and Spread spectrum
Applications | : Dr. Kamilo feher, Prentice- Hall publishers. |
| 3. Communication Systems | : Simon Haykin, Wiley Publications, 2013 |

M.Sc Physics
Semester III
Practical III

15MPP3

Credits: 4

Hours: 90

List of Practicals
(A minimum of 12 Experiments)

1. Magnetic Susceptibility - Guoy balance
2. Wavelength of Laser Beam - Fabry Perot Interferometer
3. Characteristics of Solar Cell - Laser Source and Multichrome Source
4. Verification of Malus Law & Determination of Brewster's angle - Laser Source
5. Measurement of linear absorption co-efficient of a transparent material (Glass Slide) - Laser Source.
6. Determination of Particle size – Laser Source
7. Determination of lattice parameters of Nanomaterials
8. Conductivity Studies of Nano materials
9. Synthesis of Polymers
10. Phase transition in Magnetic materials
11. Construction of Bistable Multivibrator - BJT
12. Up-Down Counter using IC 74190, IC 7447 and LED 71312 (Seven Segment Display)
13. Frequency Modulation using 555 Timer
14. Construction of 12-0-12 V Power Supply – IC 7812 and IC 7912
15. Construction of Band Pass and Band rejection - OPAMP 741
16. Frequency Response of FET Amplifier (BFW10/11)
17. Schmitt Trigger – OPAMP 741 and 555 Timer
18. Sine Wave, Square Wave and Triangular Wave Generation - OPAMP 741
19. Voltage to Frequency Converter - OPAMP (741,709) and BFW10
20. Program to arrange the given ten 8-bit numbers in ascending order- INTEL 8051 Micro Controller
21. Ascending and Descending order of an array of numbers – INTEL 8085A Microprocessor.
22. e/m magneton method using CRT
23. Stephen's Constant - determination

M.Sc Physics
Semester III
Internship / Summer Fellowship

15MPIS

Credits: 6

Preamble:

Higher education is drawing tremendous attention in both the developed and developing countries. The main thrust is to facilitate the development of human resource that is capable of utilizing available knowledge to create wealth and generating new knowledge and innovations. At our present stage of growth where there is an increase in the international pressure for knowledge based, value-added development of major areas like nanoscience / technology, health care,

biotechnology, pharmaceuticals, drugs, genetic, information/computer technology etc., it is clear that, a vast expansion and intensification of higher level education embedded with research is essential. Keeping this statement as the foundation for PG students the Summer Internship / Training programmes in the Universities and research institutes has been configured.

Objective:

- To inspire and motivate the young Woman to take up a career in Science
- To create an awareness on various career options available for young Woman Scientist
- To explore avenues for entrepreneur development for Woman through Science
- To develop human resource that is comfortable with both Science and Technology and therefore tuned to converting knowledge into innovation for wealth generation

Learning outcome:

- Knowledge about the specific areas of research can be identified.
- Transformation of the knowledge for conducting research in the areas of interest during the final semester be facilitated
- Knowledge about the availability of new equipments useful for conducting research be made known.

Evaluation Pattern:

Total marks: 150

1. Internship report : 75 marks

- a) Activity performed : 25 marks
- b) Material prepared : 25 marks
- c) Attendance : 25 marks

2. Viva-voce : 75 marks

- a) Presentation prepared : 30 marks
- b) Delivery of knowledge : 20 marks
- c) Response to Q &A : 25 marks

M.Sc. Physics

Semester IV

Project & Viva - voce

15MPPV

Credits: 12

Preamble:

Physics is a fundamental science close to nature and involves study of matter and its motion in space- time, energy and force. Physics is both important and influential because advances in its understanding have often translated into newer technologies, which are of interdisciplinary importance. Any newer area of research is characterized by a statement of

different enforcing conditions and success lies in how correctly the basic physical phenomena are interpreted in these conditions. In tune with the aforesaid, to make research and development meaningful and effective, in Post-Graduate course, the concept of project work has been introduced. The new research areas can include crystal growth, thin films, polymer science, nano-science, material's science, computational methods, theoretical science etc. This project will equip students with the basic understanding of relevant Physics with various analytical tools. Students, hence, can effectively contribute to various industries and/or emerging branches of research areas.

Objectives:

- To familiarize the students with the areas of research
- To impart knowledge in the collection of literature, list of references (books as on-line) - as well as references in the text.
- To explore the knowledge about the presentation of experimental methods
- To facilitate the students about the choice of the material
- To secure knowledge about the background of the current research

Learning outcome:

- Students will be able to get knowledge about experimental skills for preparing samples
- Students will develop ability to write interpretation for their sample analysis techniques
- Students will experience an independent learning.
- Students will develop a confidence in pursuing research in future

Curriculum Framework for the students admitted in the academic year 2015-2016

Department of Physics

Curriculum Design

Sri G.V.G Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

M.Sc Physics

Scheme of Examination – CBCS Pattern

Sem	Course Code	Course Title	Ins. hrs	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
I	15MP01	Core I - Classical Mechanics	5	3	25	75	100	4
	15MP02	Core II - Mathematical Physics I	5	3	25	75	100	4
	15MP03	Core III - Modern optics	4	3	25	75	100	4
	15MP04	Core IV - Semiconductor Circuits and Applications	5	3	25	75	100	4
	15MPP1	Practical I	6	4	40	60	100	4
	15MPE1	Elective I: Nano science and Nanotechnology I	5	4	25	75	100	4
II	15MP05	Core V - Mathematical Physics II	5	3	25	75	100	4
	15MP06	Core VI - Quantum Mechanics I	5	3	25	75	100	4
	15MP07	Core VII - Condensed Matter Physics	4	3	25	75	100	4
	15MP08	Core VIII - Digital Electronics and Microprocessors	4	3	25	75	100	4
	15MPP2	Practical II	6	4	40	60	100	4
	15MPE2	Elective II - Nano science and Nanotechnology II	4	3	25	75	100	4
	15MGCS	Cyber Security	2	2	50	-	Grade	Grade
	15MPA1	Advanced Learner's Course I - Astrophysics		3	-		100	4*

III	15MP09	Core IX - Quantum Mechanics II	5	3	25	75	100	4
	15MP10	Core X - Electromagnetic Theory	5	3	25	75	100	4
	15MP11	Core XI - Molecular Spectroscopy	5	3	25	75	100	4
	15MP12	Core XII - Nuclear and Particle Physics	4	3	25	75	100	4
	15MPP3	Practical III	6	4	40	60	100	4
	15MPE3	Elective III - Analog and Digital Communications	5	3	25	75	100	4
	15MPIS	Internship/ Summer Fellowship			75	75	150	6
IV	15MPPV	Project and Viva-voce			150	150	300	12
	15MPA2	Advanced Learners Course II - Plasma Physics		3			100	4*
Total			2250 90					

**M.Sc Physics
Semester I
Core I - Classical Mechanics**

15MP01

Credits: 4

Hours: 75 (C-60, S-5, Tu-5, A-5)

Preamble:

For proper understanding of the concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, and Special theory of Relativity as well as other areas of Physics, thorough knowledge in Classical Mechanics is required and therefore it is introduced in the I Semester.

Objectives:

- To gain comprehensive knowledge in the mechanics of system of Particles and Lagrangian & Hamiltonian formulation.
- Providing a platform to apply mathematical knowledge to Physical systems.

Learning outcome:

- Able to apply classical mechanical knowledge to the systems such as Planetary motion, Rigid body dynamic system etc.
- To gain knowledge of physical theory of systems apply concepts learnt to small oscillation system

Unit I Mechanics of a system of Particles and Lagrangian Formulation (14 hrs)

Mechanics of system of Particles: Conservation of Linear momentum, Angular momentum and Energy – Constraints – Holonomic and Non-holonomic constraints – Degrees of freedom – Generalized co-ordinates and Notations for generalized coordinates – Generalized Displacement, Velocity, Acceleration, Momentum and Force.

Variational Principle and Lagrangian Formulation: Hamilton's Variational Principle – Lagrange's equations of motion from Hamilton's Principle for conservative systems – D'Alembert's Principle – Lagrange's equations from D'Alembert's Principle – Deduction of Hamilton's Principle from D'Alembert's Principle – Applications of Lagrange's equations of motion : Linear Harmonic Oscillator, Spherical Pendulum, Isotropic Oscillator, Compound Pendulum

Unit II Hamiltonian Formulation (10 hrs)

View point of Hamiltonian – Hamiltonian – Hamilton's Canonical equations of motion – Physical Significance of H – Deduction of canonical equations from Hamilton's variational Principle – Applications of Hamilton's equations of motion: Simple Pendulum, Isotropic Harmonic oscillator

Unit III Motion under Central force and Rigid Body Dynamics (12 hrs)

Two Body Central force Problem to equivalent one body problem – General features of central force motion: Conservation of energy and Angular momentum – Lagrange's equations of motion - Equation of the orbit – General features of the orbit – Motion under inverse square force: Kepler's Problem – Symmetrical top.

Generalized Coordinates for Rigid body motion – Euler's Angles – Angular momentum of rigid body: Moments and products of inertia – Rotational Kinetic energy of a Rigid body

Unit IV Canonical Transformations and Poisson Brackets (12hrs)

Canonical Transformations – Canonical Transformation equation for simple harmonic oscillator – Condition for a transformation to be canonical – Hamilton-Jacobi partial differential equation and its solution – Solution of harmonic oscillator by Hamilton Jacobi method – Kepler's problem solution by Hamilton Jacobi method – Poisson's Brackets – Invariance of Poisson Brackets under canonical transformations

***Unit V Mechanics of Small Oscillations (12 hrs)**

Stable and Unstable Equilibrium – Two coupled Oscillator – Lagrange's equations of motion for small oscillations – Properties of T, V and ω – Normal coordinates and Normal frequencies of vibration – Systems with few degrees of freedom: Parallel Pendula – Linear triatomic molecule

*** Self study unit**

Books for Study:

- | | |
|------------------------|---|
| 1. Classical Mechanics | : Herbert Goldstein, Addison-Wesley Publications, 14 th Edition, 1978. |
| 2. Classical Mechanics | : Gupta, Kumar, Sharma, Pragati Prakashan Publications, 19 th Edition, 2001. |

Book for Reference:

- | | |
|--|--|
| 1. Mathematical Physics with Classical Mechanics | : Sathya Prakash, Sultan Chand & sons, 5 th Revised and enlarged Edition, Reprint 2011. |
|--|--|

M.Sc Physics
Semester I
Core II - Mathematical Physics I

15MP02

Credits: 4

Hours: 75 (C-60, S-5, Tu-5, A-5)

Preamble for Mathematical Physics I & II:

For proper understanding of the concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity as well as other areas of Physics, thorough knowledge in Differential equations, Tensors, Complex Variables is required. Therefore Mathematical Physics I & II are introduced as Core Papers in I & II Semesters.

Objectives:

- To gain knowledge in the field of tensors, group theory, complex variables and Probability etc.
- To impart knowledge in numerical analysis to solve problems of differential equations, simultaneous equations etc.
- To expose the students about the differential equations and special functions.

Learning outcome:

- Able to solve the physical problems using partial differential equations
- Able to apply Laplace and Fourier transforms to periodical wave functions

Unit I Tensors

(12 hrs)

n dimensional space – Superscripts and subscripts – Coordinate transformation – Kronocker delta symbol– Scalars , Contra variant Vectors and Covariant Vectors –Tensors of Higher ranks - Algebraic operations of Tensors - Symmetric and Anti symmetric tensors – Invariant tensors $g_{\mu\nu}$, $g^{\mu\nu}$, g^{μ}_{ν} – Conjugate or Reciprocal Tensors – Relative and Absolute Tensors – Line element: Metric tensors – Fundamental Tensors – Christoffel's 3 index symbols – Transformation laws of Christoffel's symbols.

Unit II : Group Theory

(12 hrs)

Concept of a group – Abelian group – Generators of a finite group – cyclic group – subgroups – co-sets – Conjugate elements and classes – Conjugates sub-groups, Normal sub-groups and factor groups: Conjugate sub-groups - Isomorphism and Homomorphism – Permutation groups – Cayley's theorem – The group of symmetry of an equilateral triangle – group of symmetry of a square – Reducible and Irreducible Representations – Some important theorems on representations - The Orthogonality theorem – Symmetry group of Schrodinger equation – The unitary group.

Unit III Laplace Transforms

(12 hrs)

Definition of Laplace Transform – Properties of Laplace Transforms: Linearity Property – Change of scale property - First Translation property and second translation property – Derivative of Laplace Transform – Laplace Transform of the Derivative of a function –Laplace Transform of integral

Laplace Transform of Periodic Functions: Saw tooth wave – Square wave- Half wave rectifier- Inverse Laplace Transform – Properties of inverse Laplace transform: Linearity Property

– change of scale property - First translation property – second translation property – Convolution theorem.

Application of Laplace Transforms to Differential equations: ordinary differential equation with constant coefficients – ordinary differential equation with variable coefficients.

*** Unit IV : Fourier series and Fourier Transform (12 hrs)**

Fourier series – Evaluation of the coefficients of Fourier series – Dirichlet's conditions – Problems - Complex form of Fourier series – Fourier series in the interval (0,T) Fourier Transform – Fourier Sine and Cosine Transforms – Properties of Fourier transform – Fourier transform of a derivative.

Unit V : Partial Differential Equations in Physics (12 hrs)

Introduction – Solution of Partial differential equations by the method of separation of variables - Solution of Laplace's equation in Cartesian coordinates - Diffusion equation or Fourier equation of heat flow – The equation of motion for the vibrating string – D'Alembert's Solution – Fourier series solution – Oscillations of hanging chain – Vibrations of a rectangular membrane

*** Self study unit**

Book for Study:

- | | |
|-------------------------|--|
| 1. Mathematical Physics | : Sathyaprakash Sultan Chand & sons,
5 th Revised Edition, 2011. |
|-------------------------|--|

Books for Reference:

- | | |
|--|---|
| 1. Mathematical Physics | : B.D.Gupta, Vikas Publishing House , 4 th
Edition, 2010. |
| 2. Applied Mathematics for
Engineers and Physicists | : Pipes Louis A and Harvill Lawrence,
McGraw Hill Publishers |

M.Sc Physics

Semester I

Core IV- Semiconductor Circuits and Applications

15MP04

Credits: 4

Hours: 75 (C-65, S-4, Tu-3, A-3)

Preamble:

The field of electronics has become the most important branch of science and engineering in our society. It is this field in which rapid developments are taking place every day. The electronic devices and gadgets are being used in almost all industries for quality control and automation. Because of growing applications of electronics, in almost all fields, the students of science disciplines have to be taught electronics both at the UG level and PG level.

Objectives:

- To educate about the various electronic devices and their characteristics
- To allow an understanding of their practical applications in our day-today life.

Learning outcome:

- Students will be able to understand the role of semiconductors in the construction of electronic devices which is so vital in our day-today life.
- Students will be able to gain knowledge about the type of electronic devices and the circuits by which they are connected.
- Students will be able to appreciate the applications of the devices.

Unit I Diodes and Thyristors**(13 hrs)**

Introduction – Tunnel diode – Diode parameters – Applications – Photo diodes – Characteristics – Applications – Photoconductive cells – Characteristics – Applications – Liquid crystal display – Solar cells – Thermistors – Applications – Silicon Controlled Rectifiers (SCR) – SCR characteristics and rating – Applications – Temperature controller – Light activated SCR – Diac – Diac in proximity detector – Triac – Triac in Phase (power) control – UJT - Characteristics.

Unit II Field Effect Transistors**(13 hrs)**

JFET- Construction and operations –characteristics of JFET: Drain characteristics – effect of Gate to source voltage on Drain Characteristics-Transfer Characteristics-Specification sheet of JFET– JFET - parameters – Comparison between FET and BJT –MOSFETs–Depletion type MOSFET-Construction and operation –Characteristics of Depletion type MOSFET – Enhancement type MOSFET – Construction, operation and characteristics of Enhancement MOSFET-Advantages of N-channel over P-channel MOSFETs –MOSFET handling – CMOS VMOS.

Unit III FET Amplifiers**(13 hrs)**

Biasing the FET – Gate bias- self bias- setting a Q-point- setting a Q-point using load line – Voltage divider bias – Current source bias – FET Amplifier – Common Source Amplifier – Analysis of Common Source Amplifier – Effect of AC load on Amplifier Parameters – Effect and external source resistance on voltage gain – FET Amplifier:Low frequency response – High frequency response– Enhancement MOSFET amplifier – Motion detecting system using JFET.

Unit IV Oscillators**(13 hrs)**

Comparison between an amplifier and an oscillator – Barkhausen criterion – FET Hartley oscillator – FET Colpitt's oscillator – Principle of RC oscillator – FET Phase shift oscillator – Wien bridge oscillator – Non sinusoidal oscillator – Astable multivibrator – Monostable multivibrator – Bistable multivibrator – Schmitt trigger – Blocking oscillator – UJT Relaxation oscillator.

Unit V Operational Amplifiers (OP AMPs)**(13 hrs)**

The Ideal OP-AMP – Inverting, Non-Inverting & Differential Amplifiers –Input offset voltage – Input offset current – CMRR - OP-AMP Characteristics - Open Loop Input Output Characteristics – Frequency Response and Slew rate – OP-AMP Applications : Adder, Subtractor, Integrator, Differentiator – Comparator – Voltage to Current Converter – Current to Voltage Converter – Electronic Analog Computation.

*** Self study unit**

Books for study:

1. A Text book of Applied Electronics : R.S.Sedha, S.Chand and Company, New Delhi, Revised Edition 2006, Reprint 2010.
2. Electronic Devices and Circuit theory : Robert L.Boylestad and Louis Nashelsky, Pearson education Inc., Prentice hall, 9th Edition, 2008.
3. OP-AMPs & Linear Integrated Circuits (Unit V) : Ramakant A.Gayakwad, Prentice Hall of India Private Ltd., New Delhi, 4th Edition, 2002.
4. Linear Integrated circuits : D.Roy Choudhury and Shail Jain, New Age International (P) Ltd., Publishers, New Delhi, 10th Reprint,1997.

Books for Reference:

1. Basic electronics – Solid state : B.L.Theraja, S.Chand & Co. Ltd, New Delhi, Reprint 2010.
2. Integrated Electronics: Analog and Digital Circuits and Systems : Jacob Millman, Christos C. Halkias, McGraw Hill International Book Company, 24th Printing, 1982.

**M.Sc Physics
Semester I
Practical I**

15MPP1

Credits: 4

Hours: 90

**List of Practicals
(A minimum of 12 Experiments)**

1. Young's Modulus - Hyperbolic Fringe Method
2. Determination of λ - Michelson's Interferometer
3. Measurement of Hall voltage in semiconductors
4. Resistivity Measurement – Four Probe Method
5. Dielectric constant of Benzene and Dipole moment of Acetone
6. Inversion temperature of Thermocouple
7. Velocity of Ultrasonics in liquids – Ultrasonic Interferometer
8. Characteristics of Photo diode & Photo transistor – Laser Source
9. Characteristics of Tunnel Diode
10. Characteristics of FET – BFW 10/11
11. Construction of an Astable Multivibrator
12. RC Coupled Amplifier – Single stage using FET
13. Colpitt's Oscillator using FET BFW 10/11
14. Hartley Oscillator using FET
15. IC Regulated power supply (9 – 0 - 9) V
16. Half Adder, Full Adder (NAND)

17. R-S & J-K Flip Flop
18. Construction of a Low pass and a High pass filter using OP AMP
19. Construction of an Adder and a Subtractor using OP AMP
20. Wien Bridge Oscillator using FET

M.Sc Physics
Semester II
Core V Mathematical Physics II **15MP05**

Credits: 4

Hours: 75 (C-60, S-5, Tu-5, A-5)

Unit I Differential Equations **(12 hrs)**

Legendre Differential Equation and Legendre function – Generating function of Legendre Polynomials – Rodrigue’s formula for Legendre polynomials - Recurrence formulae for $P_n(x)$ – Laguerre’s Differential Equation and Laguerre Polynomials - Generating function of Laguerre Polynomials - Rodrigue’s formula for Laguerre polynomials – Recurrence relations for Laguerre polynomials

Unit II : Differential Equations **(12 hrs)**

Bessel’s Differential Equation and Bessel’s function of first kind – Recurrence formulae for $J_n(x)$ – Generating function for $J_n(x)$ – Jacobi series – Bessel’s integrals – Hermite Differential Equation and Hermite Polynomials - Generating function of Hermite Polynomials – Recurrence formulae for Hermite Polynomials – Orthogonality of Hermite Polynomials.

Unit III Complex Variables **(12 hrs)**

Review of Algebraic operation on Complex Numbers – Complex Conjugates – Modulus and argument of a complex number – Graphical representation on argand diagram and trigonometric form – Functions of a complex variable – Limit, Continuity and differentiability – Definitions : Analytic function – The necessary and sufficient conditions for $f(z)$ to be analytic : Cauchy-Riemann Differential Equations – Laplace’s equations : Harmonic functions – Line integral of a complex function - Cauchy’s Integral theorem –Cauchy’s Integral Formula –Morera’s theorem – Liouville’s theorem – Taylor’s series - Laurent’s series – Singularities of an Analytic function – Cauchy Residue theorem.

***Unit IV Probability** **(12 hrs)**

Probability: Priori Probability – Empirical Probability – Theorem of total Probability – Binomial theorem of Probability – Measures of central tendency, averages- Measures of dispersion - Karl Pearson’s Coefficient of Correlation – Standard deviation as the sum of distribution – Theoretical Distributions: Binomial distribution – Poisson’s distribution – Normal distribution – Theory of errors – Line of Regression.

Unit V : Numerical Methods **(12 hrs)**

Numerical solutions of ordinary differential equations: Taylor series method-Modified Euler’s method – Fourth order Runge- Kutta method –Numerical solutions of partial differential equations: Difference quotients and difference equations Solution of elliptic equations – Solution of Laplace’s equations

Numerical integration: Quadrature formula for equidistant ordinates – Trapezoidal rule – Simpson's rule – Approximate solution of algebraic and transcendental equations : Newton-Raphson method - Gauss elimination method for solving a system of linear equations.

*** Self study unit**

Book for Study:

- | | |
|-------------------------|--|
| 1. Mathematical Physics | : Sathyaprakash Sultan Chand & sons,
5 th Revised Edition, 2011. |
| 2. Numerical Methods | : A. Singaravelu, Meenakshi Publications |

Books for Reference:

- | | |
|--|---|
| 1. Mathematical Physics | : B.D.Gupta, Vikas Publishing House , 4 th
Edition, 2010. |
| 2. Applied Mathematics for
Engineers and Physicists | : Pipes Louis A and Harvill Lawrence,
McGraw Hill Publishers, 1946. |

M.Sc Physics

Semester II

Practical II

15MPP2

Credits: 4

Hours: 90

**List of Practicals
(A minimum of 12 Experiments)**

1. Young's Modulus - Elliptical Fringe Method
2. Tracing of Hysteresis loop
3. Determination of Refractive index of glass- Michelson's Interferometer
4. Determination of Band Gap - Four Probe method
5. Numerical aperture of an optical fibre-Laser source
6. Synthesis of thin Film – Chemical Bath Deposition Method
7. Synthesis of Nano Particles – Chemical Method
8. Synthesis of Nano Particles – Planetary Ball Mill
9. Characteristics of UJT
10. Relaxation Oscillator – UJT
11. RC Coupled amplifier – Two stage (FET/BJT)
12. 555 Timer – Astable Multivibrator
13. A/D converter & D/A converter
14. Multiplexer and Demultiplexer
15. Half Subtractor, Full Subtractor (NAND)
16. Characteristics of SCR
17. Construction of Integrator, Differentiator using OP AMP
18. 555 Timer – Monostable Multivibrator
19. INTEL 8085A Microprocessor – Addition and Subtraction of two 8-bit numbers
20. Decade Counter with Driver and display

21. INTEL 8051 MCS Microcontroller – Addition of two 16-bit numbers
22. Microcontroller – Find the maximum number from the given ten 8-bit numbers

M.Sc Physics
Semester II
Elective II - Nano science and Nanotechnology II **15MPE2**

Credits: 4

Hours: 60(C-50, A-5, S-5)

Preamble:

Nanotechnology – The new technological revolution with polarizing views, inspiring world vision of transformation and stimulation to develop new tools that can touch all aspects of human society. Nanotechnology has the potential to provide the solution to global challenges that we face such as human health care, energy crisis, climate change and environmental pollution etc.

The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes (CNTs).

Objectives:

- To gain knowledge about different analysis techniques
- understand the inner concepts of Nanoscience towards material behavior
- To learn and appreciate the technology involved in the applications of Nanomaterials

Learning outcome:

- Able to develop interpretation skills in the characterization of Nanomaterials
- Appreciate the technology involved in the applications of Nanomaterials in the field of nano electronics, Nano medicine
- Gain knowledge about different kinds of sensors and sensing materials
- Applications nanoparticles in the field of textiles and in water and air purification

Unit I Analysis techniques-I **(10 hrs)**

Microscopes: Optical Microscopes- Confocal optical Microscope-Scanning Probe Microscopy (SPM): Introduction-Basic principle of SPM techniques-Scanning Tunneling Microscope: tunneling current-Local density of states – Applications-General concept and defining characteristics of AFM: Scanned proximity probe microscopes-Laser beam deflection-AFM cantilevers-Piezoceramics-Feedback loop-Alternative imaging modes.

Unit II Analysis techniques-II **(10 hrs)**

Electron microscopy: Introduction-Resolution vs magnification-Scanning Electron Microscope-SEM techniques-Electron gun-Specimen interaction- Applications-Transmission Electron Microscope-High resolution TEM.

Diffraction techniques: X-ray diffraction – Atomic Scattering factor –Bragg's law diffraction- Diffraction from different types of samples – Crystal structure factor-Diffraction from nanoparticles-X-ray diffractometer.

Unit III Nanoelectronics **(10 hrs)**

Quantum Electronic Devices: Upcoming Electronic Devices - Electrons in Mesoscopic structures - Examples of Quantum Electronic Devices: Short Channel MOS transistor - Split Gate transistor - Quantum Cellular Automata - Tunneling Element: Tunneling Diode - Resonant

Tunneling Diode- Principle of the Single Electron Transistor: The coulomb Blockade- Performance of the Single Electron Transistor - SET Circuit Design: Wiring and Drivers.

Unit IV Nanosensors and Nanomedicine

(10 hrs)

Nanosensors: Types of Nano sensors- Carbon Nano Tube based Sensors - Nanowire sensors- Polymeric Nano fibers, Nano composites- Nanoparticles- Nano sensors in space- Nano pressure sensor- Physical sensor – Bio sensors - Gas sensing Mechanism of semiconductors.

Metal Nanoparticles in optical detection and imaging - Quantum Dots: Semiconductors of Light- Photo physics of QDs and its Relevance in Diagnosis- Quantum Dots for Cancer Diagnosis and Therapy- Magnetic Nanoparticles for Imaging and Therapy - Toxicity of nanoparticles - Gold nanoparticles.

***Unit V Nanotechnology in Textiles and Water purification**

(10 hrs)

Characteristics of nano finishing in garments – Functional, intelligent and smart textiles - Waterproof Textiles – Breathable Textiles - UV Protection Textiles - Odor Control Textiles – Anti-Static Textiles - Anti-Bacterial Textiles - Dust Free Textiles – Stain Resistant Textiles.

Water cleaning and purification- Air cleaning and purification- soil Remediation.

*** Self study unit**

Books for study:

1. Introduction to NanoScience and Nanotechnology : K.K.Chattopadhyay and A.N Banerjee, PHI Learning Private Ltd., New Delhi, First Edition, 2009.
2. Nano The essentials : T.Pradeep, Tata McGraw-Hill Education Private Ltd, 4 th reprint, 2010
3. Nano Electronics and Nano systems : K.Goser, P.Glosekotter, J,Dienstuhl, Springer International Edition, 3rd Edition, 2009.
4. Nanotechnology: Technology Revolution of 21st Century : Er. Rakesh Rathi, S.Chand &Company Ltd, First Edition, 2009.
5. Bio-Nanotechnology : Madurai Sharon, Maheswar Sharon, Sunil Pandey, Goldie Oza. Ane Books Pvt Ltd, New Delhi, 2012.
6. Nanomaterials:Nanotechnologies and Design : Michael F Ashby, PauloJ.Ferreira,David L Schaaek, BH Publishers,2011.

Books for Reference:

1. Nano computing : Vishal Sahani, Debabrata Goswami Tata McGraw Hill Publications, 2008.
2. Nano Enables Sensors : Kourosh Kalantar-zadeh, Benjamin Fry Springer Publications, 2008.
3. Chemical Sensors An Introduction for Scientists and Engineers : Peter Gründler, Springer Publications, 2007
4. Nanotechnology in Biology : Tuan Vo-Dinh, CRC press,2007.

and Medicine
5. Environment Applications of
nano materials

: Glen E Fryxell, Guozhong Cao, Imperial
College press, 2012.

M.Sc Physics
Semester III
Elective III - Analog and Digital Communications 15MPE3

Credits: 4

Hours: 75 (C-65, S-5, A-5)

Preamble:

The branch of Communication Electronics and Systems has become the most important area in Science and Technological developments. The signals communicated in the digitalized form require a very narrow band for operation. The development in the Broadband communication, Satellite Communication and Mobile Communication are the visible areas where we are able to visualize a significant success. The Softwares that are used for coding the digital signals has become more important during handling in terms of safety and security in the communication systems. This paper will be able to provide a broad view in analog and digital communications in the above areas.

Objectives:

- To educate about the various communication techniques and their features including Broadband and Mobile communication systems.
- To allow an understanding of their practical applications in our day-today life

Learning Outcome:

- Students will acquire a knowledge of Analog and Digital Communication techniques, the advantages of Digital over Analog systems, their flexibility etc.
- A familiarity in Wireless applications using mobile network and Broadband and Satellite communication can be achieved.

Unit I Antennas and Wave Propagation (13 Hrs)

Antennas: Basic considerations- Wire radiator in Space-Terms and Definitions-Effects of Ground on Antennas-Directional high frequency Antennas: Dipole Arrays - Non resonant Antennas-The Rhombic-UHF and Microwave Antennas: Antennas with Parabolic reflectors-Wideband and Special-purpose Antennas: Discone Antenna -Propagation of Waves: Ground waves, Sky waves, Space Waves.

Unit II Modulation Techniques (15 hrs)

Theory of Amplitude Modulation Techniques: Amplitude Modulation Technique, DSBSC, SSB, VSB – Generation of Amplitude Modulated Signals: Generation of AM Signal, Generation of DSBSC Signal: Balanced Modulator – Theory of Angle Modulation Techniques: Frequency Modulation, Phase Modulation- Radio Transmitter: AM Transmitters, FM Transmitters (block diagram only) – Receiver Types: Super heterodyne Receiver - FM Receivers (block diagram only).

Unit III Digital Data Communic (14 hrs)

Introduction-Basic Digital communication system: ASK-Coherent ASK detector- Non-Coherent ASK detector- FSK- Demodulation of binary FSK wave-Detection of FSK using PLL- PSK-Detection of binary PSK waves-Differential PSK(DPSK) - M-ary PSK -M-ary PSK

Transmitter-M-ary PSK Receiver-Elements of Digital Communication System- Advantages of digital communication.

Unit IV Broad-Band Communications

(12 hrs)

Time Division multiplexing- Frequency division multiplexing- Computer communication systems- Microwave communication links - Line of Sight - Integrated Service Digital Network (ISDN)-Local Area Network (LAN) -LAN Topologies. Satellite Communications: Introduction-Satellite Communication System - Satellite Orbits - Basic Components of Satellite Communication-Constructural Features-Commonly used frequencies-Multiple access: FDMA, TDMA - Satellite Communication in India.

Unit V Mobile and Wireless Communications

(11 hrs)

Telecommunication systems: GSM: Mobile services-System Architecture-Radio Interface-Protocols- Handover- Security-New data services (GPRS qualitative only)-Mobile IP: Goals, assumptions and Requirements- Entities and Terminology-IP Packet Delivery- Mobile TCP - Wireless Application Protocol(WAP): Architecture-Wireless application environment.

Books for Study:

- | | |
|--|---|
| 1. Electronic Communication Systems
(Unit I and II) | : George Kennedy, Bernard Davis,
S.R.M. Prasanna, Tata Mcgraw Hill
Education Pvt Ltd, 2012. |
| 2. Principle of Communication Engineering
(Unit III and IV) | : Anokh Singh, A.K.Chhabra,
S.Chand& Company, 2013. |
| 3. Mobile Communications
(Unit V) | : Jochen H.Schiller, Pearson
Publications Pvt.ltd, Second edition, 2003. |

Books for Reference:

- | | |
|--|--|
| 1. Analog and Digital communication | : J.S.Katre, Macmillan Publishers, 2011 |
| 2. Wireless Digital Communications
Modulation and Spread spectrum
Applications | : Dr. Kamilo feher, Prentice- Hall publishers. |
| 3. Communication Systems | :Simon Haykin, Wiley Publications, 2013 |

M.Sc Physics

Semester III

Practical III

15MPP3

Credits: 4

Hours: 90

List of Practicals

(A minimum of 12 Experiments)

1. Magnetic Susceptibility - Guoy balance
2. Wavelength of Laser Beam - Fabry Perot Interferometer
3. Characteristics of Solar Cell - Laser Source and Multichrome Source
4. Verification of Malus Law & Determination of Brewster's angle - Laser Source
5. Measurement of linear absorption co-efficient of a transparent material (Glass Slide) -

- Laser Source.
6. Determination of Particle size – Laser Source
 7. Determination of lattice parameters of Nanomaterials
 8. Conductivity Studies of Nano materials
 9. Synthesis of Polymers
 10. Phase transition in Magnetic materials
 11. Construction of Bistable Multivibrator - BJT
 12. Up-Down Counter using IC 74190, IC 7447 and LED 71312 (Seven Segment Display)
 13. Frequency Modulation using 555 Timer
 14. Construction of 12-0-12 V Power Supply – IC 7812 and IC 7912
 15. Construction of Band Pass and Band rejection - OPAMP 741
 16. Frequency Response of FET Amplifier (BFW10/11)
 17. Schmitt Trigger – OPAMP 741 and 555 Timer
 18. Sine Wave, Square Wave and Triangular Wave Generation - OPAMP 741
 19. Voltage to Frequency Converter - OPAMP (741,709) and BFW10
 20. Program to arrange the given ten 8-bit numbers in ascending order-
INTEL 8051 Micro Controller
 21. Ascending and Descending order of an array of numbers – INTEL 8085A Microprocessor.
 22. e/m magneton method using CRT
 23. Stephen's Constant - determination

M.Sc Physics
Semester III
Internship / Summer Fellowship 15MPIS

Credits: 6

Preamble:

Higher education is drawing tremendous attention in both the developed and developing countries. The main thrust is to facilitate the development of human resource that is capable of utilizing available knowledge to create wealth and generating new knowledge and innovations. At our present stage of growth where there is an increase in the international pressure for knowledge based, value-added development of major areas like nanoscience / technology, health care, biotechnology, pharmaceuticals, drugs, genetic, information/computer technology etc., it is clear that, a vast expansion and intensification of higher level education embedded with research is essential. Keeping this statement as the foundation for PG students the Summer Internship / Training programmes in the Universities and research institutes has been configured.

Objective:

- To inspire and motivate the young Woman to take up a career in Science
- To create an awareness on various career options available for young Woman Scientist
- To explore avenues for entrepreneur development for Woman through Science
- To develop human resource that is comfortable with both Science and Technology and therefore tuned to converting knowledge into innovation for wealth generation

Learning outcome:

- Knowledge about the specific areas of research can be identified.
- Transformation of the knowledge for conducting research in the areas of interest during the final semester be facilitated
- Knowledge about the availability of new equipments useful for conducting research be made known.

Evaluation Pattern:**Total marks: 150****1. Internship report : 75 marks**

- a) Activity performed : 25 marks
- b) Material prepared : 25 marks
- c) Attendance : 25 marks

2. Viva-voce : 75 marks

- a) Presentation prepared : 30 marks
- b) Delivery of knowledge : 20 marks
- c) Response to Q &A : 25 marks

M.Sc. Physics**Semester IV****Project & Viva - voce****15MPPV****Credits: 12****Preamble:**

Physics is a fundamental science close to nature and involves study of matter and its motion in space- time, energy and force. Physics is both important and influential because advances in its understanding have often translated into newer technologies, which are of interdisciplinary importance. Any newer area of research is characterized by a statement of different enforcing conditions and success lies in how correctly the basic physical phenomena are interpreted in these conditions. In tune with the aforesaid, to make research and development meaningful and effective, in Post-Graduate course, the concept of project work has been introduced. The new research areas can include crystal growth, thin films, polymer science, nano-science, material's science, computational methods, theoretical science etc. This project will equip students with the basic understanding of relevant Physics with various analytical tools. Students, hence, can effectively contribute to various industries and/or emerging branches of research areas.

Objectives:

- To familiarize the students with the areas of research
- To impart knowledge in the collection of literature, list of references (books as on-line) - as well as references in the text.
- To explore the knowledge about the presentation of experimental methods
- To facilitate the students about the choice of the material
- To secure knowledge about the background of the current research

Learning outcome:

- Students will be able to get knowledge about experimental skills for preparing samples
- Students will develop ability to write interpretation for their sample analysis techniques
- Students will experience an independent learning.
- Students will develop a confidence in pursuing research in future

Curriculum Framework for the students admitted in the academic year 2014-2015

Department of Physics

Curriculum Design

Sri G.V.G. Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

Post Graduate Department of Physics

M.Sc Physics

Semester wise distribution with Scheme of Examination

Seme ster	Title of the Course	Cre dits	Instructi on hours per week	Duration of Exam (ESE)	Marks		Total
					CIA	ESE	
I	Core I Classical Mechanics	4	6	3	25	75	100
	Core II Mathematical Physics	4	6	3	25	75	100
	Core III Condensed Matter Physics	4	6	3	25	75	100
	Practical I	4	6	4	40	60	100
	Elective I Electronic Devices, Circuits and Applications	3	6	3	25	75	100
II	Core IV Quantum Mechanics	4	6	3	25	75	100
	Core V Electromagnetic Theory	4	6	3	25	75	100
	Core VI Nano science and Nanotechnology I – Fundamentals	4	6	3	25	75	100
	Practical II	4	6	4	40	60	100
	Elective II Digital Electronics and Microprocessors	3	6	3	25	75	100
	Advanced Learners Course I Astrophysics	4*	-	3	-	100	100

Seme ster	Title of the Course	Cre dits	Instructi on hours per week	Duration of Exam (ESE)	Marks		Total
					CIA	ESE	
III	Core VII Nuclear and Particle Physics	5	5	3	25	75	100
	Core VIII Nano science and Nanotechnology II - Applications	5	5	3	25	75	100
	Core IX Molecular Spectroscopy	5	5	3	25	75	100
	Practical III	5	6	6	40	60	100
	Elective III : MATLAB (T & P)	3	4	4	25	75	100
	Internship / Summer Fellowship	5	5	-	-	-	100
IV	Core X Modern Optics	5	6	3	25	75	100
	Core XI Analog and Digital Communications	5	6	3	25	75	100
	Elective IV : Object Oriented Programming with C++	3	5	3	25	75	100
	Practical IV : Object Oriented Programming with C++	3	4	4	40	60	100
	Project & Viva voce	8	9	-	100	100	200
	Advanced Learners Course II Plasma physics	4*	-	3	-	100	100

Total Credits : 90

M.Sc Physics – Semester I

Core II Mathematical Physics

Credits: 5 Hours: 90 (C-75, T-4, S-5, Tu-3, A-3)

QPC: 13MP02

Preamble:

For proper understanding of the concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity as well as other areas of Physics, thorough knowledge in Differential equations, Tensors, Complex Variables is required. Therefore Mathematical Physics is introduced as Core Paper in the I Semester.

Objectives:

- To learn the computational techniques associated with the subject
- To perform the problem solving activity of the physical aspects effectively

Unit I Differential Equations and Special Functions (16 hrs)

Legendre Differential Equation and Legendre function – Generating function of Legendre Polynomials – Orthogonal properties of Legendre Polynomials – Bessel's Differential Equation and Bessel's function of first kind – Bessel's Half orders – Recurrence formulae for $J_n(x)$ – Hermite Differential Equation and Hermite Polynomials - Generating function of Hermite Polynomials – Recurrence formulae for Hermite Polynomials.

Unit II Laplace Transforms (16 hrs)

Definition of the Laplace Transform – Properties of Laplace Transforms: Linearity Property – First Translation property and second translation property – Change of scalar property – Laplace Transform of Derivatives – Derivatives of Laplace Transform – Laplace Transform of integrals – Initial and final value theorems.

Methods for finding Laplace Transforms: Direct method – series expansion method – Method of Differential equations.

Inverse Laplace Transform: Linearity Property – First translation property – second translation property – Convolution property.

Application of Laplace Transforms to Differential equations – Applications of Laplace Transform to boundary value problems.

Unit III Fourier series, Integrals and Transforms (14 hrs)

Definition and Expansion of a function of x – Dirichlet's conditions – Assumptions for the validity of Fourier's series expansion and its theorems – Complex representation of Fourier series – Problems.

Convergence of Fourier series – Applications of Fourier series: Fourier series involving Phase Angles – Transverse Vibrations of a string – Fourier Transforms: Fourier Sine Transforms – Fourier Cosine Transforms - **Problems of direct applications.**

Unit IV Tensors (15 hrs)

Definition of Contra variant, Covariant and Mixed tensors – Algebraic operation of Tensors: Addition and Subtraction of Tensors – Equality of tensors – Outer product – Contraction of tensors – Inner product of tensors – Quotient law – Symmetric and Anti symmetric tensors – Invariant tensors: Kronecker delta symbol, Levi-Civita symbol – Metric tensors – Christoffel's 3 index symbols – Relation between Christoffel's symbols of first and second kind.

Unit V Complex Variables and Group Theory

(14 hrs)

Complex Variables: Algebraic operation of Complex Numbers – Cauchy-Riemann Differential Equation – Cauchy's Integral theorem - Cauchy's Integral Formula – Laurent's series – Singularities of an Analytic function – Cauchy Residue theorem – **Problems.**

Group Theory: Concept of a group – Abelian group – Generators of finite group – cyclic group – subgroup – Isomorphism and Homomorphism – Reducible and Irreducible Representations – The Orthogonality theorem.

Book for Study:

- | | |
|-------------------------|--|
| 1. Mathematical Physics | : B.D.Gupta, Vikas Publishing House , 4 th Edition, 2010. |
|-------------------------|--|

Books for Reference:

- | | |
|---|---|
| 1. Mathematical Physics | : Sathya Prakash, Sultan Chand & sons, 5 th Revised Edition, 2011. |
| 2. Applied Mathematics for Engineers and Physicists | : Pipes Louis A and Harvill Lawrence, McGraw Hill Publishers, 1946. |

M.Sc Physics – Semester I

Practical I

Credits: 5 Hours: 90

QPC: 13MPP1

List of Practicals (A minimum of 12 Experiments)

1. Young's Modulus - Hyperbolic Fringe Method
2. Determination of λ - Michelson's Interferometer
3. Measurement of Hall voltage in semiconductors
4. Determination of Band Gap – Four Probe Method
5. Dielectric constant of Benzene and Dipole moment of Acetone
6. Inversion temperature of Thermocouple
7. Ultrasonic Diffraction
8. Characteristics of Tunnel Diode
9. Characteristics of FET
10. Construction of an Astable Multivibrator
11. Construction of a Bistable Multivibrator
12. RC Coupled Amplifier – Single stage
13. Colpitt's Oscillator
14. Hartley Oscillator
15. IC Regulated power supply
16. Half Adder, Full Adder (NAND)
17. R-S & J-K Flip Flop
18. Construction of a Low pass and a High pass filter using OP AMP
19. Construction of an Adder and a Subtractor using OP AMP

20. Wien Bridge Oscillator
21. Construction of a Band pass filter using OP AMP

M.Sc Physics - Semester I

Elective I Electronic Devices, Circuits and Applications

Credits: 5 Hours: 90 (C-75, T-4, S-5, Tu-3, A-3)

QPC: 13MPE1

Preamble:

The field of electronics has become the most important branch of science and engineering in our society. It is this field in which rapid developments are taking place every day. The electronic devices and gadgets are being used in almost all industries for quality control and automation. Because of growing applications of electronics, in almost all fields, the students of science disciplines have to be taught electronics both at the UG level and PG level.

Objectives:

- To educate about the various electronic devices and their characteristics
- To allow an understanding of their practical applications in our day-today life.

Unit I Diodes and Thyristors

(15 Hrs)

Introduction - Schottky diode – Characteristics – Tunnel diode – Diode parameters – Applications – Photo diodes – Characteristics – Applications – Photoconductive cells – Characteristics – Applications – IR emitters – Liquid crystal display – Solar cells – Thermistors – Applications – Silicon Controlled Rectifiers (SCR) – SCR characteristics and rating – Applications – Battery charging regulator – Temperature controller – Light activated SCR – Diac – Diac in proximity detector – Triac – Triac in Phase (power) control – UJT - Characteristics.

Unit II Transistors

(18 Hrs)

BJTs – Load line and operating point – Q- Point and maximum undistorted output – Voltage divider bias – Stability of voltage divider bias – Single stage BJT amplifier – Analysis and parameters of common emitter amplifier – Effect of A.C load on CE amplifier – Constant Current Source using BJT - Hybrid parameter – Determination and meaning – Amplifier expressions – Hybrid formulas for CE amplifier – Two stage RC coupled amplifier – Frequency response – Power amplifiers – performance parameters – A.C load line – Class B Amplifier – Push-Pull amplifier – Advantages – cross over distortion – efficiency – Feed back amplifier – Principle – Gain stability – Increased bandwidth – Decreased noise and distortion. – IC voltage regulators - **Problems of direct applications.**

Unit III Field Effect Transistors

(15 Hrs)

JFET operations and characteristics – JFET parameters – Setting Q-Point using D.C load line – Voltage divider bias in FET – FET common source amplifier – Low frequency and high frequency response - Cascade configuration of JFET amplifier - Depletion type MOSFET - operations and characteristics – Enhancement type MOSFET - operations and characteristics - MOSFET handling precautions – VMOS – CMOS – MESFETs – Three channel audio mixer using JFET – Motion detection system using JFET - **Problems of direct applications.**

Unit IV Oscillators

(12 Hrs)

Comparison between an amplifier and an oscillator – Barkhausen criterion – FET Hartley oscillator – FET Colpitt's oscillator – Principle of RC oscillator – FET Phase shift oscillator – Wien bridge oscillator – Non sinusoidal oscillator – Astable multivibrator – Monostable multivibrator – Bistable multivibrator – Schmitt trigger – Blocking oscillator – UJT Relaxation oscillator - **Problems of direct applications.**

Unit V Operational Amplifiers (OP AMPs)

(15 Hrs)

Integrated Circuits – Structure and function - fabrication process of ICs (Transistors, diodes, resistors, capacitances) - The Ideal OP-AMP – Inverting, Non-Inverting & Differential Amplifiers – Input offset voltage – Input offset current – CMRR - OP-AMP Characteristics - Open Loop Input Output Characteristics – Frequency Response and Slew rate – OP-AMP Applications – Adder, Subtractor, Integrator, Differentiator – Comparator – Voltage to Current Converter – Current to Voltage Converter – Electronic Analog Computation- **Problems of direct applications.**

Books for study:

1. A Text book of Applied Electronics : R.S.Sedha, S.Chand and Company, New Delhi, Revised Edition 2006, Reprint 2010.
2. Electronic Devices and Circuit theory : Robert L.Boylestad and Louis Nashelsky, Pearson education Inc., Prentice hall, 9th Edition,2008.
3. OP-AMPs & Linear Integrated Circuits : Ramakant A.Gayakwad, Prentice Hall of India Private Ltd., New Delhi, 4th Edition, 2002.
4. Linear Integrated circuits : D.Roy Choudhury and Shail Jain, New Age International (P) Ltd., Publishers, New Delhi, 10th Reprint,1997.

Books for Reference:

1. Basic electronics – Solid state : B.L.Theraja, S.Chand & Co. Ltd, New Delhi, Reprint 2010.
2. Integrated Electronics: Analog and Digital Circuits and Systems : Jacob Millman, Christos C. Halkias, McGraw Hill International Book Company, 24th Printing, 1982.

M.Sc Physics – Semester II

Core VI Nanoscience and Nanotechnology I - Fundamentals

Credits: 5 Hours: 90 (C-75, T-4, S-8, A-3)

QPC: 13MP06

Preamble:

Nanotechnology – The new technological revolution with polarizing views, inspiring world vision of transformation and stimulation to develop new tools that can touch all aspects of human society. Nanotechnology has the potential to provide the solution to global challenges that we face such as human health care, energy crisis, climate change and environmental pollution etc.

Nanotechnology mainly consists of the processing of separation, consolidation and deformation of materials by one atom or molecule.

The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes(CNTs).

Objectives:

- To understand the inner concepts of Nanoscience towards material behavior
- To learn the technology involved in the fabrication and application of Nanomaterials

Unit I Synthesis of Nanomaterials – I (15 hrs)

Low Dimensional 2D,1D,0D Nanomaterials – Top Down and Bottom up Techniques for synthesis of Nanomaterials – Chemical methods of synthesis: Colloids and Colloids in Solutions – Langmuir-Blodgett Method – Micro Emulsions - Sol-Gel Method – Hydrothermal synthesis – Sonochemical synthesis – Microwave synthesis.

Unit II Synthesis of Nanomaterials – II (13 hrs)

Physical Methods of synthesis: Plasma Arc Discharge – Sputter Deposition – DC, RF, Magnetron Sputtering – Methods based on Evaporation: Thermal Evaporation, Electron Beam Evaporation, Laser Evaporation – Chemical Vapour Deposition – Molecular Beam Epitaxy – High Energy Ball Milling.

Unit III Characterization Methods (14 hrs)

Optical Microscope: Confocal Microscope – Electron Microscopes: Scanning Electron Microscope, TEM – SPM: STM, AFM, SNOM – Diffraction Method: XRD – Atomic Scattering factor – Diffraction from different types of samples – Debye-Scherrer formula. Spectroscopes: UV-VIS-NIR Spectrometer – Raman Spectrometer. Magnetic Measurements: VSM

Unit IV Lithographic Methods (17 hrs)

Properties of Nanomaterials: Surface to volume ratio at Nanoscale – Thermal Properties – Mechanical properties - Magnetic properties – Optical properties
Lithographic Methods

Photolithography: Lithography using UV light, Laser Beams and X-rays – Lithography using Particle Beams: Electron Beam Lithography, Ion Beam Lithography and Neutral Beam Lithography – Scanning Probe Lithography: Dip Pen Lithography, Optical Scanning Probe Lithography – Soft Lithography: Microcontact Printing, Replica Molding, Micro transfer Moldings and Micro Molding in Capillaries.

Unit V Special Nanomaterials (16 hrs)

Carboneous Nanomaterials – Fullerene – Carbon Nano Tubes – Types of Carbon Nano Tube – Synthesis and Purification of CNT – Filling of CNT – properties of CNT - Graphene – Porous Silicon: Mechanism of formation of Porous Silicon – Properties of Porous Silicon.
Self assembled Mono layers: Mono layers on Gold – Growth Process Applications
Quantum dots: Quantum confinement in semiconductor nano structures – Electronic density states – Synthesis of Quantum dots – Characterization of semiconductor nano structures – Applications

Books for Study:

1. Nanotechnology Principles and Practices : Sulabha K Kulkarni, Capital publishing Company, New Delhi, 2nd edition, 2011.
2. Introduction to NanoScience and Nanotechnology : K.K.Chattopadhyaya and A.N Banerjee, PHI Learning Private Ltd., New Delhi, First Edition, 2009.
3. NANO: The Essentials Understanding Nanoscience and Nanotechnology : T.Pradeep, Tata McGraw-Hill Publishing Company Ltd, New Delhi, 3rd Reprint, 2009.
4. Nanotechnology: Technology Revolution of 21st Century : Er. Rakesh Rathi, S.Chand & Company Ltd, New Delhi, First Edition, 2009.
5. Nanomaterials, Nanotechnologies And Design : Michael F.Ashby, Paulo J.Ferreira, Daniel L Schodel, Elsevier India Pvt. Ltd, First Printed in India, 2011.

Books for Reference:

1. Nanotechnology Basic Science & Emerging Technologies : Mick Wilson, Kamali Kannangara, Geoff Smith, Michelle Simmons and Burkhard Raguse Overseas Press India Pvt.Ltd, Reprint 2008.
2. Introduction to Nanotechnology : Charles P. Poole Jr. and Frank J. Owens, A John, Wiley Sons, INC., Publication, 2003.
3. Characterization of Nanophase materials : Zhong Lin Wang, Wiley-VCH Verlag GmbH, 2000.
4. Nanotechnology: An introduction to Nanostructuring Techniques : Michael Kohler and Wolfgang Fritzsche, Wiley-VCH Verlag GmbH & Co. KGaA, 2004.
5. Nano Electronics & Nano Systems : K. Gosser, P. Glosekotter, V. Dienstuhl, Springer, 3rd Reprint 2009.

M.Sc Physics – Semester II**Practical II****Credits: 5 Hours: 90****QPC:13MPP2**

List of Practicals
(A minimum of 12 Experiments)

1. Young's Modulus - Elliptical Fringe Method
2. Young's Modulus - Cornu's Method
3. Tracing of Hysteresis loop
4. Determination of $d\lambda$ - Michelson's Interferometer
5. Resistivity Measurement - Four Probe method
6. Numerical aperture of an optical fibre-Laser source
7. Synthesis of Nano Film – CBD
8. Synthesis of Nano Particles – Sol Gel Method
9. Synthesis of Nano Particles – Planetary Ball Mill
10. Conductivity studies of Nano materials

11. Characteristics of UJT
12. Relaxation Oscillator – UJT
13. RC Coupled amplifier – Two stage
14. 555 Timer – Astable Multivibrator
15. A/D converter & D/A converter
16. Multiplexer and Demultiplexer
17. Half Subtractor, Full Subtractor (NAND)
18. Characteristics of SCR
19. Construction of Integrator, Differentiator using OP AMP
20. 555 Timer – Monostable Multivibrator
21. Microprocessor – Addition and Subtraction of two 8-bit numbers
22. Decade Counter
23. Microcontroller – Addition of two 16-bit numbers
24. Microcontroller – Find the maximum number from the given ten 8-bit numbers

M.Sc Physics – Semester II

Elective II Digital Electronics and Microprocessors

Credits:5 Hours :90 (C-75, T-4, S-8, A-3)

QPC:13MPE2

Preamble:

In the modern world of electronics the term digital is often associated with computers. It is certainly difficult to think of an area of life today that is not influenced in one way or other by digital computers. The availability of the computational power is directly converted into the development of the digital fundamental circuits. The digital ICs which are smaller, faster, more economical and more powerful offer a great number of applications. Today digital circuits and systems can be found almost in every field.

An introduction to the field of digital electronics and microprocessors with a number of applications are intended to provide a strong background in the digital data manipulations.

Objectives:

- To impart the basic concepts of digital principles and digital circuits
- To cherish the applications of digital data manipulating systems

Unit I Data Processing Circuits (Or) Digital Data Circuits (15 hrs)

Logic Gates – Boolean Algebra and De-Morgan's Theorem – Sum of Products Method – Karnaugh's Map and Simplifications – Half Adder , Full Adder – Half Subtractor, Full Subtractor – Binary Adder/Subtractor – Multiplexer – (16-1) Multiplexer – Demultiplexer – (1-16) Demultiplexer – BCD to Decimal Decoder – (1-of-10) Decoder – Seven Segment Decoder – Decimal to BCD Encoder – Parity generators/ checkers.

Unit II Flip Flops and Registers (12 hrs)

RS Flip Flop- Clocked RS Flip Flop – D Flip Flop – Edge Triggered D-Flip Flop - JK Flip Flop – JK Master Slaved Flip Flop – 555 Timer Astable - 555 Timer Monostable - Types of Registers – Serial-in Serial-out – Serial-in Parallel-out – Parallel-in Parallel-out – Parallel-in Serial-out – Universal Shift Register.

Unit III Counters

(15 hrs)

Types of Counters – Asynchronous and Synchronous Counter – MOD-3, MOD-5 and Decade Counters – Ring Counters – Shift Counters – Digital to Analog Converter – Binary Ladder Method – 4 bit Digital to Analog converter – Analog to Digital converter – Simultaneous Method – Memory – ROMs, PROMs, EPROMs and EEPROMs – RAMs – SRAM and DRAM.

Unit IV Microprocessors

(15 hrs)

Intel 8085 Microprocessor – Architecture – Pin Configuration – Instruction Set of 8085 Microprocessor – Instruction Cycle – Timing Diagram – Op code Fetch Cycle – Memory Read Cycle for MOVE A,C & ADD M – Addressing Modes – Assembly Language Programming – Program to add and subtract two 8-bit numbers – Sort numbers by ascending and descending order – 8257 DMA Microcontroller – Pin Configuration – Block diagram of 8257.

Unit V Micro controllers

(18 Hrs)

Microprocessor Vs Microcontroller – Applications of Microcontrollers (qualitative only) – commercial Microcontrollers – INTEL 8051 Microcontroller – Features of 8051 Microcontroller - Pin out of 8051 Microcontroller - Architecture of INTEL 8051 Microcontroller - Memory organization – Addressing modes – Boolean Processor – Interrupts – 8051 Instruction execution – 8051 Instruction set – Data transfer Instructions – Arithmetic Instructions – Logic Instructions – Control transfer/Program control – 8051 Microcontroller program to add two 16 bit numbers – 8051 Microcontroller program to find the maximum number from a given ten 8-bit numbers.

Books for Study:

- | | |
|--|---|
| 1. Digital Principles and Applications | : A.P Malvino & D.P. Leach, TataMcGraw Hill Edn., Pvt., Ltd, New Delhi 7 th Edition, 2011. |
| 2. Introduction to Microprocessors | : Aditya .P. Mathur, TataMcGraw Hill edn., Pvt. Ltd, New Delhi, 3 rd Edition, 32 nd Reprint 2010. |
| 3. Advanced Microprocessor and Microcontroller | : Prof. S.K. Venkataram, University Science Press, Chennai, 1 st Edition, 2002, Reprint 2008. |

Books for Reference:

- | | |
|--|---|
| 1. Electronic Principles and Applications | : A.B. Bhattacharya, New Central Book Agency (P) Ltd, 2006. |
| 2. Microprocessor Architecture, Programming And applications with the 8085 | : Ramesh Gaonkar, Penram International Publishing (India) Pvt., Ltd, 5 th Edition, 2010. |

M.Sc. Physics – Semester III

Core VIII Nano science and Nanotechnology II - Applications

Credits : 4 Hours: 75 (C-65, T-2, A-2, S-6)

QPC: 13MP08

Preamble:

Nanotechnology – The new technological revolution with polarizing views, inspiring world vision of transformation and stimulation to develop new tools that can touch all aspects of human society. Nanotechnology has the potential to provide the solution to global challenges that we face such as human health care, energy crisis, climate change and environmental pollution etc.

The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes (CNTs).

Objectives:

- To understand the inner concepts of Nanoscience towards material behavior
- To learn and appreciate the technology involved in the applications of Nanomaterials

Module I Nanoelectronics

(13 Hrs)

Quantum Electronic Devices: Upcoming Electronic Devices - Electrons in Mesoscopic structures - Examples of Quantum Electronic Devices: Short Channel MOS transistor - Split Gate transistor - Quantum Cellular Automata - Molecular Electronics: Switches based on Fullerenes and Nanotubes - Tunneling Element: Tunneling Diode - Resonant Tunneling Diode- Principle of the Single Electron Transistor: The coulomb Blockade- Performance of the Single Electron Transistor - SET Circuit Design: Wiring and Drivers.

Module II Nanosensors

(12 Hrs)

Nanosensors : Types of Nano sensors- Carbon Nano Tube based Sensors - Nanowire sensors- Polymeric Nano fibers, Nano composites- Nanoparticles- Plasmonic based Nano probe- Optical Nano sensors- SQUID based magnetic Nano sensors- Micro cantilever based sensors- Nano sensors in space- Nano pressure sensor- Physical sensor – Bio sensors - Gas sensing Mechanism of semiconductors: Nano structured ZnO for sensors.

Module III Nano Medicine

(16 Hrs)

Metal Nanoparticles in optical detection and imaging - Quantum Dots: Semiconductors of Light- Photo physics of QDs and its Relevance in Diagnosis- Application of Quantum Dots in Medical Diagnosis - Quantum Dots for Cancer Diagnosis and Therapy.

Magnetic nanoparticles as contrast Agents for Medical Diagnosis: Preparation Methods for Iron Oxide Nanoparticles and In vitro characterization: Preparation of Iron Oxide core- Surface coating of Nanoparticles- Conjugation of molecules for Targeting- Magnetic Nanoparticles for Imaging and Therapy - Toxicity of nanoparticles - Gold nanoparticles- Dendrimer polymer nanoparticles-Dendritic Nano devices for targeting and therapeutic applications.

Module IV Nanotechnology in Energy and Food packaging Materials

(12 Hrs)

Overview of the Principles of operation of Energy Conversion and Storage Devices - Lithium Ion Batteries - Fuel Cells – Photo electrochemical Solar Cells.

Nanomaterials for food Applications: Metal/Metal oxides - Surface functionalized Nano materials - Organic Nano additives and processed nanostructures in food – Nanosized food ingredients and additives in relation to digestion of food – active packaging materials: Nanoparticles in oxygen scavenging- Nano-encapsulated Release systems – Intelligent packaging concepts :Time-Temperature Indicators Leakage indicators Spoilage indicators.

Module V Nanotechnology in cosmetics, Textiles and Water purification

(12 Hrs)

Cosmetics and Nanotechnology: Anti aging Products- Nanotechnology for sunscreen and UV protection- Nano emulsions in Shampoo- vesicular Delivery Systems – Nano encapsulation for controlled Release- Use of Nanotechnology in Contact lens - Use of Nanotechnology in Dental Applications.

Characteristics of nano finishing in garments – Functional, intelligent and smart textiles - Waterproof Textiles – Breathable Textiles - UV Protection Textiles - Odor Control Textiles – Anti-Static Textiles - Anti-Bacterial Textiles - Dust Free Textiles – Stain Resistant Textiles.

Water cleaning and purification- Air cleaning and purification- soil Remediation.

Books for study:

1. Nano Electronics and Nano systems : K.Goser, P.Glosekotter, J.Dienstuhl, Springer International Edition, 3rd Edition, 2009.
2. Text book of Nanoscience and Nanotechnology : B.S.Murthy, P.Shankar, Baldevraj, B.B.Rath and James Murday, University Press Reprint 2013.
3. Bio-Nanotechnology : Madurai Sharon, Maheswar Sharon, Sunil Pandey, Goldie Oza. Ane Books Pvt Ltd, New Delhi, 2012.
4. Nanotechnolgies in Food : Qasim Chaudry, Laurence Castle & Richard Watknis., RSC Publishers, 2010.
5. Nanostructured Materials for Electrochemical Energy Production and Storage : David J. Lockwood, Springer, 2009.
6. Nanomaterials:Nanotechnologies and Design : Michael F Ashy, PauloJ. Ferreira, David L Schaaek, BH Publishers,2011.

Books for Reference:

1. Nano computing : Vishal Sahani, Debabrata Goswami Tata McGraw Hill Publications, 2008.
2. Nanotechnology: Technology Revolution of 21st Century : Er. Rakesh Rathi, S.Chand &Company Ltd, First Edition, 2009.
3. Nanotechnology in Biology and Medicine : Tuan Vo-Dinh, CRC press,2007.
4. Environment Applications of materials : Glen E Fryxell, Guozhong Cao, nano Imperial College press, 2012.

M.Sc Physics – Semester III
Practical III

Credits: 5 Hours: 90

QPC: 13MPP3

List of Practicals
(A minimum of 12 Experiments)

1. Magnetic Susceptibility - Guoy balance
2. Wavelength of Laser Beam - Fabry Perot Interferometer
3. Characteristics of Solar Cell - Laser Source and Multichrome Source
4. Verification of Malus Law - Laser Source
5. Measurement of linear absorption co-efficient of a transparent material (Glass Slide) - Laser Source.
6. Determination of lattice parameters of Nanomaterials
7. Conductivity Studies of Nano materials
8. Synthesis of Polymers
9. Phase transition in Magnetic materials

10. Construction of Bistable Multivibrator - BJT
11. Up-Down Counter using IC 74190, IC 7447 and LED 71312 (Seven Segment Display)
12. Frequency Modulation using 555 Timer
13. Hartley Oscillator - FET
14. Construction of 12-0-12 V Power Supply – IC 7812 and IC 7912
15. Construction of Band Pass and Band rejection - OPAMP 741
16. Frequency Response of FET Amplifier (BFW10/11)
17. Schmitt Trigger – OPAMP 741 and 555 Timer
18. Sine Wave, Square Wave and Triangular Wave Generation - OPAMP 741
19. Voltage to Frequency Converter - OPAMP (741,709) and BFW10
20. Program to arrange the given ten 8-bit numbers in ascending order-
INTEL 8051 Micro Controller
21. Ascending and Descending order of an array of numbers – INTEL 8085A Microprocessor.

M.Sc. Physics – Semester III

Elective III MATLAB (Theory & Practical)

Credits: 4 Hours: 75 (Theory: 30, Practical: 35, A- 4, S-6)

QPC: 13MPE3

Preamble:

MATLAB is an integrated technical computing environment that combines numerical computation, advanced graphics and visualization and a high level programming language. This paper helps the student to solve scientific problems in an easy and quicker way.

Objectives:

- To impart knowledge in the basic concepts of MATLAB
- To learn the art of writing programs using MATLAB

MATLAB Theory (30 Hrs)

Unit I MATLAB Windows

(6Hrs)

Command window – Edit window – figure window – help window – Command history window – Current directory-Workspace window.

Data types in MATLAB – Variables-Key words-Assignment statements – System commands - Common Mathematical operators – Relational operators - Writing Mathematical expressions in MATLAB – Math built – in functions.

Unit II Creating Arrays

(6Hrs)

One dimensional array –Creating a two dimensional arrays – The transpose operator – Array addressing – Adding elements to existing variables – Built -in functions for handling arrays – Matrix manipulation.

Unit III Conditional Statements

(6Hrs)

If ...end structure – if else... end structure – if ... else if... else ...end structure – switch ... case statements.

Loops: For ... end loops – while ...end loops

Unit IV Script files and Function files

(6Hrs)

Creating, saving, running a script file – input to a script file – opening and modifying an existing M file – output Commands.

Structure of a Function file - Creating, saving and running a function file.

Unit V

(6Hrs)

Basic 2D plots – style options – Label – title – legend – Access control – property name and property value – fplot command – plotting multiple graphs in the same plot – 3D plots : Line plots – Mesh and surface plots.

Books for study:

1. MATLAB Programming : Y.Kirani Singh & B.B.Chaudhuri, PHI Learning Private Limited, New Delhi, Third Printing, 2010.
2. MATLAB An Introduction with applications : Amos Gilat, Wiley India Private Limited, Reprint 2007.
3. Classical Mechanics with MATLAB applications : Javier E.Hasburn, Jones & Bartlett India Private Limited, First Edition, 2010.

Books for Reference:

1. Getting started with MATLAB7 : Rudra Pratap, Oxford University Press, Fourth Impression 2006.
2. Mastering MATLAB7 : Duane Hanselman and Bruce Little field, Dorling Kindersley (India) Pvt. Ltd, Licensees of Pearson Education in South Asia, Third Impression 2008.
3. A Guide to MATLAB for Beginners and Experienced Users : Brian R.Hunt, Ronard L.Lipsman, Jonathan M.Rosenberg, Cambridge University Press, First South Asian Edition 2002, Reprinted 2003, 2005, 2006.

M.Sc Physics – Semester III

MATLAB Practicals

Practical Hours: 35

QPC: 13MPE3

List of Programs (A minimum of 7 Programs)

1. Equivalent Force System.
2. Electrical resistive network analysis.
3. Projectile Motion (3D Plot).
4. Exponential growth and decay of a radioactive substance.
5. AC to DC converter
6. Electrical potential of two point charges
7. Heat conduction in a square plate
8. Construction of Logic gates using blocks
9. Series resonant circuit
10. Lissajou's Figures.
11. Simple Harmonic Motion – Harmonic oscillator
12. Spring-Mass system
13. Foucault's Pendulum

M.Sc Physics-Semester IV

Core XI Analog and Digital Communications

Credits: 4 Hours: 75 (C-65, Tu-2, S-6, A-2)

QPC: 13MP11

Preamble:

The branch of Communication Electronics and Systems has become the most important area in Science and Technological developments. The signals communicated in the digitalized form require a very narrow band for operation. The development in the broadband communication, Satellite Communication and Mobile Communication are the visible areas where we are able to visualize the significant applications. The Softwares that are used for coding the digital signals has become prominent in the communication systems. This paper will be able to provide a broad view in analog and digital communications in the above areas.

Objectives:

- To educate about the various communication systems and their characteristics
- To allow an understanding of their practical applications in our day-today life

Unit I Antennas and Wave Propagation (13 Hrs)

Antennas: Basic considerations- Wire radiator in Space-Terms and Definitions-Effects of Ground on Antennas-Directional high frequency Antennas: Dipole Arrays - Non resonant Antennas-The Rhombic-UHF and Microwave Antennas: Antennas with Parabolic reflectors-Wideband and Special-purpose Antennas: Discone Antenna-Long periodic Antenna -Propagation of Waves: Ground waves, Sky waves, Space Waves- Tropospheric Scatter Propagation. **Problems of direct applications related to above topics.**

Unit II Modulation Techniques (15 Hrs)

Theory of Amplitude Modulation Techniques: Amplitude Modulation Technique, DSBSC, SSB, VSB – Generation of Amplitude Modulated Signals: Generation of AM Signal, Generation of DSBSC Signal: Balanced Modulator – Theory of Angle Modulation Techniques: Frequency Modulation, Phase Modulation- Radio Transmitter: AM Transmitters, FM Transmitters (block diagram only) – Receiver Types: Super heterodyne Receiver – Detection and Automatic Gain control- FM Receivers (block diagram only) - Ratio Detector - **Problems of direct applications related to above topics.**

Unit III Digital Data Communications (14 Hrs)

Introduction-Basic Digital communication system: ASK-Coherent ASK detector- Non-Coherent ASK detector- FSK- Demodulation of binary FSK wave-Detection of FSK using PLL- PSK-Detection of binary PSK waves-Differential PSK(DPSK) - Quadrature of Phase shift keying(QPSK) - QPSK Modulator-M-ary PSK-M-ary PSK Transmitter-M-ary PSK Receiver-Elements of Digital Communication System- Advantages of digital communication- Pulse code modulation- Differential PCM-Delta modulation- Adaptive delta modulation.

Unit IV Broad-Band Communications (12 Hrs)

Time Division multiplexing- Frequency division multiplexing- Computer communication systems- Line of Sight Microwave links- Troposphere Scatter microwave links: Quadruple diversity system (block diagram) - Integrated service digital network(ISDN)-Local Area Network

(LAN)-LAN Topologies. Satellite Communications: Introduction- Satellite Communication System- Satellite Orbits- Basic Components of Satellite Communication-Constructural Features- Commonly used frequencies-Multiple access: FDMA, TDMA, SPADE - Communication packages-Satellite Communication in India.

Unit V Mobile and Wireless Communications

(11 Hrs)

Cellular Mobile Communication: Concept of cell – The cell phone - GSM: Mobile services-System Architecture-Radio Interface-Protocols-Localization and calling-Handover-Security-New data services (GPRS qualitative only)-Mobile IP: Goals, assumptions and Requirements- Entities and Terminology-IP Packet Delivery- Mobile TCP - Wireless Application Protocol: Architecture-Wireless application environment.

Books for Study:

- | | |
|--|---|
| 1. Electronic Communication Systems
(Module I and II) | : George Kennedy, Bernard Davis,
S.R.M. Prasanna, Tata Mcgraw Hill
Education Pvt Ltd, 2012. |
| 2. Principle of Communication Engineering
(Module III and IV) | : Anokh Singh, A.K.Chhabra,
S.Chand& Company, 2013. |
| 3. Mobile Communications
(Module V) | : Jochen H.Schiller, Pearson
Publications Pvt.ltd, Second edition, 2003. |

M.Sc Physics – Semester IV

Elective IV Object Oriented Programming with C++

Credits : 4 Hours: 75 (C-65, Tu-2, A-2, S-6)

QPC:13MPE4

Preamble:

C++ is a powerful language that combines the power, elegance and flexibility of C and the features of object oriented programming. This paper enables the student to understand the structured programming language with object oriented programming methodology.

Objective:

- To learn about Object Oriented Programming
- To develop knowledge in writing programs

Unit I Principles of Object-Oriented Programming

(13 Hrs)

Basic concepts of object oriented Programming – Benefits of OOP – Object Oriented Languages – Applications of OOP – Structure of C++ Program.

Tokens – Keywords – Identifiers and Constants – Basic data types – User defined data types – Derived data types – Symbolic Constants – Type Compatability – Declaration of Variables – Dynamic Initialization of Variables – Operators in C++ - Scope Resolution Operator – Manipulators – Type Cast Operator.

Unit II Expressions and Functions in C++

(13 Hrs)

Expressions and their types: Special Assignment Expressions – Implicit conversions – Control Structures.

Functions in C++ : The Main Function – Function Prototyping – Call by Reference – Return by Reference – Inline Functions – Default Arguments – Constant Arguments – Function Overloading – Math Library Functions.

Unit III Classes, Objects and Constructors

(13 Hrs)

Classes and Objects: Specifying a class – Defining member functions – Making an outside function inline – Private member functions – Arrays within a class – Static Data members – Static member functions – Arrays of objects – Objects as function arguments – Friendly Functions – Returning objects – Pointers to members – Local Classes.

Constructors: Parameterized constructors – Multiple constructors in a class – Constructors with default arguments – Dynamic Initialization of objects – Copy constructors – Dynamic Constructors.

Unit IV Operator Overloading and Inheritance

(13 Hrs)

Operator Overloading: Defining Operator Overloading – Overloading unary Operators – Overloading binary Operators using Friends – Manipulation of strings using operators – Rules for overloading operators.

Inheritance: Defining Derived Classes – Single Inheritance – Making a Private member inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance.

Unit V Pointers, Virtual Functions, Polymorphism and Files

(13 Hrs)

Pointers, Virtual Functions and Polymorphism: Declaring and Initializing Pointers – Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual functions – Pure Virtual Functions.

Working with Files: Classes for File Stream Operations – Opening and Closing a File – Detecting end-of-file – More about open(): File Modes – File pointers and their manipulations – Sequential Input and Output operations – Updating a file: Random Access- Error Handling during file operations.

Books for Study:

1. Object Oriented Programming with C++ : E.Balagurusamy, Tata McGraw-Hill Publishing Company Limited, New Delhi Third Edition.
2. Object Oriented Programming with ANSI & Turbo C++ : Ashok N.Kamthane, Dorling Kindersley (India) Pvt. Ltd., Licensees of Pearson Education in South Asia, Seventh Impression 2009.

Books for Reference:

1. Let us C++ : Yashavant Kanetkar, BPB Publications, B-14, Connaught Place, New Delhi, Second Edition.
2. Mastering C++ : K.R.Venugopal, Rajkumar Buyya and T.Ravishankar, Tata McGraw-Hill Publishing Company Limited, New Delhi, Sixteenth Reprint 2004.
3. C++: The Complete Reference : Herbert Schildt, Tata Mc Graw Hill Education Private Limited, New Delhi, Fourth Edition.
4. Programming in C++ : James P.Cohoon, Jack W.Davidson, Tata Mc Graw Hill Publishing Company Limited, New Delhi, Third Edition.
5. Programming in C++ : D.Ravichandran, Tata Mc Graw Hill Publishing Company Limited, New Delhi, Eighth Reprint 1999.

Curriculum Framework for the students admitted in the academic year 2013-2014

Department of Physics

Curriculum Design

Sri G.V.G. Visalakshi College for Women (Autonomous)

Affiliated to Bharathiar University

Post Graduate Department of Physics

M.Sc Physics

Semester wise distribution with Scheme of Examination and Credits

Seme ster	Title of the Course	Cre dits	Instructi on hours per week	Duration of Exam (ESE)	Marks		Total
					CIA	ESE	
I	Core I Classical Mechanics	5	6	3	25	75	100
	Core II Mathematical Physics	5	6	3	25	75	100
	Core III Condensed Matter Physics	5	6	3	25	75	100
	Practical I	5	6	4	40	60	100
	Elective I Electronic Devices, Circuits and Applications	5	6	3	25	75	100
II	Core IV Quantum Mechanics	5	6	3	25	75	100
	Core V Electromagnetic Theory	5	6	3	25	75	100
	Core VI Nanoscience and Nanotechnology I – Fundamentals	5	6	3	25	75	100
	Practical II	5	6	4	40	60	100
	Elective II Digital Electronics and Microprocessors	5	6	3	25	75	100
	Advanced Learners Course I Astrophysics	4*	-	3	-	100	100

M.Sc Physics – Semester I

Core II Mathematical Physics

Credits: 5 Hours: 90 (C-75, T-4, S-5, Tu-3, A-3)

QPC: 13MP02

Preamble:

For proper understanding of the concepts of Quantum Mechanics, Sound, Electro Magnetism, Statistical Thermodynamics, Special theory of Relativity as well as other areas of Physics, thorough knowledge in Differential equations, Tensors, Complex Variables is required. Therefore Mathematical Physics is introduced as Core Paper in the I Semester.

Objectives:

- To learn the computational techniques associated with the subject
- To perform the problem solving activity of the physical aspects effectively

Unit I Differential Equations and Special Functions (16 hrs)

Legendre Differential Equation and Legendre function – Generating function of Legendre Polynomials – Orthogonal properties of Legendre Polynomials – Bessel's Differential Equation and Bessel's function of first kind – Bessel's Half orders – Recurrence formulae for $J_n(x)$ – Hermite Differential Equation and Hermite Polynomials - Generating function of Hermite Polynomials – Recurrence formulae for Hermite Polynomials.

Unit II Laplace Transforms (16 hrs)

Definition of the Laplace Transform – Properties of Laplace Transforms: Linearity Property – First Translation property and second translation property – Change of scalar property – Laplace Transform of Derivatives – Derivatives of Laplace Transform – Laplace Transform of integrals – Initial and final value theorems.

Methods for finding Laplace Transforms: Direct method – series expansion method – Method of Differential equations.

Inverse Laplace Transform: Linearity Property – First translation property – second translation property – Convolution property.

Application of Laplace Transforms to Differential equations – Applications of Laplace Transform to boundary value problems.

Unit III Fourier series, Integrals and Transforms (14 hrs)

Definition and Expansion of a function of x – Dirichlet's conditions – Assumptions for the validity of Fourier's series expansion and its theorems – Complex representation of Fourier series – Problems.

Convergence of Fourier series – Applications of Fourier series: Fourier series involving Phase Angles – Transverse Vibrations of a string – Fourier Transforms: Fourier Sine Transforms – Fourier Cosine Transforms - **Problems of direct applications.**

Unit IV Tensors (15 hrs)

Definition of Contra variant, Covariant and Mixed tensors – Algebraic operation of Tensors: Addition and Subtraction of Tensors – Equality of tensors – Outer product – Contraction of tensors – Inner product of tensors – Quotient law – Symmetric and Anti symmetric tensors –

Invariant tensors: Kronecker delta symbol, Levi-Civita symbol – Metric tensors – Christoffel's 3 index symbols – Relation between Christoffel's symbols of first and second kind.

Unit V Complex Variables and Group Theory (14 hrs)

Complex Variables: Algebraic operation of Complex Numbers – Cauchy-Riemann Differential Equation – Cauchy's Integral theorem - Cauchy's Integral Formula – Laurent's series – Singularities of an Analytic function – Cauchy Residue theorem – **Problems.**

Group Theory: Concept of a group – Abelian group – Generators of finite group – cyclic group – subgroup – Isomorphism and Homomorphism – Reducible and Irreducible Representations – The Orthogonality theorem.

Book for Study:

- | | |
|-------------------------|--|
| 1. Mathematical Physics | : B.D.Gupta, Vikas Publishing House , 4 th Edition, 2010. |
|-------------------------|--|

Books for Reference:

- | | |
|---|---|
| 1. Mathematical Physics | : Sathya Prakash, Sultan Chand & sons, 5 th Revised Edition, 2011. |
| 2. Applied Mathematics for Engineers and Physicists | : Pipes Louis A and Harvill Lawrence, McGraw Hill Publishers, 1946. |

M.Sc Physics – Semester I
Practical I

Credits: 5 Hours: 90

QPC: 13MPP1

List of Practicals
(A minimum of 12 Experiments)

1. Young's Modulus - Hyperbolic Fringe Method
2. Determination of λ - Michelson's Interferometer
3. Measurement of Hall voltage in semiconductors
4. Determination of Band Gap – Four Probe Method
5. Dielectric constant of Benzene and Dipole moment of Acetone
6. Inversion temperature of Thermocouple
7. Ultrasonic Diffraction
8. Characteristics of Tunnel Diode
9. Characteristics of FET
10. Construction of an Astable Multivibrator
11. Construction of a Bistable Multivibrator
12. RC Coupled Amplifier – Single stage
13. Colpitt's Oscillator
14. Hartley Oscillator
15. IC Regulated power supply
16. Half Adder, Full Adder (NAND)
17. R-S & J-K Flip Flop
18. Construction of a Low pass and a High pass filter using OP AMP
19. Construction of an Adder and a Subtractor using OP AMP
20. Wien Bridge Oscillator
21. Construction of a Band pass filter using OP AMP

M.Sc Physics - Semester I

Elective I Electronic Devices, Circuits and Applications

Credits: 5 Hours: 90 (C-75, T-4, S-5, Tu-3, A-3)

QPC: 13MPE1

Preamble:

The field of electronics has become the most important branch of science and engineering in our society. It is this field in which rapid developments are taking place every day. The electronic devices and gadgets are being used in almost all industries for quality control and automation. Because of growing applications of electronics, in almost all fields, the students of science disciplines have to be taught electronics both at the UG level and PG level.

Objectives:

- To educate about the various electronic devices and their characteristics
- To allow an understanding of their practical applications in our day-today life.

Unit I Diodes and Thyristors (15 Hrs)

Introduction - Schottky diode – Characteristics – Tunnel diode – Diode parameters – Applications – Photo diodes – Characteristics – Applications – Photoconductive cells – Characteristics – Applications – IR emitters – Liquid crystal display – Solar cells – Thermistors – Applications – Silicon Controlled Rectifiers (SCR) – SCR characteristics and rating – Applications – Battery charging regulator – Temperature controller – Light activated SCR – Diac – Diac in proximity detector – Triac – Triac in Phase (power) control – UJT - Characteristics.

Unit II Transistors (18 Hrs)

BJTs – Load line and operating point – Q- Point and maximum undistorted output – Voltage divider bias – Stability of voltage divider bias – Single stage BJT amplifier – Analysis and parameters of common emitter amplifier – Effect of A.C load on CE amplifier – Constant Current Source using BJT - Hybrid parameter – Determination and meaning – Amplifier expressions – Hybrid formulas for CE amplifier – Two stage RC coupled amplifier – Frequency response – Power amplifiers – performance parameters – A.C load line – Class B Amplifier – Push-Pull amplifier – Advantages – cross over distortion – efficiency – Feed back amplifier – Principle – Gain stability – Increased bandwidth – Decreased noise and distortion. – IC voltage regulators - **Problems of direct applications.**

Unit III Field Effect Transistors (15 Hrs)

JFET operations and characteristics – JFET parameters – Setting Q-Point using D.C load line – Voltage divider bias in FET – FET common source amplifier – Low frequency and high frequency response - Cascade configuration of JFET amplifier - Depletion type MOSFET - operations and characteristics – Enhancement type MOSFET - operations and characteristics - MOSFET handling precautions – VMOS – CMOS – MESFETs – Three channel audio mixer using JFET – Motion detection system using JFET - **Problems of direct applications.**

Unit IV Oscillators (12 Hrs)

Comparison between an amplifier and an oscillator – Barkhausen criterion – FET Hartley oscillator – FET Colpitt's oscillator – Principle of RC oscillator – FET Phase shift oscillator – Wien bridge oscillator – Non sinusoidal oscillator – Astable multivibrator –

Monostable multivibrator – Bistable multivibrator – Schmitt trigger – Blocking oscillator – UJT Relaxation oscillator - **Problems of direct applications.**

Unit V Operational Amplifiers (OP AMPs)

(15 Hrs)

Integrated Circuits – Structure and function - fabrication process of ICs (Transistors, diodes, resistors, capacitances) - The Ideal OP-AMP – Inverting, Non-Inverting & Differential Amplifiers – Input offset voltage – Input offset current – CMRR - OP-AMP Characteristics - Open Loop Input Output Characteristics – Frequency Response and Slew rate – OP-AMP Applications – Adder, Subtractor, Integrator, Differentiator – Comparator – Voltage to Current Converter – Current to Voltage Converter – Electronic Analog Computation- **Problems of direct applications.**

Books for study:

1. A Text book of Applied Electronics : R.S.Sedha, S.Chand and Company, New Delhi, Revised Edition 2006, Reprint 2010.
2. Electronic Devices and Circuit theory : Robert L.Boylestad and Louis Nashelsky, Pearson education Inc., Prentice hall, 9th Edition,2008.
3. OP-AMPs & Linear Integrated Circuits : Ramakant A.Gayakwad, Prentice Hall of India Private Ltd., New Delhi, 4th Edition, 2002.
4. Linear Integrated circuits : D.Roy Choudhury and Shail Jain, New Age International (P) Ltd., Publishers, New Delhi, 10th Reprint,1997.

Books for Reference:

1. Basic electronics – Solid state : B.L.Theraja, S.Chand & Co. Ltd, New Delhi, Reprint 2010.
2. Integrated Electronics: Analog and Digital Circuits and Systems : Jacob Millman, Christos C. Halkias, McGraw Hill International Book Company, 24th Printing, 1982.

M.Sc Physics – Semester II

Core VI Nanoscience and Nanotechnology I - Fundamentals

Credits: 5 Hours: 90 (C-75, T-4, S-8, A-3)

QPC: 13MP06

Preamble:

Nanotechnology – The new technological revolution with polarizing views, inspiring world vision of transformation and stimulation to develop new tools that can touch all aspects of human society. Nanotechnology has the potential to provide the solution to global challenges that we face such as human health care, energy crisis, climate change and environmental pollution etc.

Nanotechnology mainly consists of the processing of separation, consolidation and deformation of materials by one atom or molecule.

The major development in the Nanotechnology and Nanoscience started from the birth of cluster science and invention of Scanning Tunneling Microscope (STM) which led to the development of Carbon NanoTubes(CNTs).

Objectives:

- To understand the inner concepts of Nanoscience towards material behavior
- To learn the technology involved in the fabrication and application of Nanomaterials

Unit I Synthesis of Nanomaterials – I (15 hrs)

Low Dimensional 2D,1D,0D Nanomaterials – Top Down and Bottom up Techniques for synthesis of Nanomaterials – Chemical methods of synthesis: Colloids and Colloids in Solutions – Langmuir-Blodgett Method – Micro Emulsions - Sol-Gel Method – Hydrothermal synthesis – Sonochemical synthesis – Microwave synthesis.

Unit II Synthesis of Nanomaterials – II (13 hrs)

Physical Methods of synthesis: Plasma Arc Discharge – Sputter Deposition – DC, RF, Magnetron Sputtering – Methods based on Evaporation: Thermal Evaporation, Electron Beam Evaporation, Laser Evaporation – Chemical Vapour Deposition – Molecular Beam Epitaxy – High Energy Ball Milling.

Unit III Characterization Methods (14 hrs)

Optical Microscope: Confocal Microscope – Electron Microscopes: Scanning Electron Microscope, TEM – SPM: STM, AFM, SNOM – Diffraction Method: XRD – Atomic Scattering factor – Diffraction from different types of samples – Debye-Scherrer formula. Spectroscopes: UV-VIS-NIR Spectrometer – Raman Spectrometer. Magnetic Measurements: VSM

Unit IV Lithographic Methods (17 hrs)

Properties of Nanomaterials: Surface to volume ratio at Nanoscale – Thermal Properties – Mechanical properties - Magnetic properties – Optical properties
Lithographic Methods

Photolithography: Lithography using UV light, Laser Beams and X-rays – Lithography using Particle Beams: Electron Beam Lithography, Ion Beam Lithography and Neutral Beam Lithography – Scanning Probe Lithography: Dip Pen Lithography, Optical Scanning Probe Lithography – Soft Lithography: Microcontact Printing, Replica Molding, Micro transfer Moldings and Micro Molding in Capillaries.

Unit V Special Nanomaterials (16 hrs)

Carbaceous Nanomaterials – Fullerene – Carbon Nano Tubes – Types of Carbon Nano Tube – Synthesis and Purification of CNT – Filling of CNT – properties of CNT - Graphene – Porous Silicon: Mechanism of formation of Porous Silicon – Properties of Porous Silicon.

Self assembled Mono layers: Mono layers on Gold – Growth Process Applications

Quantum dots: Quantum confinement in semiconductor nano structures – Electronic density states – Synthesis of Quantum dots – Characterization of semiconductor nano structures – Applications

Books for Study:

1. Nanotechnology
Principles and Practices

: Sulabha K Kulkarni, Capital publishing
Company, New Delhi, 2nd edition, 2011.

2. Introduction to NanoScience and Nanotechnology : K.K.Chattopadhyaya and A.N Banerjee, PHI Learning Private Ltd., New Delhi, First Edition, 2009.
3. NANO: The Essentials Understanding Nanoscience and Nanotechnology : T.Pradeep, Tata McGraw-Hill Publishing Company Ltd, New Delhi, 3rd Reprint, 2009.
4. Nanotechnology: Technology Revolution of 21st Century : Er. Rakesh Rathi, S.Chand & Company Ltd, New Delhi, First Edition, 2009.
5. Nanomaterials, Nanotechnologies And Design : Michael F.Ashby, Paulo J.Ferreira, Daniel L Schodel, Elsevier India Pvt. Ltd, First Printed in India, 2011.

Books for Reference:

1. Nanotechnology Basic Science & Emerging Technologies : Mick Wilson, Kamali Kannangara, Geoff Smith, Michelle Simmons and Burkhard Raguse Overseas Press India Pvt.Ltd, Reprint 2008.
2. Introduction to Nanotechnology : Charles P. Poole Jr. and Frank J. Owens, A John, Wiley Sons, INC., Publication, 2003.
3. Characterization of Nanophase materials : Zhong Lin Wang, Wiley-VCH Verlag GmbH, 2000.
4. Nanotechnology: An introduction to Nanostructuring Techniques : Michael Kohler and Wolfgang Fritzsche, Wiley-VCH Verlag GmbH & Co. KGaA, 2004.
5. Nano Electronics & Nano Systems : K. Goser, P. Glosekotter, V. Dienstuhl, Springer, 3rd Reprint 2009.

M.Sc Physics – Semester II

Practical II

Credits: 5 Hours: 90

QPC:13MPP2

List of Practicals (A minimum of 12 Experiments)

1. Young's Modulus - Elliptical Fringe Method
2. Young's Modulus - Cornu's Method
3. Tracing of Hysteresis loop
4. Determination of $d\lambda$ - Michelson's Interferometer
5. Resistivity Measurement - Four Probe method
6. Numerical aperture of an optical fibre-Laser source
7. Synthesis of Nano Film – CBD
8. Synthesis of Nano Particles – Sol Gel Method
9. Synthesis of Nano Particles – Planetary Ball Mill
10. Conductivity studies of Nano materials
11. Characteristics of UJT
12. Relaxation Oscillator – UJT
13. RC Coupled amplifier – Two stage

14. 555 Timer – Astable Multivibrator
15. A/D converter & D/A converter
16. Multiplexer and Demultiplexer
17. Half Subtractor, Full Subtractor (NAND)
18. Characteristics of SCR
19. Construction of Integrator, Differentiator using OP AMP
20. 555 Timer – Monostable Multivibrator
21. Microprocessor – Addition and Subtraction of two 8-bit numbers
22. Decade Counter
23. Microcontroller – Addition of two 16-bit numbers
24. Microcontroller – Find the maximum number from the given ten 8-bit numbers

M.Sc Physics – Semester II

Elective II Digital Electronics and Microprocessors

Credits:5 Hours :90 (C-75, T-4, S-8, A-3)

QPC:13MPE2

Preamble:

In the modern world of electronics the term digital is often associated with computers. It is certainly difficult to think of an area of life today that is not influenced in one way or other by digital computers. The availability of the computational power is directly converted into the development of the digital fundamental circuits. The digital ICs which are smaller, faster, more economical and more powerful offer a great number of applications. Today digital circuits and systems can be found almost in every field.

An introduction to the field of digital electronics and microprocessors with a number of applications are intended to provide a strong background in the digital data manipulations.

Objectives:

- To impart the basic concepts of digital principles and digital circuits
- To cherish the applications of digital data manipulating systems

Unit I Data Processing Circuits (Or) Digital Data Circuits (15 hrs)

Logic Gates – Boolean Algebra and De-Morgan's Theorem – Sum of Products Method – Karnaugh's Map and Simplifications – Half Adder , Full Adder – Half Subtractor, Full Subtractor – Binary Adder/Subtractor – Multiplexer – (16-1) Multiplexer – Demultiplexer – (1-16) Demultiplexer – BCD to Decimal Decoder – (1-of-10) Decoder – Seven Segment Decoder – Decimal to BCD Encoder – Parity generators/ checkers.

Unit II Flip Flops and Registers (12 hrs)

RS Flip Flop- Clocked RS Flip Flop – D Flip Flop – Edge Triggered D-Flip Flop - JK Flip Flop – JK Master Slaved Flip Flop – 555 Timer Astable - 555 Timer Monostable - Types of Registers – Serial-in Serial-out – Serial-in Parallel-out – Parallel-in Parallel-out – Parallel-in Serial-out – Universal Shift Register.

Unit III Counters (15 hrs)

Types of Counters – Asynchronous and Synchronous Counter – MOD-3, MOD-5 and Decade Counters – Ring Counters – Shift Counters – Digital to Analog Converter – Binary Ladder

Method – 4 bit Digital to Analog converter – Analog to Digital converter – Simultaneous Method – Memory – ROMs, PROMs, EPROMs and EEPROMs – RAMs – SRAM and DRAM.

Unit IV Microprocessors

(15 hrs)

Intel 8085 Microprocessor – Architecture – Pin Configuration – Instruction Set of 8085 Microprocessor – Instruction Cycle – Timing Diagram – Op code Fetch Cycle – Memory Read Cycle for MOVE A,C & ADD M – Addressing Modes – Assembly Language Programming – Program to add and subtract two 8-bit numbers – Sort numbers by ascending and descending order – 8257 DMA Microcontroller – Pin Configuration – Block diagram of 8257.

Unit V Micro controllers

(18 Hrs)

Microprocessor Vs Microcontroller – Applications of Microcontrollers (qualitative only) – commercial Microcontrollers – INTEL 8051 Microcontroller – Features of 8051 Microcontroller - Pin out of 8051 Microcontroller - Architecture of INTEL 8051 Microcontroller - Memory organization – Addressing modes – Boolean Processor – Interrupts – 8051 Instruction execution – 8051 Instruction set – Data transfer Instructions – Arithmetic Instructions – Logic Instructions – Control transfer/Program control – 8051 Microcontroller program to add two 16 bit numbers – 8051 Microcontroller program to find the maximum number from a given ten 8-bit numbers.

Books for Study:

- | | |
|---|--|
| 1. Digital Principles and Applications | : A.P Malvino & D.P. Leach,
Tata McGraw Hill Edn., Pvt., Ltd,
New Delhi 7 th Edition, 2011. |
| 2. Introduction to Microprocessors | : Aditya .P. Mathur, Tata McGraw
Hill edn., Pvt. Ltd, New Delhi, 3 rd
Edition, 32 nd Reprint 2010. |
| 3. Advanced Microprocessor and
Microcontroller | : Prof. S.K. Venkataram, University
Science Press, Chennai, 1 st Edition,
2002, Reprint 2008. |

Books for Reference:

- | | |
|---|---|
| 1. Electronic Principles and Applications | : A.B. Bhattacharya, New Central
Book Agency (P) Ltd, 2006. |
| 2. Microprocessor Architecture, Programming
And applications with the 8085 | : Ramesh Gaonkar, Penram
International Publishing (India)
Pvt., Ltd, 5 th Edition, 2010. |

Curriculum design
SRI G. V. G. VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)

Affiliated to Bharathiar University

Department of Chemistry

B.Sc Chemistry

Scheme of Examination – CBCS Pattern

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
117TA1/ 117MY1/ 117HD1/ 117FR1	Part I: Language I	6	3	25	75	100	4
117EN1	Part II: English I	6	3	25	75	100	4
117C01	Part III: Core I General Chemistry I	7	3	25	75	100	4
	Part III: Core Practical I Semi-micro Qualitative Analysis	3	-	-	-	-	-
117AC1	Part III: Allied I Physics I	4	3	25	50	75	3
	Part III: Allied Physics Practical	2	-	-	-	-	-
117EVS	Part IV: Environmental Studies	2	2	50	-	50	2
Semester II							
217TA2/ 217MY2/ 217HD2/ 217FR2	Part I: Language II	6	3	25	75	100	4
217EN2	Part II: English II	6	3	25	75	100	4
217C02	Part III: Core II General Chemistry II	7	3	25	75	100	4
217CP1	Part III: Core Practical I Semi-micro Qualitative Analysis	3	3	25	50	75	3
217AC2	Part III: Allied II Physics II	4	3	25	50	75	3
217ACP	Part III: Allied Physics Practical	2	3	20	30	50	2
217VEC	Part IV: Value Education	2	2	50	-	50	2
Semester III							
317TA3/ 317MY3/ 317HD3/ 317FR3	Part I: Language III	6	3	25	75	100	4
317EN3	Part II: English III	6	3	25	75	100	4
317C03	Part III: Core III General Chemistry III	4	3	25	75	100	4
	Part III: Core Practical II Volumetric and Organic Analysis	3	-	-	-	-	-
317AC3	Part III: Allied III Mathematics I	6	3	25	75	100	4
317NCE	Part IV: Non Major Elective: Chemistry in Everyday Life	2	2	50	-	50	2
317CS1	Part IV: Skill Enhancement Course I: Applications of Computer in Chemistry	3	3	75	-	75	3

Semester IV							
417TA4/ 417MY4/ 417HD4/ 417FR4	Part I: Language IV	6	3	25	75	100	4
417EN4	Part II: English IV	6	3	25	75	100	4
417C04	Part III: Core IV General Chemistry IV	4	3	25	75	100	4
417CP2	Part III: Core Practical II Volumetric and Organic Analysis	3	6	40	60	100	4
417AC4	Part III: Allied IV Mathematics II	6	3	25	75	100	4
417NGA	Part IV: General Awareness	-	1	50	-	50	2
417CS2	Part IV: Skill Enhancement Course II: Chemistry for Exploration I	3	3	75	-	75	3
417GIS	Part IV: Information Security	2	2	50	-	Grade	Grade
417ALC	Advanced Learner's Course I – Food Science	-	3	-	100	100	4*
Semester V							
517C05	Part III: Core V Organic Chemistry I	5	3	25	75	100	4
517C06	Part III: Core VI Inorganic Chemistry I	4	3	25	75	100	4
517C07	Part III: Core VII Physical Chemistry I	5	3	25	75	100	4
517CE1/ 517CE2	Part III: Elective I Polymer and Dye Chemistry / Agro-Industrial Chemistry	4	3	25	75	100	4
517CE3	Part III: Elective II Project	5	3	50	50	100	4
	Part III: Core Practical III Gravimetric Analysis and Physical Chemistry Experiments	5	-	-	-	-	-
517CS3	Part IV: Skill Enhancement Course III: Chemistry for Exploration II	2	3	75	-	75	3
Semester VI							
617C08	Part III: Core VIII Organic Chemistry II	5	3	25	75	100	5
617C09	Part III: Core IX Inorganic Chemistry II	4	3	25	75	100	4
617C10	Part III: Core X Physical Chemistry II	4	3	25	75	100	4
617C11	Part III: Core XI Spectroscopy	4	3	25	75	100	4
617CE4/ 617CE5	Part III: Elective III Industrial Chemistry/ Applied Chemistry	4	3	25	75	100	4
617CP3	Part III: Core Practical III Gravimetric Analysis and Physical Chemistry Experiments	5	6	40	60	100	4
617CP4	Part III: Core Practical IV Applied Chemistry Practical	2	3	25	50	75	2
617CS4	Part IV: Skill Enhancement Course IV: Nanoscience	2	3	75	-	75	3
617EX1/ 617EX2/ 617EX3 617EX4/ 617EX5	Part V: Extension Activity	-	-	50	-	50	2
617ALC	Advanced Learner's Course II - Dairy Chemistry	-	3	-	100	100	4*
	Total					3500	140

Starred credits are treated as additional credits, which are optional.

B.Sc. Chemistry
Semester I & II

Part III Core Practical – I Semi-micro Qualitative Analysis 217CP1
(For the Students admitted from the academic year 2017 – 2018 onwards)

Objectives:

- To impart sound theoretical knowledge in semi-micro qualitative analysis.
- To expose the students to laboratory hygiene and safety methods.
- To enhance the skill of handling chemicals, glass wares and apparatus used in semi-micro qualitative analysis.
- To apply the chemistry principles in the qualitative analysis.
- To familiarize with filtration, precipitation, decantation, heating, centrifugation and separation techniques.

- I. Reactions involving anions: Carbonate, sulphate, nitrate, fluoride, chloride, bromide, oxalate, phosphate and borate.
- II. Reactions involving cations: Lead, bismuth, copper, cadmium, iron, manganese, aluminium, cobalt, nickel, zinc, barium, calcium, strontium, ammonium and magnesium.
- III. Analysis of a mixture containing 2 cations and 2 anions of which one may be an interfering radical requiring elimination during the analysis.
- IV. **Group experiments:**
 - (i) Demonstration of common ion effect using
 - (a) CuCl_2 and NaCl
 - (b) liq. NH_3 and NH_4Cl .
 - (ii) Separation of immiscible liquids using a volatile organic solvent.
- V. **Demonstration**
Identification of Chromate and iodide ion

Reference:

1. Basic Principles of Practical Chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, S. Chand and Sons publications, 2nd ed., 2016.
2. Advanced Practical Chemistry, Raghupati Mukhopadhyay, Pratul Chatterjee, Books and Allied publications, 3rd ed., 2007.

Course outcome:

Upon completion of the course, the students will be able to

- CO1: Gain sound theoretical knowledge in semi-micro qualitative analysis.
CO2: Implement laboratory hygiene and safety methods.
CO3: Handle chemicals, glass wares and apparatus used in semi-micro qualitative analysis.
CO4: Apply semi-micro qualitative analysis in laboratory operations i.e.
 - a. To Express the physical and chemical processes.
 - b. To Use the heating, decantation and centrifugation processes.
 - c. To Examine precipitation and filtration processes.
CO5: Separate the anions in mixture by analytical methods.
CO6: Distinguish the cations to the groups.
CO7: Work effectively as a member of a team, communicate productively with lab mates, teaching assistant and instructor.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Knowledge Level
CO 1	H	H	H	H	H	H	A
CO 2	H	H	H	H	H	H	A
CO 3	H	H	H	H	H	H	A
CO 4	H	H	H	H	H	H	A
CO 5	H	H	H	H	H	H	A
CO 6	H	H	H	H	H	H	A
CO 7	H	H	H	H	H	H	A

Curriculum Design
SRI G. V. G. VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)

Affiliated to Bharathiar University

Department of Chemistry

B.Sc Chemistry

Scheme of Examination – CBCS Pattern

(For the Students admitted from the academic year 2016 – 2017 only)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
115TA1/ 115MY1/ 115HD1/ 115FR1	Part I: Language I	6	3	25	75	100	4
115EN1	Part II: English I	6	3	25	75	100	4
115C01	Part III: Core I General Chemistry I	7	3	25	75	100	4
	Part III: Core Practical I Semi micro qualitative analysis	3	-	-	-	-	-
115AC1	Part III: Allied I Physics I	4	3	25	50	75	3
	Part III: Allied Physics Practical	2	-	-	-	-	-
115EVS	Part IV: Environmental Studies	2	2	50	-	50	2
Semester II							
215TA2/ 215MY2/ 215HD2/ 215FR2	Part I: Language II	6	3	25	75	100	4
215EN2	Part II: English II	6	3	25	75	100	4
215C02	Part III: Core II General Chemistry II	7	3	25	75	100	4
215CP1	Part III: Core Practical I Semi micro qualitative analysis	3	3	25	50	75	3
215AC2	Part III: Allied II Physics II	4	3	25	50	75	3
215ACP	Part III: Allied Physics Practical	2	3	20	30	50	2
215VEC	Part IV: Value Education	2	2	50	-	50	2
Semester III							
315TA3/ 315MY3/ 315HD3/ 315FR3	Part I: Language III	6	3	25	75	100	4
315EN3	Part II: English III	6	3	25	75	100	4
315C03	Part III: Core III General Chemistry III	4	3	25	75	100	4
	Part III: Core Practical II Volumetric and Organic analysis	3	-	-	-	-	-
315AC3	Part III: Allied III Mathematics I	6	3	25	75	100	4
315CS1	Part IV: Skill Based Course I: Applications of Computer in Chemistry	3	3	75	-	75	3
315NCE	Part IV: Non Major Elective Course I: Chemistry in Everyday Life	2	2	50	-	50	2

Semester IV							
415TA4/ 415MY4/ 415HD4/ 415FR4	Part I: Language IV	6	3	25	75	100	4
415EN4	Part II: English IV	6	3	25	75	100	4
415C04	Part III: Core IV General Chemistry IV	4	3	25	75	100	4
416CP2	Part III: Core Practical II Volumetric and Organic Analysis	3	6	40	60	100	4
415AC4	Part III: Allied IV Mathematics II	6	3	25	75	100	4
415CS2	Part IV: Skill Based Course II: Chemistry for Entrepreneurship	3	3	75	-	75	3
415NGA	Part IV: Non Major Elective Course II: General Awareness (Online)	-	1	50	-	50	2
415GIS	Part IV: Information Security	2	2	-	-	Grade	Grade
415ALC	Advanced Learners Course I – Food Science	-	-	-	100	100	4*
Semester V							
515C05	Part III: Core V Organic Chemistry I	5	3	25	75	100	5
515C06	Part III: Core VI Inorganic Chemistry I	4	3	25	75	100	4
515C07	Part III: Core VII Physical Chemistry I	5	3	25	75	100	4
515C08	Part III: Core VIII Spectroscopy	4	3	25	75	100	4
515CE1	Part III: Elective I Polymer and Dye Chemistry	4	3	25	75	100	4
	Part III: Core Practical III Gravimetric Analysis and Physical Chemistry experiments	5	-	-	-	-	-
515CS3	Part IV: Skill Based Course III: Chemistry for Exploration	3	3	75	-	75	3
Semester VI							
615C09	Part III: Core IX Organic Chemistry II	4	3	25	75	100	5
615C10	Part III: Core X Inorganic Chemistry II	4	3	25	75	100	4
615C11	Part III: Core XI Physical Chemistry II	4	3	25	75	100	4
615CE2	Part III: Elective II Analytical Chemistry	4	3	25	75	100	4
615CE3	Part III: Elective III Project	5	3	25	75	100	4
615CP3	Part III: Core Practical III Gravimetric Analysis and Physical Chemistry experiments	5	6	40	60	100	3
615CP4	Part III: Core Practical IV Applied Chemistry Practical	2	3	25	50	75	2
615CS4	Part IV: Skill Based Course IV: Nanoscience	2	-	75	-	75	3
615EX1/ 615EX2/ 615EX3 615EX4/ 615EX5	Part V: Extension activity	-	-	50	-	50	2
615ALC	Advanced Learners Course II - Dairy chemistry	-	-	-	100	100	4*
Total						3500	140

- Starred credits are treated as additional credits, which are optional.

B.Sc. Chemistry
Semester I & II
Part III -Core Practical – I Semi-micro Qualitative Analysis
215CP1

(For the students admitted from the academic year 2015 – 2016 onwards)

- I. Reactions involving anions: Carbonate, sulphate, nitrate, fluoride, chloride, bromide, oxalate, phosphate, borate and chromate.
- II. Reactions involving cations: Lead, bismuth, copper, cadmium, iron, manganese, aluminium, cobalt, nickel, zinc, barium, calcium, strontium, ammonium and magnesium.
- III. Analysis of a mixture containing 2 cations and 2 anions of which one may be an interfering radical requiring elimination during the analysis.
- IV. Group experiments:
 - (i) Crystallization and filtration.
 - (ii) Separation of immiscible liquids.

B.Sc. Chemistry
Semester III

Part IV- Skill Based Course I – Applications of Computer in Chemistry 315CS1

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

Total hours: 38

This course in skill based learning provides the students with all the fundamental concepts of basics in computer which has become a necessity in the present era.

Unit I: Word Processing

(6 Hours)

Introduction- Word document window- Basic commands- Concept like editing, cutting, saving, pasting, formatting and tabular columns- Formatting the text and document-Working with header and footer- Typing texts and equations in Chemistry-Mail merge.

Unit II: Spread Sheet

(5 Hours)

Introduction- Navigating worksheets- entering and editing Data, text and formulas- Excel functions- Excel's Chart features(elementary idea only)- GraphPad (elementary idea only).

Unit III: PowerPoint Presentation

(5 Hours)

Powerpoint basics- Terminology- Color Schemes- templates- Creating presentations- Working with text in Power Point- editing, formatting and aligning text-slide preparation and presentation- Working with Animation.

Unit IV: Chemdraw

(6 Hours)

Introduction- salient features in Chemdraw- main tools- optional tools-significance of Chemdraw- Chemdraw Shortcuts- drawing chemical structures and pasting them in the text- working with structures- advantages.

Unit V: Internet

(6 Hours)

Internet – the working way of internet-internet protocols- internet addressing– domain name- WWW- webpages, home page, web browsers- search engine- E-mail- advantages and disadvantages- Intranet and Extranet- application of internet in Chemistry.

Practicals

(10 Hours)

1. Prepare Bio-Data using Word Processing.

2. Create a Newsletter using Word Processing.
3. Prepare a Mark statement using Word Processing.
4. Create a document using format options in Word Processing.
5. Design an advertisement copy in Word Processing.
6. Create a database using the formulas sum, average, max, min, Formulas in Chemistry (given by the teacher) in Spread Sheet.
7. Drawing charts and Graphs in Spread Sheet.
8. Prepare a Power Point slide using animation and sound effects.
9. Draw the structure of the molecules using Chemdraw.
10. Draw the structure of the molecule by using Chemdraw and paste into Word Document.

Books for study

1. Nellai Kannan C., 2008, MS OFFICE, NELS Publications, Tirunelveli.
2. Alexis Leon & Mathews Leon, 1999, Fundamentals of Information Technology, Leon Tech World, Chennai.

B .Sc. Chemistry Semester III & IV

Part III- Core Practical II - Volumetric and Organic analysis 416CP2 (For the Students admitted from the academic year 2016 – 2017 only)

Objectives:

- To acquire skills of doing quantitative estimations by titrimetry.
- To provide basic knowledge and skills for simple reactions in organic chemistry.
- To determine the functional group of an unknown organic compound.
- To understand the purpose of a synthetic derivative.
- To enable the students to estimate the organic compounds.

I. Volumetric analysis

A. Acidimetry and alkalimetry

1. Estimation of oxalic acid
2. Estimation of sodium carbonate
3. Estimation of hydrochloric acid

B. Permanganimetry

1. Estimation of oxalic acid
2. Estimation of ferrous iron in ferrous sulphate
3. Estimation of Mohr's salt

C. (i) Iodometry

1. Estimation of potassium dichromate
2. Estimation of copper

(ii) Iodimetry

Estimation of arsenious oxide (demo)

D. Dichrometry (demo)

1. Estimation of ferrous ion using internal indicator
2. Estimation of ferric ion by reduction method

E. Group experiments

1. Determination of sodium hydroxide and sodium carbonate in a mixture

2. Estimation of calcium (direct method)
3. Determination of percentage of MnO_2 in pyrolusite
4. Estimation of chloride

II. A. Analysis of organic compounds

Systematic analysis of organic compounds:- preliminary tests, detection of elements, nature of functional groups, confirmatory tests and preparation of derivatives of acids, phenols, amides, amines (primary, secondary), anilides, carbohydrates, aldehydes, ketones, nitro compounds and esters- **Micro scale level except for heating experiments.**

B. Estimation of organic compounds

1. Estimation of Vitamin C.
2. Estimation of Glycine by formal titration.
3. Determination of Acid value of fats
4. Estimation of Ca in milk.
5. Determination of acetic acid in commercial vinegar.
6. Determination of alkali content of antacid tablets

Reference:

1. Basic Principles of Practical Chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, S. Chand and Sons publications, 2nd ed., 2016.
2. Advanced Practical Chemistry, Raghupati Mukhopadhyay, Pratul Chatterjee, Books and Allied publications, 3rd ed., 2007.
3. Vogel's Text Book of Practical Organic Chemistry, B. S. Furniss, A. J. Hannaford, P. W. G. Smith, A. R. Tatchell, Pearson Edn., Ltd., 5th ed., 2009.

B.Sc. Chemistry

Semester IV

Part IV- Skill Based Course II – Chemistry for Entrepreneurship 415CS2
(For the students admitted from the academic year 2015 – 2016 onwards)

Total Hours: 38

Preamble:

Chemistry is the study of composition and characterization of substances. Consumer products are essential necessities of everyday life. Exposure to this kind may alter one's thought and outlook and open-up new avenues for self employment.

a) Industrial visit (1 No.) – Report making on the visit- 12 hours

b) Preparation of following house hold products – 26 lab hours

(Formulation and Procedures)

Soap	Talcum powder	Bed bug repellent	Cake
Detergent	Shampoo	Mosquito repellent	Bread
Laundry blue	Perfumes	Cockroach repellent	Biscuits
Bleaching powder	Tooth powder	Chalk	Homemade chocolates
Phenoyl	Tooth paste	Candle	Ink
Incandescent sticks	Kumkum	Laundry starch	Cutflower Preservative

Curriculum Design
SRI G. V. G. VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)

Affiliated to Bharathiar University

Department of Chemistry

B.Sc Chemistry

Scheme of Examination – CBCS Pattern

(For the Students admitted from the academic year 2015 – 2016 & 2016-2017 only)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
115TA1/ 115MY1/ 115HD1/ 115FR1	Part I: Language I	6	3	25	75	100	4
115EN1	Part II: English I	6	3	25	75	100	4
115C01	Part III: Core I General Chemistry I	7	3	25	75	100	4
	Part III: Core Practical I Semi micro qualitative analysis	3	-	-	-	-	-
115AC1	Part III: Allied I Physics I	4	3	25	50	75	3
	Part III: Allied Physics Practical	2	-	-	-	-	-
115EVS	Part IV: Environmental Studies	2	2	50	-	50	2
Semester II							
215TA2/ 215MY2/ 215HD2/ 215FR2	Part I: Language II	6	3	25	75	100	4
215EN2	Part II: English II	6	3	25	75	100	4
215C02	Part III: Core II General Chemistry II	7	3	25	75	100	4
215CP1	Part III: Core Practical I Semi micro qualitative analysis	3	3	25	50	75	3
215AC2	Part III: Allied II Physics II	4	3	25	50	75	3
215ACP	Part III: Allied Physics Practical	2	3	20	30	50	2
215VEC	Part IV: Value Education	2	2	50	-	50	2
Semester III							
315TA3/ 315MY3/ 315HD3/ 315FR3	Part I: Language III	6	3	25	75	100	4
315EN3	Part II: English III	6	3	25	75	100	4
315C03	Part III: Core III General Chemistry III	4	3	25	75	100	4
	Part III: Core Practical II Volumetric and Organic analysis	3	-	-	-	-	-
315AC3	Part III: Allied III Mathematics I	6	3	25	75	100	4
315CS1	Part IV: Skill Based Course I: Applications of Computer in Chemistry	3	3	75	-	75	3
315NCE	Part IV: Non Major Elective Course I: Chemistry in Everyday Life	2	2	50	-	50	2

Semester IV							
415TA4/ 415MY4/ 415HD4/ 415FR4	Part I: Language IV	6	3	25	75	100	4
415EN4	Part II: English IV	6	3	25	75	100	4
415C04	Part III: Core IV General Chemistry IV	4	3	25	75	100	4
415CP2	Part III: Core Practical II Volumetric and Organic Analysis	3	6	40	60	100	4
415AC4	Part III: Allied IV Mathematics II	6	3	25	75	100	4
415CS2	Part IV: Skill Based Course II: Chemistry for Entrepreneurship	3	3	75	-	75	3
415NGA	Part IV: Non Major Elective Course II: General Awareness (Online)	-	1	50	-	50	2
415GIS	Part IV: Information Security	2	2	-	-	Grade	Grade
415ALC	Advanced Learner's Course I – Food Science	-	-	-	100	100	4*
Semester V							
515C05	Part III: Core V Organic Chemistry I	5	3	25	75	100	5
515C06	Part III: Core VI Inorganic Chemistry I	4	3	25	75	100	4
515C07	Part III: Core VII Physical Chemistry I	5	3	25	75	100	4
515C08	Part III: Core VIII Spectroscopy	4	3	25	75	100	4
515CE1	Part III: Elective I Polymer and Dye Chemistry	4	3	25	75	100	4
	Part III: Core Practical III Gravimetric Analysis and Physical Chemistry experiments	5	-	-	-	-	-
515CS3	Part IV: Skill Based Course III: Chemistry for Exploration	3	3	75	-	75	3
Semester VI							
615C09	Part III: Core IX Organic Chemistry II	4	3	25	75	100	5
615C10	Part III: Core X Inorganic Chemistry II	4	3	25	75	100	4
615C11	Part III: Core XI Physical Chemistry II	4	3	25	75	100	4
615CE2	Part III: Elective II Analytical Chemistry	4	3	25	75	100	4
615CE3	Part III: Elective III Project	5	3	25	75	100	4
615CP3	Part III: Core Practical III Gravimetric Analysis and Physical Chemistry experiments	5	6	40	60	100	3
615CP4	Part III: Core Practical IV Applied Chemistry Practical	2	3	25	50	75	2
615CS4	Part IV: Skill Based Course IV: Nanoscience	2	-	75	-	75	3
615EX1/ 615EX2/ 615EX3 615EX4/ 615EX5	Part V: Extension activity	-	-	50	-	50	2
615ALC	Advanced Learner's Course II - Dairy chemistry	-	-	-	100	100	4*
	Total					3500	140

- Starred credits are treated as additional credits, which are optional.

B.Sc. Chemistry
Semester I & II

Part III -Core Practical – I Semi-micro Qualitative Analysis 215CP1

(For the students admitted from the academic year 2015 – 2016 onwards)

- V. Reactions involving anions: Carbonate, sulphate, nitrate, fluoride, chloride, bromide, oxalate, phosphate, borate and chromate.
- VI. Reactions involving cations: Lead, bismuth, copper, cadmium, iron, manganese, aluminium, cobalt, nickel, zinc, barium, calcium, strontium, ammonium and magnesium.
- VII. Analysis of a mixture containing 2 cations and 2 anions of which one may be an interfering radical requiring elimination during the analysis.
- VIII. Group experiments:
 - (i) Crystallization and filtration.
 - (ii) Separation of immiscible liquids.

B.Sc. Chemistry
Semester III

Part IV- Skill Based Course I – Applications of Computer in Chemistry 315CS1

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

Total hours: 38

This course in skill based learning provides the students with all the fundamental concepts of basics in computer which has become a necessity in the present era.

Unit I: Word Processing

(6 Hours)

Introduction- Word document window- Basic commands- Concept like editing, cutting, saving, pasting, formatting and tabular columns- Formatting the text and document-Working with header and footer- Typing texts and equations in Chemistry- Mail merge.

Unit II: Spread Sheet

(5 Hours)

Introduction- Navigating worksheets- entering and editing Data, text and formulas- Excel functions- Excel's Chart features(elementary idea only)- GraphPad (elementary idea only).

Unit III: PowerPoint Presentation

(5 Hours)

Powerpoint basics- Terminology- Color Schemes- templates- Creating presentations- Working with text in Power Point- editing, formatting and aligning text- slide preparation and presentation- Working with Animation.

Unit IV: Chemdraw

(6 Hours)

Introduction- salient features in Chemdraw- main tools- optional tools- significance of Chemdraw- Chemdraw Shortcuts- drawing chemical structures and pasting them in the text-working with structures- advantages.

Unit V: Internet

(6 Hours)

Internet – the working way of internet-internet protocols- internet addressing– domain name- WWW- webpages, home page, web browsers- search engine- E-mail- advantages and disadvantages- Intranet and Extranet- application of internet in Chemistry.

Practicals

(10 Hours)

- 11. Prepare Bio-Data using Word Processing.
- 12. Create a Newsletter using Word Processing.
- 13. Prepare a Mark statement using Word Processing.
- 14. Create a document using format options in Word Processing.
- 15. Design an advertisement copy in Word Processing.

16. Create a database using the formulas sum, average, max, min, Formulas in Chemistry (given by the teacher) in Spread Sheet.
17. Drawing charts and Graphs in Spread Sheet.
18. Prepare a Power Point slide using animation and sound effects.
19. Draw the structure of the molecules using Chemdraw.
20. Draw the structure of the molecule by using Chemdraw and paste into Word Document.

Books for study

3. Nellai Kannan C., 2008, MS OFFICE, NELS Publications, Tirunelveli.
4. Alexis Leon & Mathews Leon, 1999, Fundamentals of Information Technology, Leon Tech World, Chennai.

B .Sc. Chemistry Semester III & IV

Part III- Core Practical II - Volumetric and Organic analysis 416CP2 (For the Students admitted from the academic year 2016 – 2017 only)

Objectives:

- To acquire skills of doing quantitative estimations by titrimetry.
- To provide basic knowledge and skills for simple reactions in organic chemistry.
- To determine the functional group of an unknown organic compound.
- To understand the purpose of a synthetic derivative.
- To enable the students to estimate the organic compounds.

I. Volumetric analysis

A. Acidimetry and alkalimetry

1. Estimation of oxalic acid
2. Estimation of sodium carbonate
3. Estimation of hydrochloric acid

B. Permanganimetry

1. Estimation of oxalic acid
2. Estimation of ferrous iron in ferrous sulphate
3. Estimation of Mohr's salt

C. (i) Iodometry

1. Estimation of potassium dichromate
2. Estimation of copper

(ii) Iodimetry

Estimation of arsenious oxide (demo)

D. Dichrometry (demo)

1. Estimation of ferrous ion using internal indicator
2. Estimation of ferric ion by reduction method

E. Group experiments

1. Determination of sodium hydroxide and sodium carbonate in a mixture
2. Estimation of calcium (direct method)
3. Determination of percentage of MnO₂ in pyrolusite
4. Estimation of chloride

II. A. Analysis of organic compounds

Systematic analysis of organic compounds:- preliminary tests, detection of elements, nature of functional groups, confirmatory tests and preparation of derivatives of acids, phenols,

amides, amines (primary, secondary), anilides, carbohydrates, aldehydes, ketones, nitro compounds and esters- **Micro scale level except for heating experiments.**

B. Estimation of organic compounds

7. Estimation of Vitamin C.
8. Estimation of Glycine by formal titration.
9. Determination of Acid value of fats
10. Estimation of Ca in milk.
11. Determination of acetic acid in commercial vinegar.
12. Determination of alkali content of antacid tablets

Reference:

4. Basic Principles of Practical Chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, S. Chand and Sons publications, 2nd ed., 2016.
5. Advanced Practical Chemistry, Raghupati Mukhopadhyay, Pratul Chatterjee, Books and Allied publications, 3rd ed., 2007.
6. Vogel's Text Book of Practical Organic Chemistry, B. S. Furniss, A. J. Hannaford, P. W. G. Smith, A. R. Tatchell, Pearson Edn., Ltd., 5th ed., 2009.

B.Sc. Chemistry

Semester IV

Part IV- Skill Based Course II – Chemistry for Entrepreneurship 415CS2
(For the students admitted from the academic year 2015 – 2016 onwards)

Total Hours: 38

Preamble:

Chemistry is the study of composition and characterization of substances. Consumer products are essential necessities of everyday life. Exposure to this kind may alter one's thought and outlook and open-up new avenues for self employment.

c) Industrial visit (1 No.) – Report making on the visit- 12 hours

d) Preparation of following house hold products – 26 lab hours

(Formulation and Procedures)

Soap	Talcum powder	Bed bug repellent	Cake
Detergent	Shampoo	Mosquito repellent	Bread
Laundry blue	Perfumes	Cockroach repellent	Biscuits
Bleaching powder	Tooth powder	Chalk	Homemade chocolates
Phenoyl	Tooth paste	Candle	Ink
Incandescent sticks	Kumkum	Laundry starch	Cutflower Preservative

B.Sc. Chemistry

Semester – V

Part III Core VIII –Spectroscopy

615C08

(For the Students admitted from the academic year 2015 –16 & 2016-17 only)

Objectives:

Total Hours: 52

- To understand the principles of molecular spectroscopy.
- To study the basic analytical methods of rotational, UV, NMR , IR and Raman spectral analysis and their significance.
- To learn the ESR and Mass spectroscopy of organic compounds.

Unit I: Electromagnetic Spectrum (9 Hours)

Atomic and molecular Spectroscopy – Absorption and emission spectra- electromagnetic radiation, wavelength, wave number, frequency and energy- regions of electromagnetic spectrum and absorption of radiation- types of molecular energies - Born oppenheimer approximation.

Microwave spectroscopy: Principle and theory- diatomic molecule as a rigid rotor- selection rule- instrumentation- applications of rotational spectroscopy- structures of Xenon oxy fluoride and - Benzonitrile, measurement of barrier heights and abundance of isotopes.

Unit II: IR Spectroscopy and Raman Spectroscopy (11Hours)

Theory- molecular vibrations- vibrational frequency- force constant- vibrational energy- zeropoint energy- degrees of freedom for linear and non-linear molecules- selection rule- complexity of the spectrum- reasons- factors influencing vibrational frequencies- coupled vibration, fermi resonance and electronic effects- instrumentation- finger print region- overtones, combination and difference bands- applications of IR spectroscopy- qualitative analysis of functional groups- distinction between H-bonding, keto-enol tautomerism and geometrical isomerism- characteristic IR absorption frequencies of important functional groups- vibrational spectra of H₂O and CO₂.

Raman spectroscopy- Rayleigh and Raman scattering- stokes and anti stokes lines- differences between Raman and IR spectroscopy - Mutual exclusion principle (CO₂ and N₂O).

Unit III: Electronic Spectroscopy (10 Hours)

Theory of UV spectra- types of electrons and electronic transitions- chromophore concept: chromophore, auxochrome, bathochromic, hyperchromic and hypsochromic effect- types of absorption bands - instrumentation - Wood wards Fischer rules- calculation of absorption maxima in dienes only - Franck- Condon principle- applications: detection of functional groups, conjugation and geometrical isomers.

Unit IV: NMR Spectroscopy (11Hours)

Theory- number of signals- equivalent and non-equivalent protons – instrumentation- chemical shift- TMS- factors influencing chemical shift- sheiding and deshielding effects: anisotropy with reference to ethylene, acetylene and benzene- rules for splitting of signals- splitting of signals with reference to 1,1, 2- tribromoethane, acetaldehyde, benzaldehyde, ethanol and anisole - causes of proton signals- coupling constant(elementary idea only).

Unit V: ESR and Mass Spectroscopy (11 Hours)

ESR spectroscopy- theory- presentation of ESR spectrum- instrumentation- g factor- hyperfine splitting- ESR spectrum of hydrogen atom, methyl free radical, benzene and naphthalene free radical.

Mass spectroscopy- theory and basic principles- double focusing mass spectrometer - types of ions produced in mass spectrometer- Molecular ion peak, base peak, dissociation process, rearrangement, multiple charged ions, negative ions and metastable ions -fragmentation: simple cleavage, retro Diels Alder and Mc-Lafferty Rearrangement- important features of mass spectrum of saturated hydrocarbons and alcohols- mass spectrum and fragmentation pattern of methane, dodecane, 1-Butanol, 2-Butanol and phenol.

Books for Study:

1. Elementary organic absorption spectroscopy, Y. R. Sharma, S.Chand and Sons publications, 5th ed., 2016.
2. Spectroscopy, Gurdeep R. Chatwal, Himalaya publications, 5th ed., 2015.
3. Instrumental approach to chemical analysis, A. K. Srivastava and P. C. Jain, S.Chand and Sons publications, 4th ed., 2013.

4. Organic spectroscopy- Principles & applications, Jag Mohan, Narosa Publications, 2nd ed., 2014.
5. Molecular structure and spectroscopy, G. Aruldas, Goel publishing house, 2nd ed., 2016.

Reference:

1. Spectroscopy of organic compounds, P. S. Kalsi, New age international Pvt. Ltd. publications, 6th ed., 2011.
2. Spectroscopy, B. K. Sharma, Goel Publications, 23th ed., 2013.

B.Sc. Chemistry

Semester V

Part III Elective I- Polymer and Dye Chemistry

515CE1

(For the Students admitted from the academic year 2015 –16 & 2016-17 only)

Objectives:

Total Hours: 52

- To understand the importance of industrial polymers and their classification
- To acquire the knowledge about the polymerization techniques and polymer processing
- To learn the scientific and chemical principles underlying in dye chemistry
- To understand the importance of dyes and their classification

Unit I: Classification of Polymers

(11 Hours)

Introduction- polymerization functionality- degree of polymerization- classification of polymers- elastomers, fibres, thermosetting and thermoplastic polymers- methods of polymerization: bulk, solution, suspension and emulsion- polymer processing techniques: calendaring, compression, extrusion and injection moulding, film casting, and foaming.

Unit II: Polymerization Mechanism and Special Polymers

(11 Hours)

Chain polymerization: mechanism of free radical and ionic polymerization- Coordination polymerization: illustration and mechanism using Zeigler-Natta catalyst- tacticity- factors influencing stereo regulation- glass transition temperature- flow temperature- melting temperature- factors affecting T_g - manufacture, properties and uses of typical polymers: polyethylene, polystyrene, polyesters, PVC, PET, nylon 6, nylon 66, phenolic resins and Teflon.

Unit III: Fractionation and Molecular Weight Determination

(10 Hours)

Characterization of polymers- Polymer fractionation: introduction, fractional precipitation method and gel permeation chromatography- Average molecular weights: introduction and types of average molecular weights- molecular weight- determination by light scattering, viscosity and ultra centrifuge method.

Polymer reactions: addition- substitution- cyclisation- cross linking- vulcanization.

Unit IV: Dye Chemistry I

(10 Hours)

Requisites of a dye- colour and constitution – theories of colour and constitution: Witt theory, quinonoid theory- classification of dyes according to application- chemical classification of dyes- Pigments: requirements- classification- difference between dyes and pigments.

Nitro and nitroso dyes: synthesis, properties, uses of naphthol green Y, disperse yellow, picric acid and martius yellow- Azo dyes: mechanism of diazotization and coupling reaction- preparation and uses of butter yellow, para red, bismark brown and congo red- Di and triphenyl methane dyes: auramine-O, malachite green, and crystal violet.

Unit V: Dye Chemistry II

(10 Hours)

Acridine dyes: proflavin and acriflavin- cyanine, isocyanine and carbocyanine dyes: Synthesis and uses of quinoline blue, ethyl red and sensitol red- Phthalocyanine dyes: introduction, general methods of preparation and applications of metal phthalocyanine- non-

textile uses of dye stuffs: leather, paper, food colours, medicine, photography and cosmetics-pollution due to dyeing industry effluents and its remedial measures.

Books for Study:

1. Polymer science, V. R.Gowariker, N. V. Viswanathan, Jayadev Sreedhar, New Age International Pvt., Ltd. publications, 2nd ed., 2015.
2. Synthetic Dyes, R. Chatwal, Himalayan publications, 4th ed., 2016.
3. Industrial Chemistry, B.K. Sharma, Goel publications, 12th ed., 2016.

Reference:

1. Text book of Polymer Science, F. W. Billmeyer, Jr. John, Wiley and Sons publications, 3rd ed., 2015.
2. Introductory Polymer Science, G. S. Mishra, New Age International Pvt., Ltd. publications, 1st ed., 1993.
3. A Text book of Synthetic Dyes, O.D. Tyagi and M.Yadav, Anmol publications, 5th ed., 2001.

B.Sc. Chemistry

Semester V

Part IV Skill Based Course III – Chemistry for Exploration 515CS3

(For the Students admitted from the academic year 2015 –16 & 2016-17 only)

Objective:

Total Hours: 38

- To provide an overview on Intellectual Property Rights to the graduates.
- To know the fundamental concepts of cheminformatics.
- To identify various sources of information for literature review and data collection.
- To assist students in developing scientific and practical skills.

a) Intellectual Property Rights

(7 Hours)

An overview of the IP system in India- IP Awareness and Promotion- Creation of IP- Legal and Legislative Framework- IP Administration and Management- Commercialization of IP- Enforcement and Adjudication- Human Capital Development- Integration of IP with recent government initiatives

b) Cheminformatics

(3 Hours)

Introduction to cheminformatics, History and Evolution of cheminformatics - Uses of cheminformatics.

c) Internship

(18 Hours)

d) Practical: Basic experiments in Chemistry

(10 Hours)

1. Servicing bunsen burners
2. To bore a hole in a cork
3. Preparation of H₂S gas using Kipp's apparatus
4. Calibration of volumetric apparatus
5. Preparation of laboratory reagents
6. Column chromatography-Separation of methylene blue and malachite green
7. Paper chromatography- Separation of metal ions of group I
8. TLC – Separation of different types of inks and aminoacids
9. Distillation and sublimation
10. Solvent purification-Ethanol and acetone

Reference:

1. Intellectual property rights, R. Radhakrishnan, S. Balasubramanian, Excel books, 1st ed., 2008.

2. Practical approach to Intellectual property rights, R. Karuppasamy, H. C. Bindhusa, Himalaya publishing house, 1st ed., 2008.

B.Sc. Chemistry

Semester VI

Part III Core XI Physical Chemistry II

615C11

(For the Students admitted from the academic year 2015 –16 & 2016-17 only)

Objectives

Total Hours: 52

- To learn the various concepts of electrochemistry
- Understand the concepts of non- equilibrium electrochemistry
- To learn the principles of basic analytical methods and their applications
- To learn the fundamental concepts of phase rule and its applications to one and two component systems.
- To know the various concepts of group theory and to know the electrical & magnetic properties.

Unit I: Electro Chemistry I

(11 Hours)

Conduction in metals and in electrolytic solutions- Specific, molar and equivalent conductance- measurement of conductivity in electrolytic solutions- variation of equivalent and specific conductance with dilution- Faraday's law of electrolysis- Arrhenius theory of electrolytic dissociation- Ostwald's dilution law and limitations- Kohlrausch's law– statement and applications- Debye-Huckel-Onsager theory of strong electrolytes (elementary treatment only)- Debye – Falkenhagen effect and Wien effect- Transport number: definition, determination by moving boundary method and Hittorf's method- conductometric titrations.

Unit II: Electro Chemistry II

(11 Hours)

Electrochemical cells: Electrolytic and Galvanic cells- Kinds of electrodes- Single electrode potential- SHE - determination and significance of electrode potential- Electrochemical series and its applications- sign convention- EMF- measurement of cell emf and its applications- Weston–Cadmium cell - Nernst equation- activity and activity co-efficient- determination of ΔG , ΔH and ΔS of a cell reaction- concentration cells with and without transference- Liquid junction potential- electrodes for measurement of pH- redox potentials– redox indicators– uses with particular reference to diphenylamine.

Unit III: Electro Chemistry III

(12 Hours)

Solubility and solubility products- expressions for solubility products- determination of solubility from solubility products- common ion effect- applications- hydrolysis of salts- degree of hydrolysis- Potentiometric titrations- Batteries: Types- Dry cell- Alkaline battery- Ni-Cd battery- Storage cells- lead storage cell- Fuel cells- definition and importance- Hydrogen–Oxygen fuel cell and its application in manned space flights- Corrosion: Definition, effects and causes- types- Galvanic, pitting, intergranular and waterline corrosion- methods of prevention of corrosion-cathodic protection, anodic protection and galvanization

Unit IV: Phase Rule

(9 Hours)

Phase rule– statement and definition of terms- derivation of Gibbs phase rule- Application of one component system – water- Two component system– thermal analysis and cooling curves- Phase diagram- two component systems of solid \rightleftharpoons liquid equilibria- simple eutectic: Pb-Ag system- compound formation with congruent melting point: Zn-Mg system- Incongruent melting point: Na-K system

Unit V: Group theory, Electrical and Magnetic Properties**(9 Hours)**

Group theory: Symmetry elements and symmetry operations Products of symmetry operations, classes, subgroups – group multiplication table and properties of a group-Point groups – C_{2v} , C_{3v} , C_{2h} , D_{4h} and D_{6h}

Electrical properties: Polarisability- atomic, electronic and orientation polarization- Polar and non polar molecules- dipole moment and ionic character- determination of dipole moment and its applications.

Meaning of the terms: magnetic susceptibility, magnetic moment, diamagnetism, paramagnetism, ferromagnetism, anti ferromagnetism and ferrimagnetism- Determination of magnetic susceptibility by Gouy method.

Note: Only 10% of question paper can carry problems.

Books for study:

1. Principles of Physical Chemistry, B. R. Puri, L. R. Sharma and S. P. Madhan, Vishal publications, 47th ed., 2015.
2. Elements of Analytical Chemistry, R. Gopalan, P. S. Subramanian and K. Rengarajan, S. Chand and sons publications, 3rd ed., 2016.
3. Text book of Physical Chemistry, L. K. Sharma, and K.K .Sharma, Vikash publications, 5th ed., 2014.
4. Instrumental approach to chemical analysis, A. K Srivastava, P.C. Jain, S. Chand and Sons publications, 4th ed., 2013.
5. Group theory in Chemistry, M. S. Gopinathan and V. Ramakrishnan, Vishal publications, 2nd ed., 2013.

Reference:

1. Atkins' Physical Chemistry, Peter Atkins, Julio De Paula, Oxford university press, 9th ed., 2013.
2. An Introduction to Electrochemistry, Samuel Glasstone, Affiliated East- West press Pvt. Ltd., 2016
3. Chemical applications of Group theory, F. Albert Cotton, Wiley India publications, 3rd ed., 2016.

B.Sc. Chemistry**Semester – VI****Part III Elective II – Analytical Chemistry****615CE2****(For the Students admitted from the academic year 2015 –16 & 2016-17 only)****Objectives****Total Hours: 52**

- To learn gravimetric analysis and to develop the habit of handling analytical data.
- To learn various separation techniques.
- To learn the principles of basic analytical methods and their applications

Unit I: Gravimetric Analysis and Data Analysis**(10 Hours)**

Principles of gravimetric analysis- steps in gravimetric analysis- Conditions of precipitation and desirable properties of precipitates- choice of precipitants- types of organic precipitants- specific and selective precipitants, masking and demasking agents- process of precipitation, factors affecting the solubility of precipitates- contamination of precipitates.

Errors- types of errors- minimization of errors- significant figures– mean median and standard deviation Precision and accuracy- student t-test and F-test.

Unit II: Purification Techniques**(10 Hours)**

Purification of solid organic compounds- recrystallisation- use of miscible solvents, use

of drying agents and their properties- sublimation- Purification of liquids- Experimental techniques of distillation, fractional distillation, distillation under reduced pressure- Extraction, use of immiscible solvents, solvent extraction- Chemical methods of purification and test of purity.

Estimation of amine, phenol, ketone and glucose- determination of iodine value and Saponification value - Quantitative analysis: estimation of different elements (H, N, halogens, S and P)

Unit III: Chromatography

(11 Hours)

Definition, types of chromatography- adsorption and partition chromatography- principle, technique and applications of Paper chromatography, Thin layer chromatography, Column chromatography, Ion- exchange chromatography- HPLC and Gas chromatography (basic idea only).

Unit IV: Thermo Analytical Methods:

(10Hours)

Introduction and types- TGA– principle, instrumentation- Thermogram - characteristic features- Factors influencing TGA curve- Applications: determination of optimum drying temperature range and analysis of binary mixtures- Derivative Thermogravimetry- DTA (differential thermal analysis) - principle, instrumentation- characteristic features of DTA curves- simultaneous DTA and TGA curves- decomposition of copper sulphate pentahydrate and calcium oxalate monohydrate- DTA applications: study of organic reactions, study of catalysts, decomposition of complexes, trends in ligand stabilities (brief study only)- Thermometric titrations- Instrumentation and applications in acid-base, precipitation and complexometric titrations

Unit V: Electro Analytical Methods

(11 Hours)

Introduction and types- Electrodeposition of metals: overvoltage and electroplating (theory alone)- Polarography – theoretical principle-Ilkovic equation (derivation not necessary)- Limiting current-factors affecting limiting current –Polarographic maxima-Half wave potential- Instrumentation- DME- Polarographic technique and evaluation- applications in qualitative and quantitative applications-determination of diffusion coefficient- Amperometric titrations– principle, apparatus, titration curves, advantages and disadvantages- Electrogravimetry- principle, instrumentation and applications

Books for Study:

1. Principles of Inorganic Chemistry, B. R Puri, L. R Sharma, K. C Kalia, Milestone publications, 33rd ed., 2015.
2. Satya Prakash's Modern Inorganic Chemistry, R. D. Madan, S. Chand and Sons publications, 3rd ed., 2014.
3. Instrumental methods of chemical analysis, H. Kaur, Pragathi Prakasan publications, 6th ed., 2006.
4. Elements of Analytical Chemistry, R. Gopalan, P. S. Subramanian and K. Rengarajan, S. Chand and sons publications, 3rd ed., 2016.

Reference:

1. Inorganic Chemistry- Principles of structure and reactivity, J. E. Huheey, E. A. Keiter, R. L. Keiter and O.K. Medhi, Pearson education Ltd., 4th ed., 2012.
2. Vogel's Textbook of quantitative analysis- J. Mendham, R. C. Denney, J. D. Barnes, M. Thomas, B. Sivasankar, Pearson Education Ltd., 6th ed., 2011.

B.Sc. Chemistry
Semester VI
Part III Elective III- Project

615CE3

(For the Students admitted from the academic year 2015 –16 & 2016-17 only)

Objective:

Total Hours: 52

- To think critically and analyze chemical problems.
- To enhance the ability of working in teams as well as independently.
- To perform accurate quantitative measurements with an understanding of the theory and use of contemporary chemical instrumentation, interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions.
- To present scientific and technical information resulting from laboratory experiments both in written and oral formats.

Instructions:

1. Students are allotted to various faculties of the department according to their CGPA and / or choice. They will be working on specialized problem related to the research interests of the respective guides.
2. Group size: Maximum 3
3. Review I - Evaluated at the end of I CIA
Review II - Evaluated at the end of II CIA

B.Sc. Chemistry
Semester - V & VI

Part III- Core Practical III

Gravimetric Analysis and Physical Chemistry Experiments

615CP3

(For the Students admitted from the academic year 2015 –16 & 2016-17 only)

Objectives:

- To acquire the quantitative skills in gravimetric analysis.
- To learn the fundamentals of conductometric and potentiometric titrations.
- To understand the method of determination of molecular weight, CST, TT and rate constant.
- To improve their skills in quantitative analysis by carrying out various physical chemistry experiments using sophisticated instruments.

I. Gravimetric analysis

1. Estimation of barium as barium sulphate
2. Estimation of barium as barium chromate.
3. Estimation of lead as lead chromate.
4. Estimation of calcium as calcium oxalate.
5. Estimation of calcium as calcium carbonate.
6. Estimation of nickel as nickel dimethyl glyoximate.
7. Estimation of magnesium as magnesium oxinate (demonstration).

II. Physical chemistry

1. Phase diagram- simple eutectic system.
2. Determination of critical solution temperature of phenol - water system.
3. Determination of concentration of electrolyte – NaCl/ Succinic acid from the miscibility temperatures of phenol-water system .
4. Estimation of Fe^{3+} in water spectro photometrically (demonstration).
5. Determination of transition temperature of a salt hydrate.

6. Determination of K_f and molecular weight by Rast method.
7. Determination of rate constant of acid catalyzed hydrolysis of an ester.
8. Determination of cell constant, specific conductivity and equivalent conductivity of strong electrolyte.
9. Determination of dissociation constant of a weak acid (acetic acid)
10. Conductometric titration of strong acid vs strong base.
11. Estimation of Fe^{2+} by potentiometric method using redox titration (demonstration).
12. Study of Freundlich adsorption isotherm using colorimeter (demonstration).
13. Potentiometric study of strong acid vs strong base.
14. Estimation of sodium using flame photometer (demonstration).
15. Determination of Heat of solution of oxalic acid in water.

Reference:

1. Basic Principles of Practical Chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, S. Chand and Sons publications, 2016.
2. Advanced Practical Chemistry, Raghupati Mukhopadhyay, Pratul Chatterjee, Books and Allied publications, 3rd ed., 2007.

B.Sc. Chemistry

Semester VI

Part III Core practical IV –Applied Chemistry Practical 615CP4

(For the Students admitted from the academic year 2015 –16 & 2016-17 only)

Objectives:

- To enable the students to prepare organic compounds
- To learn the colorimetric techniques for estimation of cations
- To know the method of determining the melting and boiling point of organic chemicals

Experiments

1. Determination of melting and boiling point of organic substances
2. Colorimetric experiments using Nessler's tubes:
 - a. Estimation of Fe^{3+} with ammonium thiocyanate
 - b. Estimation of nickel as nickel dimethyl glyoximate
 - c. Estimation of Mn^{2+} in KMnO_4 using potassium iodate
3. Preparation of organic compounds
 - a. Acetanilide from aniline (acetylation)
 - b. p- Bromo acetanilide from Acetanilide(Bromination)
 - c. Phenylbenzoate from phenol (Benzoylation)
 - d. Salycilic acid from ethylsalicylate (Hydrolysis)
 - e. Nitrosalycilic acid from Salycilic acid (Nitration)
 - f. Benzoic acid from benzaldehyde (Oxidation)
 - g. Preparation of dyes – Methyl orange and Phenyl azo – 2 - naphthal.
5. Water Quality Parameter Analysis
Alkalinity, Hardness, Chloride, Dissolved Oxygen, Estimation of TDS, TSS, TS and pH of the given water samples
6. Determination of water of crystallization of barium chloride dihydrate.
7. Group experiments:
 - a. Soxhlet extraction
 - b. Determination of saponification value of oil

Reference:

1. Basic Principles of Practical Chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, S. Chand and Sons publications, 2016.
2. Advanced Practical Chemistry, Raghupati Mukhopadhyay, Pratul Chatterjee, Books and Allied publications, 3rd ed., 2007.
3. Vogel's Text Book of Practical Organic Chemistry, B. S. Furniss, A. J. Hannaford, P. W. G. Smith, A. R. Tatchell, Pearson Edn., Ltd., 5th ed., 2009.

B.Sc. Chemistry**Semester – VI****Part IV Skill Based Course IV - Nanoscience****615CS4****(For the Students admitted from the academic year 2015 –16 & 2016-17 only)****Objectives:****Total hours: 38**

- To know the basics of nanoscience and nanotechnology.
- To learn characterization techniques of nanomaterials.
- To understand the applications of nanomaterials.
- To acquire skill in synthesizing nanoparticles.

Unit I: Fundamentals and overview of nanoscience**(3 Hours)**

Nanorevolution of the XX century, Properties at nanoscale-optical, electronic and magnetic, mechanical, thermal properties. Theory, definitions and scaling.

Unit II: Different classes of nanomaterials**(4 hours)**

Metal and Semiconductor Nanomaterials, Quantum Dots, Wells and Wires, Molecule to bulk transitions Bucky balls and Carbon Nanotubes.

Unit III: Synthesis of nanomaterials**(10 hours)**

Physical methods: Bottom up-Ball Milling, Melt mixing, Physical vapour deposition, Ionised cluster beam deposition, Laser pyrolysis, Sputter deposition.

Chemical methods: Hydrothermal combustion, bath deposition with capping techniques and top down, Chemical vapour deposition, Synthesis of metal & semiconductor nanoparticles by colloidal route, Microemulsions, Sol-gel method, Combustion method, Wet chemical method

Unit IV: Nano Materials and their Characterization:**(8 hours)**

Electron microscopes – scanning electron microscopes (SEM) – transmission electron microscopes (TEM) – scanning probe microscopy – atomic force microscopy (AFM) – scanning tunneling electron microscope (STEM) – TEM and EDAX analysis, X-ray Diffraction, Fluorescence Microscopy and Imaging. (Basic principles only)

Unit V: Nanoapplications**(5 hours)**

Solar energy conversion- Chemical semiconductor solar cells - Dye sensitized solar cells - Polymer solar cells - Nano quantum dot solar cells - and catalysis, Nanomedicine, Nanomaterials in water purification. Current status and future of nanomaterials.

Practicals : Synthesis of Nanomaterials:**(8 hours)**

1. Chemical Synthesis of Copper nanoparticles
2. Chemical Synthesis of iron oxide nanoparticles
3. Chemical Synthesis of CdS Nanoparticles
4. Chemical Synthesis of MnO₂ Nanoparticles
5. Eco friendly synthesis of metal oxide nanoparticles.
6. Bandgap calculation of nanoparticle using UV-Visible spectroscopy.
7. Chemical Synthesis of Silver nanoparticles (demonstration)
8. Synthesis of ZnO Nanoparticles using Sol-gel methods (demonstration)

9. Synthesis of nanoparticle using Ball milling technique (demonstration)

Books for study :

1. Nanotechnology principles and Practices Sulabha K Kulkarni, Second Edition, Capital publishing company, New Delhi, Reprint 2011.
2. Nano: The Essentials, T. Pradeep, Tata Mc-Graw Hill, New Delhi, Edition 2007.
3. Nanoscience and Nanotechnology, T. Pradeep, Tata Mc-Graw Hill, New Delhi, Edition 2012

Reference:

Essentials of Nanotechnology, Er. Rishabh Anand, MedTec Publisher, Edition 2015

B.Sc. Chemistry

Semester wise distribution with the Scheme of Examination

(For candidates admitted from 2014-2015 onwards)

Sem	Courses	Credit	Duration of exam Hrs ESE	Marks		Total
				CIA	ESE	
I	Part I Language I	3	3	25	75	100
	Part II English I	3	3	25	75	100
	Part III Core I General Chemistry I	6	3	25	75	100
	Part III Allied I Physics I	4	3	15	60	75
	Part IV Environmental studies	2		50		50
II	Part I Language II	3	3	25	75	100
	Part II English II	3	3	25	75	100
	Part III Core II General Chemistry II	3	3	25	75	100
	Part III Core III General Chemistry III	4	3	25	75	100
	Part III Core practical I Semi micro qualitative analysis	2	3	40	60	100
	Part III Allied II Physics II	4	3	15	60	75
	Part III Allied Practical	2	3	20	30	50
	Part IV Value education	2		50		50
	Part III Advanced Learner's Course I Food Science	3*	3		100	100
III	Part I Language III	3	3	25	75	100
	Part II English III	3	3	25	75	100
	Part III Core IV General Chemistry IV	4	3	25	75	100
	Part III Allied III Mathematics I	5	3	25	75	100
	Part IV Non Major Elective	2		75		75
	Part IV Skill Based course Skill Based chemistry I	3	3	100		100
IV	Part I Language IV	3	3	25	75	100
	Part II English IV	3	3	25	75	100
	Part III Core V General Chemistry V	5	3	25	75	100
	Part III Core practical II Volumetric and Organic analysis	3	6	40	60	100
	Part III Allied IV Mathematics II	5	3	25	75	100
	Part IV General Awareness	2		75		75
	Part IV Skill Based course Skill Based chemistry II	3	3	100		100
	Part III Advanced Learner's Course II Chemistry of non-metals	3*	3		100	100
	Part V Extension activities	1		50		50

V	Part III Core VI Inorganic Chemistry	4	3	25	75	100
	Part III Core VII Organic Chemistry	4	3	25	75	100
	Part III Core VIII Essential aspects of spectroscopy	4	3	25	75	100
	Part III Core IX Physical Chemistry	4	3	25	75	100
	Part III Elective I Polymer and Dye Chemistry	5	3	25	75	100
	Part IV Skill Based course Skill Based chemistry III	3		100		100
VI	Part III Core X Biomolecules and pharmaceutical chemistry	4	3	25	75	100
	Part III Core XI Industrial Chemistry	4	3	25	75	100
	Part III Core XII Electrochemistry	4	3	25	75	100
	Part III Elective II Analytical Chemistry	5	3	25	75	100
	Part III Elective III Applied Chemistry	5	3	25	75	100
	Part III Core practical III Gravimetric Analysis and physical chemistry experiments	3	6	60	90	150
	Part III Core practical IV Applied chemistry practical	2	3	20	30	50
	Part IV Skill Based course Skill Based chemistry IV Project	3		100		100
	Part III Advanced Learner's Course III Dairy chemistry	3*	3		100	100
	Total	140				

Starred credits are treated as additional credits.

Non- major elective course offered by the department – Consumer products for home needs.

B.Sc. Chemistry

Semester I & II

Core Practical – I Semi-Micro Qualitative Analysis

214CP1

(For candidates admitted from 2014-2015 onwards)

- I. Reactions involving anions: Carbonate, sulphate, nitrate, fluoride, chloride, bromide, oxalate, phosphate and borate .
- II. Reactions involving cations: Lead, bismuth, copper, cadmium, iron, manganese, aluminium, cobalt, nickel, zinc, barium, calcium, strontium, ammonium and magnesium.
- III. Analysis of a mixture containing 2 cations and 2 anions of which one may be an interfering radical requiring elimination during the analysis.
- IV. Group experiments:
 - (i) Crystallization and filtration
 - (ii) Separation of immiscible liquids

B.Sc. Chemistry
Semester III
Part IV- Skill based course –Skill based chemistry-I
Applications of Computers in Chemistry **314CS1**
(For candidates admitted from 2014-2015 onwards)

Total hours: 38

Module 1: MS WORD

(6 Hours)

- 2.1 Introduction- Word document window
- 2.2 Basic commands
- 2.3 Concept like editing, cutting, saving, pasting, formatting and tabular columns
- 2.4 Formatting the text and document-Working with header and footer
- 2.5 Typing texts and equations in Chemistry
- 2.6 Mail merge

Module 2: MS EXCEL

(5 Hours)

- 3.1 Introduction- Navigating worksheets
- 3.2 Entering and editing Data, text and formulas
- 3.3 Excel functions
- 3.4 Excel's Chart features(elementary idea only)

Module 3: MS POWERPOINT

(5 Hours)

- 9.1 Powerpoint basics- Terminology- Color Schemes- templates
- 9.2 Creating presentations
- 9.3 Working with Text in Powerpoint- editing , formatting and aligning Text
- 9.4 Slide preparation and presentation
- 9.5 Working with Animation

Module 4: CHEMDRAW

(6 Hours)

- 12.1 Introduction- salient features in Chemdraw
- 12.2 Main tools- optional tools
- 12.3 Significance of Chemdraw
- 12.4 Chemdraw Shortcuts
- 12.5 Drawing Chemical Structures and pasting them in the text
- 12.6 Working with Structures- Advantages.

Module 5: INTERNET

(6 Hours)

- 15.1 Internet – the working way of internet-internet protocols- internet addressing – domain name.
- 15.2 WWW- WebPages, home page, Web browsers- search engine.
- 15.3 E-mail- advantages and disadvantages
- 15.4 Intranet and Extranet
- 15.5 Application of internet in Chemistry

Practicals

(10 Hours)

21. Prepare Bio-Data using MS Word
22. Create a Newsletter using MS Word
23. Prepare a Mark statement using MS Word
24. Create a document using format options in MS Word
25. Design an advertisement copy in MS Word
26. Create a database using the formulas sum, average, max, min, Formulas in Chemistry (given by the teacher) in Excel
27. Drawing charts and Graphs in Excel
28. Prepare a PowerPoint slide using animation and sound effects
29. Draw the structure of the molecules using Chemdraw
30. Draw the structure of the molecule by using Chemdraw and paste into MS Word Document
31. Create an E-mail ID

Books for study

1. Nellai Kannan C., 2008, MS OFFICE, NELS Publications, Tirunelveli.
2. Alexis Leon & Mathews Leon, 1999, Fundamentals of Information Technology, Leon Tech World, Chennai.

B .Sc. Chemistry Semester III & IV

Part III- Core Practical II - Volumetric and Organic analysis 414CP2 (For candidates admitted from 2014-2015 onwards)

I. Volumetric analysis

A. Acidimetry and alkalimetry

1. Estimation of oxalic acid
2. Estimation of sodium carbonate
3. Estimation of hydrochloric acid

B. Permanganimetry

1. Estimation of oxalic acid
2. Estimation of ferrous iron in ferrous sulphate
3. Estimation of Mohr's salt

C. (i) Iodometry

1. Estimation of potassium dichromate
2. Estimation of copper

(ii) Iodimetry

Estimation of arsenious oxide (demo)

D. Dichrometry (demo)

1. Estimation of ferrous ion using internal indicator
2. Estimation of ferric ion by reduction method

F. Group experiments

1. Determination of sodium hydroxide and sodium carbonate in a mixture
2. Estimation of calcium (direct method)
3. Determination of percentage of MnO_2 in pyrolusite

4. Estimation of chloride

II. Analysis of organic compounds

Systematic analysis of organic compounds :-preliminary tests,detection of elements, nature of functional groups, confirmatory tests and preparation of derivatives of acids, phenols, amides, amines (primary, secondary), anilides, carbohydrates,aldehydes, ketones, nitro compounds and esters.

B.Sc. Chemistry

Semester IV

Part IV- Skill based course –Skill based chemistry-II 414CS2

Chemistry for Entrepreneurship

(For candidates admitted from 2014-2015 onwards) Total Hours: 38

Preamble:

Chemistry is the study of composition and characterization of substances. Consumer products are essential necessities of every day life. Exposure to this kind may alter one's thought and outlook and open-up new avenues for self employment.

e) **Industrial visit (2 no.) – Report making on the visit- 12 hours**

f) **Preparation of following house hold products – 26 lab hours**
(Formulation and procedures)

Soap	Talcum powder	Bed bug repellant	Cake
Detergent	Shampoo	Mosquito repellant	Bread
Laundry blue	Perfumes	Cockroach repellant	Biscuits
Bleaching powder	Tooth powder	Chalk	Homemade chocolates
Phenoyl	Tooth paste	Candle	Ink
Incandescent sticks	Kumkum	Laundry starch	Cutflower Preservative

B.Sc. Chemistry

Semester – V

Part III Elective I– Polymer and Dye Chemistry 514CE1

(For candidates admitted from 2014-2015 onwards)

Preamble:

Total Hours: 65

Our present day to day life is inconceivable without polymers, which surround us in the form of plastics, elastomers, synthetic fibres and films and many other products and so as dyes. From the waste candy wrapper to the artificial heart and drugs, polymers and dyes touch our lives as does no other class of materials. Hence the objective of this subject is to create awareness and give clear understanding about polymer and dye preparation and applications.

Module I : Classification of polymers

(15 Hours)

- 1.1 Basic concepts such as monomers, polymers, polymerization functionality
- 1.2 Degree of polymerization
- 1.3 Classification of polymers – On the basis of occurrence, types of monomers and polymerization process.
- 1.4 Study of following polymers: elastomers , fibres, thermosetting and thermoplastic Polymers, adhesives (preparation not necessary)
- 1.5 Methods of polymerization: bulk, solution, suspension and emulsion.

- 1.6 Polymer processing techniques - calendering – compression, extrusion and injection moulding, film casting, and foaming

Module II: Polymerization mechanism and special polymers (14 Hours)

- 2.1 Chain polymerization- mechanism of free radical and ionic polymerization.
- 2.2 Co-ordination polymerization- illustration and mechanism using Zeigler-Natta catalyst
- 2.3 Stereo regulation or tacticity of polymers, factors influencing stereo regulation
- 2.4 Manufacture, properties and uses of typical polymers- polyethylene, polystyrene, polyesters, PVC, PET, nylon 6,6 and phenolic resins, and teflon

Module III : Fractionation and molecular weight determination (10 Hours)

- 3.1 Characterization of polymers.
- 3.2 Polymer fractionation – introduction, fractional precipitation method and gel permeation chromatography.
- 3.3 Average molecular weights- introduction and types of average molecular weights.
- 3.4 Molecular weight – determination by light scattering, viscosity and ultra centrifuge method.

Module IV: Classification of dyes (13 Hours)

- 4.1 Requisites of a dye.
- 4.2 Colour and constitution – Theories of colour and constitution – Witt theory, Quinonoid theory, Valence bond theory and Molecular orbital theory
- 4.3 Classification of dyes according to application – acidic, basic, direct, mordant, vat, disperse, sulphur and reactive dyes – a brief note on each term with an example .
- 4.31 Chemical classification of dyes – each type with one example.
- 4.4 Nitro and nitroso dyes – synthesis, properties, uses of naphthol green Y , disperse yellow, picric acid and martius yellow
- 4.5 Azo dyes - mechanism of diazotisation, principle and mechanism of coupling - preparation and uses of butter yellow, para red, bismark brown and congo red .

Module V (13 Hours)

- 5.1 Di and triphenyl methane dyes – auramine-O, malachite green, and crystal violet.
- 5.2 Acridine dyes – proflavin and acriflavin - cyanine , isocyanine and carbocyanine dyes.
- 5.3 Synthesis and uses of quinoline blue, ethyl red and sensitol red.
- 5.4 Phthalocyanine dyes – introduction, general methods of preparation and applications of Metal phthalocyanines – copper phthalocyanine
- 5.5 Non-textile uses of dye stuffs –leather, paper, food colours, medicine, photography, Cosmetics.
- 5.6 Pollution due to dyeing industry effluents and its remedial measures.

Books for Study:

1. Text book of polymer science. - Billmeyer FW, , Jr. John Wiley and Sons, 1994.
2. Introductory Polymer Science - G.S.Mishra, New Age International Pvt., ltd., edition 1993.
3. Text book of Polymer Science and technology - Dr. Vibha Chaturvedi A.I.T.B.S Publishers ,India
4. Synthetic dyes - R.Chatwal, Himalayan publishing house, Edition 2001.
5. Industrial chemistry - B.K.Sharma, Goel publishing house Co., Edition 2001(12edition)
6. A text book of synthetic dyes by O.D. Tyagi and M.Yadav, Anmol publications, Edition 2001

a) Statistical survey and report making related to issues in Chemistry	-12 hours
b) Review of articles and report making- A minimum of 20 journal articles collection and utilization	- 12 hours
Basic experiments in Chemistry	- 14 hours

<p align="center">B.Sc. Chemistry Semester VI Part III Core XI Industrial chemistry (For candidates admitted from 2014-2015 onwards)</p>		<p>614C10</p>
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As agriculture is the lifeline of our nation, to give importance to topics such as water, fertilizers, pesticides, oils, fats and cleansing agents, they are dealt with much weightage in this paper.

(10Hours)

- 1.1 Hardness of water-units of hardness-Equivalence of CaCO_3
- 1.2 Water softening methods – lime soda process, permutit and ion exchange process
- 1.3 Water quality analysis
- *1.31 Determination of hardness of water, acidity, alkalinity, pH value, chloride content, TDS and their estimations
- 1.32 Dissolved oxygen demand (DO), Biological oxygen demand (BOD), chemical oxygen demand (COD) and their determination
- 1.4 Water treatment– primary, secondary and tertiary-dialysis, desalination and reverse osmosis

(11 Hours)

- 2.1 Glass-Introduction
- 2.2 Manufacture of glass
- 2.12 Types of glass- Soft glass, hard glass, pyrex glass, safety glass and optical glass composition and applications
- 2.2 Ceramics- Introduction
- 2.21 General properties

- 2.22 Pottery products of ceramics
- 2.23 Porous and non-porous wares, earthenware and stoneware
- 2.24 Raw materials for ceramics
- 2.3 Cement- introduction , composition and manufacture of Portland cement
- 2.31 Setting of cement

Module III – Explosives and toxic chemical weapons (10 Hours)

- 3.1 Explosives- Introduction and classification
- 3.12 Characteristics of explosives
- 3.13 Preparation and uses of TNT, nitrocellulose, nitroglycerin. Gunpowder and RDX
- 3.2 Toxic chemicals-definition and requisites
- 3.21 Study of mustard gas, phosgene, Chloropicrin, teargas and nerve gas
- 3.22 Brief study on smoke screens and pyrotechnics

Module IV– Fertilizers and pesticides (11 Hours)

- 4.1 Fertilizer
- 4.11 Introduction - essential nutrients and their fractions
- 4.12 Need for and requisites of fertilizers
- *4.13 Nitrogenous fertilizer – manufacture and uses of NH_4NO_3 , urea and calciumcyanamide
- *4.14 Phosphate fertilizer – preparation and uses of super phosphate of lime and triple super phosphate
- *4.15 Potash fertilizer – preparation and uses of KCl and KNO_3
- 4.16 Mixed fertilizers – NPK fertilizer – manufacture and uses
- 4.17 Micronutrients and their functions
- 4.18 Biofertilizer-introduction ,definition and uses
- 4.19 Soil pollution by fertilizer
- 4.2 Pesticides
- 4.21 Definition and classification on the basis of types of pests – one example in each case (preparation not necessary)
- 4.22 Insecticides – definition and classification
- 4.23 Preparation and uses of paris green, pyrethrin and baygon
- 4.24 Effects of pesticide residues in food
- 4.25 Methods to minimize pesticide pollution

Module V – Oils, fats and cleansing agents (10 Hours)

- 5.1 Fats and oils
- 5.11 Introduction and properties of fats and oils
- 5.12 Classification and uses of oils
- *5.13 Vegetable oil-manufacture of soyabean oil by solvent extraction only
- 5.14 Analysis of oils and fats-definition, significance and estimation of acid value saponification value and Iodine value
- 5.2 Cleansing agents
- 5.21 Soap-definition and different raw materials
- *5.22 Manufacture by continuous hot process
- *5.23 Varieties of soap and their uses only (manufacture not necessary)
- 5.24 Cleansing action of soap
- 5.25 Detergent-introduction and classification with one example each (manufacture not necessary)
- 5.26 Distinction between soaps and detergents

Books for Study:

1. Industrial chemistry – B.K. Sharma – Goel publishing house- Meerut Twelfth revised and enlarged edition – 2001
2. Applied chemistry – Theory and practice – O.P. Virumani and A.K. Narula, New age International (p) ltd publishers, 1995 edition

B.Sc. Chemistry**Semester VI****Part III Core XII -Electro Chemistry****614C12****(For candidates admitted from 2014-2015 onwards)****Preamble:****Total Hours: 52**

The present and future generation is under the obligation to learn more about chemistry involving electrical energy in the surroundings. So the basic principles and usage of electrochemistry is explained.

Module I: Electrical conduction**(11 Hours)**

- 1.1 Conduction in metals and in electrolytic solutions
- 1.2 Measurement of conductivity in electrolytic solutions
- 1.3 Migration of ions-Kohlrausch's law – statement and applications
- *1.4 Arrhenius theory of electrolytic dissociation, Ostwald's dilution law and limitations
- 1.5 Theory of strong electrolytes: Debye-Huckel-Onsager theory and verification (elementary treatment only)
- 1.6 Debye – Falkenhagen effect and Wien effect
- 1.7 Transport number: definition, determination by moving boundary method and Hittorf's method

Module II: Solubility and pH**(11 Hours)**

- 2.1 Ionic equilibria
- 2.2 Solubility and solubility product - determination
- 2.3 Applications of solubility product principle to qualitative analysis only
- *2.4 Common ion effect
- *2.5 pH scale
- 2.6 Buffer solutions – buffer action, determination of pH values of buffer mixtures and Henderson's equations
- 2.7 Hydrolysis of salts – degree of hydrolysis

Module III: Electrochemical cells**(10 Hours)**

- 3.1 Electrode potentials
- 3.2 The standard hydrogen electrode (SHE)
- *3.3 Kinds of electrodes and their potentials
- 3.4 Nernst equation
- 3.5 Computation and measurement of cell emf and Weston – Cadmium cell
- 3.6 Single electrode potential – determination and significance of electrode potentials
- 3.7 Electrochemical series
- 3.8 Temperature dependence of cell emf
- 3.9 Thermodynamic quantities of cell reactions

Module IV: Electrodes and applications**(10 Hours)**

- 4.1 Reference electrodes
- 4.2 Electrodes for measurement of pH

- 4.3 Concentration cells with and without transport
- 4.4 Liquid junction potential
- *4.5 Application of emf measurements
- *4.6 Redox potentials – redox indicators – uses with particular reference to diphenylamine
- *4.7 Potentiometric titrations
- 4.8 Conductometric titrations

Module V: Fuel cells and corrosion

(10 Hours)

- 5.1 Fuel cells – definition and importance
- *5.2 Hydrogen – Oxygen fuel cell and its application in manned space flights
- *5.3 Storage cells – lead storage cell and Ni-Cd cell
- 5.4 Corrosion
- 5.5 Definition, effects and causes of corrosion
- 5.51 Types: Galvanic, pitting, intergranular and waterline corrosion
- 5.52 Methods of prevention of corrosion: cathodic protection, anodic protection and galvanization.

Note: Only 10% of question paper can carry problems.

Books for study:

- | | |
|---|--|
| 1.Principles of Physical chemistry | B.R.Puri, L.R.Sharma & S.Pathania,
Shobanlal Nagin Chand & Co.,
2004 millennium edition. |
| 2.Instrumental methods of chemical analysis | Kudesia V.P. & S.S. Sawhney,
Pragathi Prakash, Edition 1987 |
| 3.Electrochemistry | S.Glasstone, Affiliated East west press Pvt. Ltd.,
Edition 1969 |
| 4. Engineering chemistry | P.C Jain and Monika Jain
Dhanpat Rai and sons Edition 1997 |

B.Sc. Chemistry

Semester – VI

Part III Elective II – Analytical chemistry

614CE2

(For candidates admitted from 2014-2015 onwards)

Preamble:

Total Hours: 65

As knowledge explosion takes place, students are expected to have thorough knowledge of analytical techniques.

Module I: Gravimetric analysis and Data analysis:

(13 Hours)

- 1.11 Principles of gravimetric analysis-Precipitation Equilibria-steps in gravimetric analysis
- 1.12 Conditions of precipitation and desirable properties of precipitates.
- 1.13 Choice of precipitants- types of organic precipitants.
- *1.14 Specific and selective precipitants, masking and demasking agents.
- 1.15 Process of precipitation, factors affecting the solubility of precipitates.
- 1.16 Contamination of precipitates- co- precipitation and post- precipitation.
- 1.21 Errors- determinate and indeterminate errors.
- 1.22 Minimization of errors
- 1.23 Significant figures – mean, median and standard deviation
- 1.24 Precision and accuracy

Module II: Chromatography I:

(13 Hours)

- 2.1 Definition, types of chromatography- adsorption and partition chromatography

- 2.2 Paper chromatography- principle, theory-Rf value
- 2.21 Technique: Choice of paper and solvents, development by ascending, descending techniques, methods of detection of spots and Quantitative measurement–applications.
- 2.3 Thin layer chromatography –superiority of TLC over other chromatographic Techniques
- 2.31 Technique: Preparation and activation of glass plate, solvent for development, application of sample and detection, development of chromatogram, Location of compounds and detection-applications
- 2.4 Column chromatography- principle.
- 2.41 Technique: Adsorbents, preparation of column, Choice of solvents, application of sample, development of chromatogram-elution and detection.
- 2.42 Factors affecting column efficiency – applications.

Module III: Chromatography II:

(13Hours)

- 3.1 Ion- exchange chromatography- principle.
- 3.11 Cation and anion exchangers and ion- exchange techniques
- 3.12 Factors affecting ion-exchange equilibria
- 3.13 Application of ion- exchangers; separation of sodium and potassium, removal of interfacing radicals, softening of hard water.
- *3.2 Gas chromatography- principle, Instrumentation and applications
- *3.3 High performance liquid chromatography (HPLC) - principle, Instrumentation and Applications

Module IV: Thermo analytical methods:

(13Hours)

- 4.1 Principle and types of methods
- 4.2 Thermogravimetric analysis (TGA) – principle, types and Instrumentation
- 4.21 Thermogram - characteristic features
- 4.22 Factors influencing TGA.
- 4.23 Applications-determination of optimum drying temperature range and analysis of binary mixtures
- 4.24 Derivative Thermogravimetry- analysis of the curve.
- 4.31 DTA (differential thermal analysis)- principle, characteristics of DTA curves
- 4.32 Instrumentation of DTA apparatus
- 4.33 Simultaneous DTA and TGA curves- decomposition of calcium oxalate monohydrate.
- *4.34 DTA applications: study of organic reactions, study of catalysts, decomposition of complexes, trends in ligand stabilities (brief study only)
- *4.4 Thermometric titrations- Instrumentation and applications in acid-base, precipitation and complexometric titrations

Module V: Electroanalytical methods

(13 Hours)

- 5.1 Electroanalytical methods- introduction and types
- 5.2 Electrodeposition of metals: overvoltage and electroplating (theory alone)
- 5.3 Polarography – theoretical principle-Ilkovic equation-Limiting current-factors affecting limiting current –Polarographic maxima-Half wave potential
- 5.31 Instrumentation-DME-polarographic technique and Evaluation
- 5.32 Applications in qualitative and quantitative applications-determination of diffusion coefficient.
- 5.4 Amperometric titrations– principle, apparatus, titration curves, advantages and disadvantages

5.3 Electrogravimetry- principle, instrumentation and applications

Note: Only 10% of question paper can carry problems.

Books for Study:

1. Elements of analytical chemistry -R.Gopalan, P.S Subramanian and K.Rangarajan, Sultan chand and sons, Edition- 1994
2. Analytical chemistry- theory and practice - U.N. Dash, Sri Sultan chand trust- Edition 1995
3. Chromatography - Rajbir Singh, Mittal publications- Edition- 2002
4. Instrumental methods of chemical analysis -Kudesia and Sawhney, Pragati Prakashan.
5. Instrumental methods of chemical analysis- B.K.Sharma, Goel publishing house,1994 edition
6. Instrumental methods of chemical analysis- Gurdeep R. chatwal, Sham K. Anand Himalaya publising house (Reprint) 2012
7. Analytical chemistry - S.Usharani, Macmillan India limited, 2000
8. Instrumental approach to chemical analysis- A.K.Srivastava and P.C.Jain S.Chand & Co. Edition (Reprint)2012

B.Sc. Chemistry

Semester – VI

Part III Elective III- Applied Chemistry

614CE3

(For candidates admitted from 2014-2015 onwards)

Preamble:

Total Hours: 65

The objective of this paper is to create awareness about renewable and non – renewable energy sources and give clear understanding about green chemistry. As nanotechnology gains momentum in field of science and technology, an introduction of it is included.

Module I Energy Sources I

(13Hours)

- 1.1 Renewable and non renewable energy sources-introduction
- 1.2 Fuels-introduction,classification and Characteristics of a good fuel
- 1.3 Comparision between solid,liquid and gaseous fuels
- 1.4 Calorific value-determination by bomb calorimeter
- 1.5 Solid fuel-coal introduction and different grades of coal
- 1.51 Analysis of coal-proximate and ultimate analysis (Problem not necessary)
- 1.52 Carbonization of coal-low and high temperature carbonizations
- 1.53 Synthetic fuels from coal- Fischer tropsch method and Bergius process
- 1.6 Activated carbon- definition, classification and its applications

Module II - Energy Sources II

(13Hours)

- 2.1 Liquid fuels
- 2.11 Petroleum-origin and composition
- 2.12 Refining and fractionation of petroleum
- 2.2 Knocking- definition and its effects
- 2.21 Antiknocking - definition and antiknocking agents- TEL, Fe(CO)₅
- 2.23 Octane number and cetane number- definition and example
- 2.24 Cracking- definition, catalytic and thermal cracking
- 2.3 Gaseous fuels
- 2.31 LPG-composition and uses

- 2.32 Composition, manufacture and uses of Natural gas, Coal gas, Oil gas, Producer gas and Water gas

Module III- Energy Sources III

(13 Hours)

- 3.1 Solar energy
- 3.11 Thermal applications-solar water heater, solar cooker, solar drier-description of the apparatus and uses
- 3.12 Solar silicon cells-description and uses
- 3.2 Wind energy-description of wind mill its component and uses (elementary idea only)
- 3.3 Biofuels- Gobar gas-construction of the plant, operation and uses
- 3.4 Geothermal energy different types and origin
- 3.41 Utilisation of geothermal energy
- 3.42 Environmental hazards from the use of geothermal energy
- 3.5 Elementary aspects of biomass energy and ocean energy

Module IV- Green Chemistry

(13 Hours)

- 4.1 Introduction and purpose
- 4.2 Twelve principles of green chemistry
- 4.3 The elementary concept of atom economy and its application in Green synthesis of MMA and acetophenone only
- 4.4 Designing a green synthesis –choice of starting materials, reagent catalyst and solvents
- 4.5 Green synthesis-epoxy styrene, paracetamol, polyurethane and furfural
- 4.6 Application of green technology in paper and tanning industry
- 4.7 Role of green technology in ozone depletion problem

Module V: Nano Chemistry

(13 Hours)

- 5.1 Techniques of production - Top- down, Bottom- up, Functional, Speculative (Preliminary idea only)
- 5.2 Fullerenes – Introduction and properties.
- 5.3 Carbon nano tubes- Introduction, Types- Single walled nanotube, Multiwalled nano tube,
- 5.4 Applications of Carbon Nano Tubes in Drug delivery vessel, Water filter, Solar cells, Hydrogen storage.
- 5.5 Synthesis of Nanoparticle – Ball milling, CVD, Solgel method and microwave
- 5.6 Nano Biosensor – Definition, Types of Nanosensor - Optical Biosensor(Elementary idea only), Applications of Nano Biosensor.
- 5.7 Applications of Nanomaterial in Water cleansing and purification, Water proof textile, UV proof textile, Sunscreen lotion, Diagnostic and therapeutic applications by using gold.

Books for Study:

- | | |
|---|---|
| 1. New Trends in Green Chemistry | - V.K.Ahluwalia, M.kidwai
II edition |
| 2. Environmental chemistry with Green chemistry | - Asim k.Das |
| 3. Engineering chemistry | - P.C.Jain and Monika Jain
Dhanpat and sons 1997 edition |
| 4. Renewable energy | - Maheswar Dayal
Konark publishers pvt ltd 1994 edition |
| 5. Industrial chemistry | - B.K.Sharma Geol publishing house 2003
Edition |
| 6. Nanotechnology | - S.Shanmugam- MJP Publishers. |

B.Sc. Chemistry
Semester - V & VI
Part III- Core Practical III
Gravimetric analysis and physical chemistry experiments **614CP3**
(For candidates admitted from 2014-2015 onwards)

I. Gravimetric analysis

1. Estimation of barium as barium sulphate
2. Estimation of barium as barium chromate.
3. Estimation of lead as lead chromate.
4. Estimation of calcium as calcium oxalate.
5. Estimation of calcium as calcium carbonate.
6. Estimation of nickel as nickel dimethyl glyoximate.
7. Estimation of magnesium as magnesium oxinate (demonstration).

II. Physical chemistry

1. Phase diagram- simple eutectic system.
2. Determination of critical solution temperature of phenol - water system.
3. Determination of concentration of electrolyte – NaCl from the miscibility temperatures of phenol-water system .
4. Determination of concentration of electrolyte - succinic acid from the miscibility temperatures of phenol-water system .
5. Estimation of Fe^{3+} in water spectro photometrically.
6. Determination of transition temperature of a salt hydrate.
7. Determination of K_f and molecular weight by Rast method.
8. Determination of rate constant of acid catalyzed hydrolysis of an ester.
9. Determination of cell constant, specific conductivity and equivalent conductivity of strong electrolyte
10. Determination of dissociation constant of a weak acid (acetic acid)
11. Study of Freundlich adsorption isotherm using colorimeter.(demonstration).
12. Potentiometric study Strong acid vs strong base.
13. Estimation of sodium using flame photometer.

B.Sc. Chemistry
Semester V & VI
Part III Core practical IV –Applied chemistry practical **614CP4**
(For candidates admitted from 2014-2015 onwards)

1. Determination of melting and boiling point of organic substances
2. Colorimetric experiments using Nessler's tubes:
 - a. Estimation of Fe^{3+} with ammonium thiocyanate
 - b. Estimation of nickel as nickel dimethyl glyoximate
 - c. Estimation of Mn^{2+} in KMnO_4 using potassium iodate
3. Preparation of organic compounds
 - a. Acetanilide from aniline(acetylation)
 - b. p- Bromo acetanilide from Acetanilide(Bromination)
 - c. Phenylbenzoate from phenol(Benzoylation)
 - d. Salycilic acid from ethylsalicylate(Hydrolysis)
 - e. Nitrosalicylic acid from Salycilic acid(Nitration)

- f. Benzoic acid from benzaldehyde(Oxidation)
- g. Preparation of dyes – Methyl orange and Phenyl azo – 2 - naphthal.
- 4. Estimation of hardness of water using EDTA
- 5. Group experiments:
 - a. Soxhlet extraction
 - b. Determination of saponification value of oil

B.Sc. Chemistry
Semester VI
Part IV- Skill based course - Skill based chemistry IV 614CS4
Mini Project
(For candidates admitted from 2014-2015 onwards)

- Mini project of undergraduate level taking a simple chemistry problem.

(Problem must be synthesis / characterization/analytical/application
/comparisons/findings/theoretical oriented)

B.Sc. Chemistry
Semester wise distribution with the scheme of evaluation
(For candidates admitted from 2012-2013 onwards)

Sem	Courses	Credit	Duration of exam Hrs ESE	Marks		Total
				CIA	ESE	
I	Part I Language I	3	3	25	75	100
	Part II English I	3	3	25	75	100
	Part III Core I General Chemistry I	6	3	25	75	100
	Part III Allied I Physics I	4	3	15	60	75
	Part IV Environmental studies	2		50		50
II	Part I Language II	3	3	25	75	100
	Part II English II	3	3	25	75	100
	Part III Core II General Chemistry II	6	3	25	75	100
	Part III Core practical I Semi micro qualitative analysis	2	3	40	60	100
	Part III Core practical II Applied chemistry practical	2	3	40	60	100
	Part III Allied II Physics II	4	3	15	60	75
	Part III Allied Practical	2	3	20	30	50
	Part IV Value education	2		50		50
	Part III Advanced Learner's Course I Food Science	3*	3		100	100
III	Part I Language III	3	3	25	75	100
	Part II English III	3	3	25	75	100
	Part III Core III General Chemistry III	5	3	25	75	100
	Part III Allied III Mathematics I	5	3	25	75	100
	Part IV Non Major Elective	2		75		75
	Part IV Skill Based course Dye chemistry I	3		100		100
IV	Part I Language IV	3	3	25	75	100
	Part II English IV	3	3	25	75	100
	Part III Core IV General Chemistry IV	5	3	25	75	100
	Part III Core practical III Volumetric and Organic analysis	3	3	60	90	150
	Part III Allied IV Mathematics II	5	3	25	75	100
	Part IV General Awareness	2		75		75
	Part IV Skill Based course Dye chemistry II	3		100		100
	Part III Advanced Learner's Course II Metallurgy & applications of transition metals	3*	3		100	100
	Part V Extension activities	1		50		50
V	Part III Core V Advanced Inorganic Chemistry	4	3	25	75	100

	Part III Core VI Organic Chemistry	4	3	25	75	100
	Part III Core VII Essential aspects of spectroscopy	4	3	25	75	100
	Part III Core VIII Chemical kinetics and photochemistry	4	3	25	75	100
	Part III Elective I Polymer Chemistry	5	3	25	75	100
	Part IV Skill Based course Dye chemistry III	3		100		100
VI	Part III Core IX Biomolecules and pharmaceutical chemistry	4	3	25	75	100
	Part III Core X Industrial Chemistry	4	3	25	75	100
	Part III Core XI Electrochemistry and technology	4	3	25	75	100
	Part III Elective II Analytical Chemistry	5	3	25	75	100
	Part III Elective III Applied Chemistry	5	3	25	75	100
	Part III Core practical IV Gravimetric Analysis and physical chemistry experiments	3	6	60	90	150
	Part IV Skill Based course Dye chemistry practical & project	3	3	100		100
	Part III Advanced Learner's Course III Dairy chemistry	3*	3		100	100
	Total	140				

Starred credits are treated as additional credits.

Non- major elective course offered by the department – Consumer products for home needs.
30% of the Syllabus in each course is taught using OHP, LCD

B.Sc. Chemistry Semester I & II

Core Practical – I Semi-Micro qualitative analysis 212CP1 (For candidates admitted from 2012-2013 onwards)

- I. Reactions involving anions : Carbonate, sulphate, nitrate, fluoride, chloride, bromide, oxalate, phosphate, borate and sulphide.
- II. Reactions involving cations : Lead, bismuth, copper, cadmium, iron, manganese, aluminium, cobalt, nickel, zinc, barium, calcium, strontium, ammonium and magnesium.
- III. Analysis of a mixture containing 2 cations and 2 anions of which one may be an interfering radical requiring elimination during the analysis.
- IV. Group experiments:
 - (i) Crystallisation and filtration
 - (ii) Sublimation and filtration
 - (iii) Distillation
 - (iv) Separation of immiscible liquids

B.Sc. Chemistry
Semester I & II
Part III Core practical II –Applied chemistry practical
(For candidates admitted from 2012-2013 onwards)

212CP2

1. Determination of melting and boiling point of organic substances
2. Colorimetric experiments using Nessler's tubes:
 - a. Estimation of Fe^{3+} with ammonium thiocyanate
 - b. Estimation of nickel as nickel dimethyl glyoximate
 - c. Estimation of Mn^{2+} in KMnO_4 using potassium iodate
3. Preparation of organic compounds
 - a. Acetanilide from aniline(acetylation)
 - b. p- Bromo acetanilide from Acetanilide(Bromination)
 - c. Phenylbenzoate from phenol(Benzoylation)
 - d. Salicylic acid from ethylsalicylate(Hydrolysis)
 - e. Nitrosalicylic acid from Salicylic acid(Nitration)
 - f. Benzoic acid from benzaldehyde(Oxidation)
4. Group experiments:
 - a. Chromatography- TLC
 - b. Determination of saponification value of an oil

B.Sc. Chemistry
Semester III
Part IV- Skill based course Dye chemistry I -Theories and Mechanism
(For candidates admitted from 2012-2013 onwards)

312CS1

Module I

(7Hours)

Introduction to dye – requisites of a dye, natural dyes with examples, Classification of dyes according to application – acidic, basic, direct, mordant, vat, disperse, solvent, sulphur and reactive dyes – brief note on each term with an example - Chemical classification of dyes – each type with one example.

Module – II

(7Hours)

Nomenclature of dyes – colour index naming of dyes – Various interactive forces in dyeing process- Ionic interaction, Hydrogen bond, Covalent interaction and Vanderwaals interaction – Basic operations in dyeing process

Module - III

(8Hours)

Colour and constitution – General aspects of relation between colour and constitution - Explanation of terms such as chromogen, chromophore, auxochrome, hypsochrome and bathochrome - Theories of colour and constitution – Witt theory, Quinonoid theory, Valence bond theory and Molecular orbital theory.

Module - IV

(8 Hours)

Pigments – Introduction – requirements of organic pigment, types of pigments – Lakes of anionic and cationic dyes, metal complexes, azo pigments, Thioindigo pigments - Inorganic pigments – Lithopone, Ultramarine blue, Red lead, Chrome green – preparation, characteristics and uses - Difference between dyes and pigments.

Module – V**(8 Hours)**

Nitro and nitroso dyes – synthesis, properties, uses of naphthol green Y , disperse yellow, picric acid and martius yellow - Introduction and classification of azo dyes based on number of azo groups and on application - Indigoid dyes – introduction - study of indigo – synthesis, properties and application - Derivatives of indigo – synthesis and uses of indigosol and tetra halo indigo.

Books for study:

1. Synthetic dyes by R.Chatwal, Himalayan publishing house, Edition 2001.
2. Industrial chemistry by B.K.Sharma, Goel publishing house Co., Edition 2001(12edition)
- 3.A text book of synthetic dyes by O.D. Tyagi and M.Yadav, Anmol publications, Edition 2001

**B.Sc. Chemistry
Semester IV****Part IV- Skill based course - Dye chemistry II - Chemistry of special dyes 412CS2
(For candidates admitted from 2012-2013 onwards)****Module-I****(7Hours)**

Azo dyes – introduction - mechanism of diazodisation, principle and mechanism of coupling - preparation and uses of the following azo dyes – butter yellow, para red, eriochrome black T, bismark brown and congo red - Reactive dyes – introduction – Procion red and Procion yellow dye.

Module – II**(7Hours)**

Di and triphenyl methane dyes – introduction and study of the following dyes – auramine-O, malachite green, rosaniline, pararosaniline, crystal violet and aurin - Phthalein dyes – phenolphthalein, heterocyclic dyes and xanthene dyes – introduction, synthesis and uses of fluorescein, eosin, erythrosine and rhodamine B.

Module III**(8Hours)**

Acridine dyes – proflavin and acriflavin - cyanine , isocyanine and carbocyanine dyes - introduction, synthesis and uses of quinoline blue, ethyl red and sensitol red - Phthalocyanine dyes – introduction, general methods of preparation and applications of metal phthalocyanines – copper phthalocyanine- preparation, properties and uses - synthesis, reactions and applications of azine, oxazine, and thiazine dyes.

Module – IV**(8Hours)**

Anthraquinone dyes – anthraquinone mordant dyes – introduction, synthesis, properties and applications of alizarin – anthraquinone vat dyes – introduction, properties and applications – synthesis, properties and uses of indanthrene and favanthrene – Anthraquinone acid dyes and anthraquinone disperse dyes.

Module-V**(8Hours)**

Non-textile uses of dye stuffs – introduction – applications in dyeing –leather, paper, food colours, solvent, wood, medicine, photography, cosmetics, indicators, coloured smokes and camouflage colours- pollution due to dyeing industry effluents.

Books For Study:

1. Synthetic dyes by R.Chatwal, Himalayan publishing house, Edition 2001.
2. Industrial chemistry by B.K.Sharma, Goel publishing house Co., Edition 2001(12edition)
3. A text book of synthetic dyes by O.D. Tyagi and M.Yadav, Anmol publications, Edition 2001.

B.Sc. Chemistry

Semester V

Part IV- Skill based course - Dye chemistry III – Dyeing process 512CS3 (For candidates admitted from 2012-2013 onwards)

Module – I (7Hours)

Fibres – introduction – plant fibres – structure and composition of cotton and linen – common tests for linen and cotton in cloth – animal fibres – properties, structure and composition of wool and silk - mineral fibre – introduction, properties and uses of asbestos, glass fibres and metallic fibres.

Module – II (7Hours)

Textile and dyeing – manufacture of mercerized cellulose, modified cellulose, cellulose acetate and rayon - sizing and scouring of cotton fibres.

Module – III (8Hours)

Dyeing methods – selection of dyeing methods – stock dyeing, top dyeing, yarn dyeing, package dyeing, space dyeing, garment dyeing, piece dyeing (union and cross dyeing) – Foam dyeing, vaccum impregnation, solvent dyeing and dope dyeing.

Module – IV (8Hours)

Dyeing methods for different fibres – direct, vat, mordant and disperse dyeing, Fluorescent brightening agents – Dyeing with indigenous dyes – indigo, madder, pomegranate rind, turmeric, batik.

Module – V (8Hours)

Bleaching of cotton fibres – wool and nylon – identifying dyeing defects– test to determine colour fastness – fastness to washing, pressing, light, perspiration, crocking and gas fading.

Books for study:

1. Synthetic dyes by R.Chatwal, Himalayan publishing house, Edition 2001.
2. Industrial chemistry by B.K.Sharma, Goel publishing house Co., Edition 2001(12edition)
3. Textiles (Fibre to fabric) by Bernard p. Corban, 6th edition.
4. Modern techniques of textile dyeing, bleaching and finishing – S. M. Arora, Small industry research institute.

B.Sc. Chemistry
Semester VI

Part III Core X Industrial chemistry
(For candidates admitted from 2012-2013 onwards)

612C10

Preamble:

Total Hours: 52

As agriculture is the lifeline of our nation, to give importance to topics such as water, fertilizers, pesticides, oils, fats and cleansing agents, they are dealt with much weightage in this paper.

Module I – Water Treatment

(10Hours)

- 1.1 Hardness of water-Modules of hardness-Equivalence of CaCO_3
- 1.2 Water softening methods – lime soda process, permutit and ion exchange process
- 1.3 Water quality analysis
- *1.31 Determination of hardness of water, acidity, alkalinity, pH value, chloride content, TDS and their estimations
- 1.32 Dissolved oxygen demand (DO), Biological oxygen demand (BOD), chemical oxygen demand (COD) and their determination
- 1.4 Water treatment– primary, secondary and tertiary and dialysis, desalination and reverse osmosis

Module II – Glass, ceramics and cement

(11 Hours)

- 2.1 Glass-Introduction
- 2.2 Manufacture of glass
- 2.12 Types of glass- Soft glass, hard glass, pyrex glass, safety glass and optical glass
Composition and applications
- 2.2 Ceramics- Introduction
- 2.21 General properties
- 2.22 Pottery products of ceramics
- 2.23 Porous and non-porous wares, earthenware and stoneware
- 2.24 Raw materials for ceramics
- 2.3 Cement- introduction and composition of Portland cement
- 2.31 Manufacture and setting of cement

Module III – Explosives and toxic chemical weapons

(10 Hours)

- 3.1 Explosives- Introduction and classification
- 3.12 Characteristics of explosives
- 3.13 Preparation and uses of TNT, nitrocellulose, nitroglycerin. Gunpowder and RDX
- 3.2 Toxic chemicals-definition and requisites
- 3.21 Study of mustard gas, phosgene, Chloropicrin, tear gas and nerve gas
- 3.22 Brief study on smoke screens and pyrotechnics

Module IV– Fertilizers and pesticides

(11 Hours)

- 4.1 Fertilizer
- 4.11 Introduction - essential nutrients and their fractions
- 4.12 Need for and requisites of fertilizers
- *4.13 Nitrogenous fertilizer – manufacture and uses of NH_4NO_3 , urea and calcium cyan amide
- *4.14 Phosphate fertilizer – preparation and uses of super phosphate of lime and triple super phosphate

- *4.15 Potash fertilizer – preparation and uses of KCl and KNO₃
- 4.16 Mixed fertilizers – NPK fertilizer – manufacture and uses
- 4.17 Micronutrients and their functions
- 4.18 Biofertilizer-introduction ,definition and uses
- 4.19 Soil pollution by fertilizer
- 4.2 Pesticides
- 4.21 Definition and classification on the basis of types of pests – one example in each case (preparation not necessary)
- 4.22 Insecticides – definition and classification
- 4.23 Paris green, pyrethrin and baygon
- 4.24 Effects of pesticide residues in food
- 4.25 Methods to minimize pesticide pollution

Module V – Oils ,fats and cleansing agents

(10 Hours)

- 5.1 Fats and oils
- 5.11 Introduction and properties of fats and oils
- 5.12 Classification and uses of oils
- *5.13 Vegetable oil-manufacture of soybean oil by solvent extraction only
- 5.14 Analysis of oils and fats-definition ,significance and estimation of acid value saponification value and Iodine value
- 5.2 Cleansing agents
- 5.21 Soap-definition and different raw materials
- *5.22 Manufacture by continuous hot process
- *5.23 Varieties of soap and their uses only (manufacture not necessary)
- 5.24 Cleansing action of soap
- 5.25 Detergent-introduction and classification with one example each (manufacture not necessary)
- 5.26 Distinction between soaps and detergents

Books for Study:

3. Industrial chemistry – B.K. Sharma – Goel publishing house- Meerut Twelfth revised and enlarged edition – 2001
4. Applied chemistry – Theory and practice – O.P. Virumani and A.K. Narula, New age International (p) ltd publishers, 1995 edition

B.Sc. Chemistry

Semester VI

Part III Core XI -Electro chemistry and Technology

612C11

(For candidates admitted from 2012-2013 onwards)

Preamble:

Total Hours: 52

The present and future generation is under the obligation to learn more about chemistry involving electrical energy in the surroundings. So the basic principles and usage of electrochemistry is explained.

Module I: Electrical conduction

(11 Hours)

- 1.1 Conduction in metals and in electrolytic solutions
- 1.2 Measurement of conductivity in electrolytic solutions
- 1.3 Migration of ions-Kohlrausch's law – statement and applications
- *1.4 Arrhenius theory of electrolytic dissociation, Ostwald's dilution law and limitations

- 1.5 Theory of strong electrolytes: Debye-Huckel-Onsager theory and verification (elementary treatment only)
- 1.6 Debye – Falkenhagen effect and Wien effect
- 1.7 Transport number: definition, determination by moving boundary method and Hittorf's method
- 1.8 Conductometric titrations

Module II: Solubility and pH

(11 Hours)

- 2.1 Ionic equilibria
- 2.2 Solubility and solubility product - determination
- 2.3 Applications of solubility product principle to qualitative analysis only
- *2.4 Common ion effect
- *2.5 pH scale
- 2.6 Buffer solutions – buffer action, determination of pH values of buffer mixtures and Henderson's equations
- 2.7 Hydrolysis of salts – degree of hydrolysis

Module III: Electrochemical cells

(10 Hours)

- 3.1 Electrode potentials
- 3.2 The standard hydrogen electrode (SHE)
- *3.3 Kinds of electrodes and their potentials
- 3.4 Nernst equation
- 3.5 Computation and measurement of cell emf and Weston – Cadmium cell
- 3.6 Single electrode potential – determination and significance of electrode potentials
- 3.7 Electrochemical series
- 3.8 Temperature dependence of cell emf
- 3.9 Thermodynamic quantities of cell reactions

Module IV: Electrodes and applications

(10 Hours)

- 4.1 Reference electrodes
- 4.2 Electrodes for measurement of pH
- 4.3 Concentration cells with and without transport
- 4.4 Liquid junction potential
- *4.5 Application of emf measurements
- *4.6 Redox potentials – redox indicators – uses with particular reference to diphenylamine
- *4.7 Potentiometric titrations

Module V: Fuel cells and corrosion

(10 Hours)

- 5.1 Fuel cells – definition and importance
- *5.2 Hydrogen – Oxygen fuel cell and its application in manned space flights
- *5.3 Storage cells – lead storage cell and Ni-Cd cell
- 5.4 Corrosion
- 5.5 Definition, effects and causes of corrosion
- 5.51 Types: Galvanic, pitting, intergranular and waterline corrosion
- 5.52 Methods of prevention of corrosion: cathodic protection, anodic protection and galvanization.

Note: Only 10% of question paper can carry problems.

Books for study:

1. Principles of Physical chemistry - B.R.Puri, L.R.Sharma & S.Pathania,
Shobanlal Nagin Chand & Co.,

- 2004 millennium edition.
2. Instrumental methods of chemical analysis - Kudesia V.P. & S.S. Sawhney, Pragathi Prakash, Edition 1987
3. Electrochemistry - S.Glasstone, Affiliated East west press Pvt. Ltd., Edition 1969
4. Engineering chemistry - P.C Jain and Monika Jain
Dhanpat Rai and sons Edition 1997

B.Sc. Chemistry
Semester – VI

Part III Elective II – Analytical chemistry
(For candidates admitted from 2012-2013 onwards)

612CE2

Preamble:

Total Hours: 65

As knowledge explosion takes place, students are expected to have thorough knowledge of analytical techniques.

Module I: Gravimetric analysis:

(13 Hours)

- 1.1 Principles of gravimetric analysis.
- 1.2 Conditions of precipitation and desirable properties of precipitates.
- 1.3 Choice of precipitants- types of organic precipitants, DMG and oxine.
- *1.4 Specific and selective precipitants, masking and demasking agents.
- 1.5 Process of precipitation, factors affecting the solubility of precipitates.
- 1.6 Contamination of precipitates- co- precipitation and post- precipitation.
- 1.7 Precipitation from homogeneous solution.
- 1.8 Errors- determinate and indeterminate errors.

Module II: Chromatography I:

(13 Hours)

- 2.1 Definition, types of chromatography, adsorption and partition chromatography and R_f values.
- 2.2 Column chromatography- principle.
- 2.21 Adsorbents, preparation of column, application of sample, development of chromatogram and applications.
- 2.3 Paper chromatography- principle.
- 2.31 Nature of paper, choice of solvents, methods of detection of spots, development by ascending, descending techniques and applications.
- *2.4 Thin layer chromatography- preparation of glass plate, adsorbent, solvent for development and detection, preparation of TLC and applications.
- 2.41 Advantages of TLC.

Module III: Chromatography II:

(13Hours)

- 3.1 Ion- exchange chromatography- principle.
- 3.11 Cation and anion exchangers and ion- exchange techniques
- 3.12 Application of ion- exchangers; separation of sodium and potassium, removal of interfacing radicals, softening of hard water .
- *3.2 Gas chromatography- principle and applications
- *3.3 High performance liquid chromatography (HPLC)- principle and applications

Module IV: Thermo analytical methods:

(13Hours)

- 4.1 Principle and type of methods

- 4.2 Thermogravimetric analysis (TGA) –principle and thermogram
- 4.21 Factors influencing thermogram and applications with analysis of calcium oxalate monohydrate.
- 4.3 Derivative Thermogravimetry- analysis of the curve.
- 4.4 DTA (differential thermal analysis)- principle, analysis of curve showing the decomposition of calcium oxalate monohydrate.
- *4.41 DTA applications: study of organic reactions, study of catalysts, decomposition of complexes, trends in ligand stabilities (brief study only)
- *4.5 Thermometric titrations- principle and applications.

Module V: Electroanalytical methods

(13 Hours)

- 5.1 Electroanalytical methods- introduction and types
- 5.2 Electrodeposition of metals: overvoltage and electroplating (theory alone)
- 5.3 Electrogravimetry- electrolytic separation of metals
- 5.4 Amperometric titrations – principle, advantages and disadvantages
- 5.5 Polarimetry – principle and application

Note: Only 10% of question paper carry problems.

Books for Study:

1. Elements of analytical chemistry- R.Gopalan, P.S Subramanian and K.Rangarajan, Sultan chand and sons, Edition- 1994
2. For module V- Analytical chemistry- theory and practice- U.N. Dash, SriSultan chand trust- Edition 1995
3. Chromatography- Rajbir Singh, Mittal publications- Edition- 2002
4. Instrumental methods of chemical analysis- Kudesia and Sawhney, Pragati Prakashan.
5. Instrumental methods of chemical analysis- B.K. Sharma, Goel publishing house, Edition- 1994-1995.

B.Sc. Chemistry

Semester – VI

Part III Elective III- Applied Chemistry

612CE3

(For candidates admitted from 2012-2013 onwards)

Preamble: Total Hours: 65

The objective of this paper is to create awareness about renewable and non – renewable energy sources and give clear understanding about green chemistry. As nanotechnology gains momentum in field of science and technology, an introduction of it is included.

Module I Energy Sources I

(13Hours)

- 1.1 Renewable and non renewable energy sources-introduction
- 1.2 Fuels-introduction,classification and Characteristics of a good fuel
- 1.3 Comparison between solid,liquid and gaseous fuels
- 1.4 Calorific value-determination by bomb calorimeter
- 1.5 Solid fuel-coal introduction and different grades of coal
- 1.51 Analysis of coal-proximate and ultimate analysis
(Problem not necessary)
- 1.52 Carbonization of coal-low and high temperature carbonizations
- 1.53 Synthetic fuels from coal- Fischer tropsch method and Bergius process
- 1.6 Activated carbon- definition, classification and its applications

Module II - Energy Sources II**(13Hours)**

- 2.1 Liquid fuels
- 2.11 Petroleum-origin and composition
- 2.12 Refining and fractionation of petroleum
- 2.2 Knocking- definition and its effects
- 2.21 Antiknocking - definition and TEL, $\text{Fe}(\text{CO})_5$
- 2.23 Octane number and cetane number- definition and example
- 2.24 Cracking- definition, catalytic and thermal cracking
- 2.3 Gaseous fuels
- 2.31 LPG-composition and uses
- 2.32 Composition, manufacture and uses of Natural gas, Coal gas, Oil gas, Producer gas and Water gas

Module III- Energy Sources III**(13 Hours)**

- 3.1 Solar energy
- 3.11 Thermal applications-solar water heater, solar cooker, solar drier-description of the apparatus and uses
- 3.12 Solar silicon cells-description and uses
- 3.2 Wind energy-description of wind mill its component and uses(elementary idea only)
- 3.3 Biofuels- Gobar gas-construction of the plant, operation and uses
- 3.4 Geothermal energy different types and origin
- 3.41 Utilisation of geothermal energy
- 3.42 Environmental hazards from the use of geothermal energy
- 3.5 Elementary aspects of biomass energy and ocean energy

Module IV- Green Chemistry**(13 Hours)**

- 4.1 Introduction and purpose
- 4.2 Twelve principles of green chemistry
- 4.3 The elementary concept of atom economy and its application in Green synthesis of MMA and acetophenone only
- 4.4 Designing a green synthesis –choice of starting materials, reagent catalyst and solvents
- 4.5 Green synthesis-epoxy styrene, paracetamol, polyurethane and furfural
- 4.6 Application of green technology in paper and tanning industry
- 4.7 Role of green technology in ozone depletion problem

Module V- Nanoscience and technology**(13 Hours)**

- 5.0 Nanoscience and Nanotechnology – introduction- Nanoscale architecture – bottom up approach.
- 5.1 Nanoparticle, nanocrystalline material, nanocomposites – introduction, explanation and commercial applications.
- 5.2 Classification based on morphology, carbon nano tubes- applications of carbon nano tubes.
- 5.3 Electron microscopic studies in nano science and technology- SEM and AFM.
- 5.4 General applications of nanoparticles – solar cell, electrochromic devices.

Books for Study:

- | | |
|---|---|
| 1. New Trends in Green Chemistry | -V.K.Ahluwalia ,M.kidwai
II edition |
| 2. Environmental chemistry with Green chemistry | -Asim k.Das |
| 3. Engineering chemistry | - P.C.Jain and Monika Jain
Dhanpat and sons 1997 edition |
| 4.Renewable energy | -Maheswar Dayal
Konark publishers pvt ltd 1994 edition |
| 5.Industrial chemistry | -B.K.Sharma Geol publishing house 2003
edition |

B.Sc. Chemistry**Semester - V & VI****Part III- Core Practical IV****Gravimetric analysis and physical chemistry experiments 612CP4****(For candidates admitted from 2012-2013 onwards)****I. Gravimetric analysis**

1. Estimation of barium as barium sulphate
2. Estimation of barium as barium chromate.
3. Estimation of lead as lead chromate.
4. Estimation of calcium as calcium oxalate.
5. Estimation of calcium as calcium carbonate.
6. Estimation of nickel as nickel dimethyl glyoximate.
7. Estimation of magnesium as magnesium oxinate (demonstration only).

II. Physical chemistry

1. Phase diagram- simple eutectic system.
2. Determination of critical solution temperature of phenol - water system.
3. Determination of concentration of electrolyte – NaCl from the miscibility temperatures of phenol-water system .
4. Determination of concentration of electrolyte - succinic acid from the miscibility temperatures of phenol-water system .
5. Effect of impurity on critical solution temperature of phenol - water system
6. Determination of transition temperature of a salt hydrate.
7. Determination of Kf and molecular weight by Rast method.
8. Determination of rate constant of acid catalysed hydrolysis of an ester.
9. Determination of cell constant, specific conductivity and equivalent conductivity of strong electrolyte
10. Determination of dissociation constant of a weak acid (acetic acid)
11. Freundlich adsorption isotherm (only for demonstration)
12. Polarimetry - determination of concentration of unknown sugar solution (only for demonstration).

B.Sc. Chemistry**Semester VI****Part IV- Skill based course IV - Dye chemistry Practical & Project 612CS4****(For candidates admitted from 2012-2013 onwards)****I. Preparation of dyes:**

1. Preparation of Azo dyes – Methyl orange, Phenyl azo – 2 - naphthal.

2. Preparation of a Triphenyl methane dyes – Malachite green.
3. Preparation of a Phthalein dyes – Fluorescein.
4. Preparation of a Xanthene dye – Eosin.

II. Dyeing processes:

1. Dyeing with an adjective dye: Mordants: Malachite green.
2. Dyeing with a substantive dye: Congo
3. Dyeing with an ingrain dye: Primoline.

Project : To be carried out in any of the dye industries

B.Sc. Chemistry
Semester wise distribution with the scheme of evaluation
(For 2011 – 2014 Batch students only)

Se m	Courses	Credit	Duration of exam Hrs ESE	Marks		Total
				CIA	ESE	
III	Part I Language III	3	3	25	75	100
	Part II English III	3	3	25	75	100
	Part III Core III General Chemistry III	6	3	25	75	100
	Part III Core practical II Volumetric analysis	2	3	30	45	75
	Part III Allied III Mathematics I	5	3	25	75	100
	Part IV Non Major Elective	2	3		75	75
	Part IV Skill Based course I Dye chemistry I	3	2½	25	75	100
IV	Part I Language IV	3	3	25	75	100
	Part II English IV	3	3	25	75	100
	Part III Core IV General Chemistry IV	6	3	25	75	100
	Part III Core practical III Organic analysis	2	3	30	45	75
	Part III Allied IV Mathematics II	5	3	25	75	100
	Part IV General Awareness	2	2		75	75
	Part IV Skill Based course II Dye chemistry II	3	2½	25	75	100
	Part III Advanced Learners' Course II Metallurgy & applications of transition metals	3*	3		100	100
V	Part III Core V Advanced Inorganic Chemistry	4	3	25	75	100
	Part III Core VI Organic Chemistry	4	3	25	75	100
	Part III Core VII Essential aspects of spectroscopy	5	3	25	75	100
	Part III Core VII Essential aspects of spectroscopy	4	3	25	75	100
	Part III Elective I Applied Chemistry	5	3	25	75	100
	Part III Core practical IV Applied chemistry practical	2	3	40	60	100
	Part IV Skill Based course III Dye chemistry III	3	2½	25	75	100

VI	Part III Core VIII Biomolecules and pharmaceutical chemistry	5	3	25	75	100
	Part III Core IX Industrial Chemistry	4	3	25	75	100
	Part III Core X Electrochemistry and technology	4	3	25	75	100
	Part III Elective II Polymer Chemistry	5	3	25	75	100
	Part III Elective III Analytical Chemistry	5	3	25	75	100
	Part III Core practical V Gravimetric Analysis and physical chemistry experiments	4	6	60	90	150
	Part IV Skill Based course IV dye chemistry practical & Project	3	3	25	75	100
	Part III Advanced Learners' Course III Dairy chemistry	3*	3		100	100
	Part V Extension Activities	1				50
	Total	140				

Starred credits are treated as additional credits. Non- major elective course offered by the department – Consumer products for home needs. 30% of the Syllabus in each course is taught using OHP, LCD.

B.Sc. Chemistry Semester V

Part IV- Skill based course - Dye chemistry III – Dyeing process 511CS3 (For candidates admitted from 2011-2012 onwards)

Module – I (7Hours)

Fibres – introduction – plant fibres – structure and composition of cotton and linen – common tests for linen and cotton in cloth – animal fibres – properties, structure and composition of wool and silk - mineral fibre – introduction, properties and uses of asbestos, glass fibres and metallic fibres.

Module – II (7Hours)

Textile and dyeing – manufacture of mercerized cellulose, modified cellulose, cellulose acetate and rayon - sizing and scouring of cotton fibres.

Module – III (8Hours)

Dyeing methods – selection of dyeing methods – stock dyeing, top dyeing, yarn dyeing, package dyeing, space dyeing, garment dyeing, piece dyeing (union and cross dyeing) – Foam dyeing, vaccum impregnation, solvent dyeing and dope dyeing.

Module – IV**(8Hours)**

Dyeing methods for different fibres – direct, vat, mordant and disperse dyeing, Fluorescent brightening agents – Dyeing with indigenous dyes – indigo, madder, pomegranate rind, turmeric, batik.

Module – V**(8Hours)**

Bleaching of cotton fibres – wool and nylon – identifying dyeing defects– test to determine colour fastness – fastness to washing, pressing, light, perspiration, crocking and gas fading.

Books for study:

1. Synthetic dyes by R.Chatwal, Himalayan publishing house, Edition 2001.
2. Industrial chemistry by B.K.Sharma, Goel publishing house Co., Edition 2001(12edition)
3. Textiles (Fibre to fabric) by Bernard p. Corban, 6th edition.
4. Modern techniques of textile dyeing, bleaching and finishing – S. M. Arora, Small industry research institute.

B.Sc. Chemistry**Semester VI****Part III Core X Industrial chemistry
(For candidates admitted from 2011-2012 onwards)****611C10****Preamble:****Total Hours: 52**

As agriculture is the lifeline of our nation, to give importance to topics such as water, fertilizers, pesticides, oils, fats and cleansing agents, they are dealt with much weightage in this paper.

Module I – Water Treatment**(10Hours)**

- 1.1 Hardness of water-Modules of hardness-Equivalence of CaCO_3
- 1.2 Water softening methods – lime soda process, permutit and ion exchange process
- 1.3 Water quality analysis
- *1.31 Determination of hardness of water, acidity, alkalinity, pH value, chloride content, TDS and their estimations
- 1.32 Dissolved oxygen demand (DO), Biological oxygen demand (BOD), chemical oxygen demand (COD) and their determination
- 1.4 Water treatment– primary, secondary and tertiary and dialysis, desalination and reverse osmosis

Module II – Glass, ceramics and cement**(11 Hours)**

- 2.1 Glass-Introduction
- 2.2 Manufacture of glass
- 2.12 Types of glass- Soft glass, hard glass, pyrex glass, safety glass and optical glass
Composition and applications
- 2.2 Ceramics- Introduction
- 2.21 General properties
- 2.22 Pottery products of ceramics
- 2.23 Porous and non-porous wares, earthenware and stoneware
- 2.24 Raw materials for ceramics
- 2.3 Cement- introduction and composition of Portland cement
- 2.31 Manufacture and setting of cement

Module III – Explosives and toxic chemical weapons**(10 Hours)**

- 3.1 Explosives- Introduction and classification
- 3.12 Characteristics of explosives
- 3.13 Preparation and uses of TNT, nitrocellulose ,nitroglycerin. Gunpowder and RDX
- 3.2 Toxic chemicals-definition and requisites
- 3.21 Study of mustard gas ,phosgene, Chloropicrin ,teargas and nerve gas
- 3.22 Brief study on smoke screens and pyrotechnics

Module IV– Fertilizers and pesticides**(11 Hours)**

- 4.1 Fertilizer
- 4.11 Introduction - essential nutrients and their fractions
- 4.12 Need for and requisites of fertilizers
- *4.13 Nitrogenous fertilizer – manufacture and uses of NH_4NO_3 , urea and calcium cyan amide
- *4.14 Phosphate fertilizer – preparation and uses of super phosphate of lime and triple super phosphate
- *4.15 Potash fertilizer – preparation and uses of KCl and KNO_3
- 4.16 Mixed fertilizers – NPK fertilizer – manufacture and uses
- 4.17 Micronutrients and their functions
- 4.18 Biofertilizer-introduction ,definition and uses
- 4.19 Soil pollution by fertilizer
- 4.2 Pesticides
- 4.21 Definition and classification on the basis of types of pests – one example in each case (preparation not necessary)
- 4.22 Insecticides – definition and classification
- 4.23 Paris green, pyrethrin and baygon
- 4.24 Effects of pesticide residues in food
- 4.25 Methods to minimize pesticide pollution

Module V – Oils ,fats and cleansing agents**(10 Hours)**

- 5.1 Fats and oils
- 5.11 Introduction and properties of fats and oils
- 5.12 Classification and uses of oils
- *5.13 Vegetable oil-manufacture of soybean oil by solvent extraction only
- 5.14 Analysis of oils and fats-definition ,significance and estimation of acid value saponification value and Iodine value
- 5.2 Cleansing agents
- 5.21 Soap-definition and different raw materials
- *5.22 Manufacture by continuous hot process
- *5.23 Varieties of soap and their uses only (manufacture not necessary)
- 5.24 Cleansing action of soap
- 5.25 Detergent-introduction and classification with one example each (manufacture not necessary)
- 5.26 Distinction between soaps and detergents

Books for Study:

1. Industrial chemistry – B.K. Sharma – Goel publishing house- Meerut Twelfth revised and enlarged edition – 2001
2. Applied chemistry – Theory and practice – O.P. Virumani and A.K. Narula, New age International (p) ltd publishers, 1995 edition

B.Sc. Chemistry
Semester VI
Part III Core XI -Electro chemistry and Technology **611C11**
(For candidates admitted from 2011-2012 onwards)

Preamble:

Total Hours: 52

The present and future generation is under the obligation to learn more about chemistry involving electrical energy in the surroundings. So the basic principles and usage of electrochemistry is explained.

Module I: Electrical conduction

(11 Hours)

- 1.1 Conduction in metals and in electrolytic solutions
- 1.2 Measurement of conductivity in electrolytic solutions
- 1.3 Migration of ions-Kohlrausch's law – statement and applications
- *1.4 Arrhenius theory of electrolytic dissociation, Ostwald's dilution law and limitations
- 1.5 Theory of strong electrolytes: Debye-Huckel-Onsager theory and verification (elementary treatment only)
- 1.6 Debye – Falkenhagen effect and Wien effect
- 1.7 Transport number: definition, determination by moving boundary method and Hittorf's method
- 1.8 Conductometric titrations

Module II: Solubility and pH

(11 Hours)

- 2.1 Ionic equilibria
- 2.2 Solubility and solubility product - determination
- 2.3 Applications of solubility product principle to qualitative analysis only
- *2.4 Common ion effect
- *2.5 pH scale
- 2.6 Buffer solutions – buffer action, determination of pH values of buffer mixtures and Henderson's equations
- 2.7 Hydrolysis of salts – degree of hydrolysis

Module III: Electrochemical cells

(10 Hours)

- 3.1 Electrode potentials
- 3.2 The standard hydrogen electrode (SHE)
- *3.3 Kinds of electrodes and their potentials
- 3.4 Nernst equation
- 3.5 Computation and measurement of cell emf and Weston – Cadmium cell
- 3.6 Single electrode potential – determination and significance of electrode potentials
- 3.7 Electrochemical series
- 3.8 Temperature dependence of cell emf
- 3.9 Thermodynamic quantities of cell reactions

Module IV: Electrodes and applications

(10 Hours)

- 4.1 Reference electrodes
- 4.2 Electrodes for measurement of pH
- 4.3 Concentration cells with and without transport
- 4.4 Liquid junction potential
- *4.5 Application of emf measurements
- *4.6 Redox potentials – redox indicators – uses with particular reference to diphenylamine

*4.7 Potentiometric titrations

Module V: Fuel cells and corrosion

(10 Hours)

5.1 Fuel cells – definition and importance

*5.2 Hydrogen – Oxygen fuel cell and its application in manned space flights

*5.3 Storage cells – lead storage cell and Ni-Cd cell

5.4 Corrosion

5.5 Definition, effects and causes of corrosion

5.51 Types: Galvanic, pitting, intergranular and waterline corrosion

5.52 Methods of prevention of corrosion: cathodic protection, anodic protection and galvanization.

Note: Only 10% of question paper can carry problems.

Books for study:

- | | | |
|--|---|--|
| 1. Principles of Physical chemistry | - | B.R.Puri, L.R.Sharma & S.Pathania,
Shobanlal Nagin Chand & Co.,
2004 millennium edition. |
| 2. Instrumental methods of chemical analysis | - | Kudesia V.P. & S.S. Sawhney,
Pragathi Prakash, Edition 1987 |
| 3. Electrochemistry | - | S.Glasstone, Affiliated East west press Pvt. Ltd.,
Edition 1969 |
| 4. Engineering chemistry | - | P.C Jain and Monika Jain
Dhanpat Rai and sons Edition 1997 |

B.Sc. Chemistry

Semester – VI

Part III Elective III – Analytical chemistry

611CE3

(For candidates admitted from 2011-2012 onwards)

Preamble:

Total Hours: 65

As knowledge explosion takes place, students are expected to have thorough knowledge of analytical techniques.

Module I: Gravimetric analysis:

(13 Hours)

1.1 Principles of gravimetric analysis.

1.2 Conditions of precipitation and desirable properties of precipitates.

1.3 Choice of precipitants- types of organic precipitants, DMG and oxine.

*1.4 Specific and selective precipitants, masking and demasking agents.

1.5 Process of precipitation, factors affecting the solubility of precipitates.

1.6 Contamination of precipitates- co- precipitation and post- precipitation.

1.7 Precipitation from homogeneous solution.

1.8 Errors- determinate and indeterminate errors.

Module II: Chromatography I:

(13 Hours)

2.1 Definition, types of chromatography, adsorption and partition chromatography and R_f values.

2.2 Column chromatography- principle.

2.21 Adsorbents, preparation of column, application of sample, development of chromatogram and applications.

2.3 Paper chromatography- principle.

- 2.31 Nature of paper, choice of solvents, methods of detection of spots, development by ascending, descending techniques and applications.
- *2.4 Thin layer chromatography- preparation of glass plate, adsorbent, solvent for development and detection, preparation of TLC and applications.
- 2.41 Advantages of TLC.

Module III: Chromatography II:

(13Hours)

- 3.1 Ion- exchange chromatography- principle.
- 3.11 Cation and anion exchangers and ion- exchange techniques
- 3.12 Application of ion- exchangers; separation of sodium and potassium, removal of interfacing radicals, softening of hard water .
- *3.2 Gas chromatography- principle and applications
- *3.3 High performance liquid chromatography (HPLC)- principle and applications

Module IV: Thermo analytical methods:

(13Hours)

- 4.1 Principle and type of methods
- 4.2 Thermogravimetric analysis (TGA) –principle and thermogram
- 4.21 Factors influencing thermogram and applications with analysis of calcium oxalate monohydrate.
- 4.3 Derivative Thermogravimetry- analysis of the curve.
- 4.4 DTA (differential thermal analysis)- principle, analysis of curve showing the decomposition of calcium oxalate monohydrate.
- *4.41 DTA applications: study of organic reactions, study of catalysts, decomposition of complexes, trends in ligand stabilities (brief study only)
- *4.5 Thermometric titrations- principle and applications.

Module V: Electroanalytical methods

(13 Hours)

- 5.1 Electroanalytical methods- introduction and types
- 5.2 Electrodeposition of metals: overvoltage and electroplating (theory alone)
- 5.3 Electrogravimetry- electrolytic separation of metals
- 5.4 Amperometric titrations – principle, advantages and disadvantages
- 5.5 Polarimetry – principle and application

Note: Only 10% of question paper carry problems.

Books for Study:

1. Elements of analytical chemistry- R.Gopalan, P.S Subramanian and K.Rangarajan, Sultan chand and sons, Edition- 1994
2. For module V- Analytical chemistry- theory and practice- U.N. Dash, SriSultan chand trust- Edition 1995
3. Chromatography- Rajbir Singh, Mittal publications- Edition- 2002
4. Instrumental methods of chemical analysis- Kudesia and Sawhney, Pragati Prakashan.
5. Instrumental methods of chemical analysis- B.K. Sharma, Goel publishing house, Edition- 1994-1995.

B.Sc. Chemistry

Semester - V & VI

Part III- Core Chemistry Practical V

Gravimetric analysis and physical chemistry experiments

611CP5

(For candidates admitted from 2011-2012 onwards)

I. Gravimetric analysis

1. Estimation of barium as barium sulphate

2. Estimation of barium as barium chromate.
3. Estimation of lead as lead chromate.
4. Estimation of calcium as calcium oxalate.
5. Estimation of calcium as calcium carbonate.
6. Estimation of nickel as nickel dimethyl glyoximate.
7. Estimation of magnesium as magnesium oxinate (demonstration only).

II. Physical chemistry

1. Phase diagram- simple eutectic system.
2. Determination of critical solution temperature of phenol - water system.
3. Determination of concentration of electrolyte – NaCl from the miscibility temperatures of phenol-water system .
4. Determination of concentration of electrolyte - succinic acid from the miscibility temperatures of phenol-water system .
5. Effect of impurity on critical solution temperature of phenol - water system
6. Determination of transition temperature of a salt hydrate.
7. Determination of Kf and molecular weight by Rast method.
8. Determination of rate constant of acid catalysed hydrolysis of an ester.
9. Determination of cell constant, specific conductivity and equivalent conductivity of strong electrolyte
10. Determination of dissociation constant of a weak acid (acetic acid)
11. Freundlich adsorption isotherm (only for demonstration)
12. Polarimetry - determination of concentration of unknown sugar solution (only for demonstration).

B.Sc. Chemistry

Semester VI

Part IV- Skill based course IV - Dye chemistry Practical & Project 611CS4 (For candidates admitted from 2011-2012 onwards)

I. Preparation of dyes:

1. Preparation of Azo dyes – Methyl orange, Phenyl azo – 2 - naphthal.
2. Preparation of a Triphenyl methane dyes – Malachite green.
3. Preparation of a Phthalein dyes – Fluorescein.
4. Preparation of a Xanthene dye – Eosin.

II. Dyeing processes:

1. Dyeing with an adjective dye: Mordants: Malachite green.
2. Dyeing with a substantive dye: Congo
3. Dyeing with an ingrain dye: Primoline.

III. Project to be done in one of the dye industries

B. Sc Zoology
Scheme of Examination –CBCS pattern
(For the students admitted from the academic year 2017- 2018 onwards)

Sem	Course code	Course Title	Ins Hrs/ Week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
I	117TA1/ 117MY1/ 117HD1/ 117FR1	Part I- Language I	6	3	25	75	100	4
	117EN1	Part II – English I	6	3	25	75	100	4
	117Z01	Part III Core I –Non Chordates I	4	3	25	75	100	4
	117Z02	Core II–Non Chordates II	4	3	25	75	100	4
		Core Practical I	2	-	-	-	-	-
	117AZ1	Allied I – Chemistry I	4	3	25	50	75	3
		Allied Chemistry practical	2	-	-	-	-	-
	117EVS	Part IV- Environmental Studies	2	2	50	-	50	2
II	217TA2/ 217MY2/ 217HD2/ 217FR2	Part I- Language II	6	3	25	75	100	4
	217EN2	Part II – English II	6	3	25	75	100	4
	217Z03	Part III Core III – Chordates	8	3	25	75	100	4
	217ZP1	Core Practical I	2	3	40	60	100	4
	217AZ2	Allied II – Chemistry II	4	3	25	50	75	3
	217AZP	Allied Chemistry practical	2	3	20	30	50	2
	217VEC	Part IV- Value Education	2	2	50	-	50	2

Sem	Course code	Course Title	Ins Hrs/ Week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
III	317TA3/ 317MY3/ 317HD3/ 317FR3	Part I- Language I	6	3	25	75	100	4
	317EN3	Part II – English III	6	3	25	75	100	4
	317Z04	Part III Core IV – Cell Biology and Biochemistry	5	3	25	75	100	4
		Core Practical II	2	-	-	-	-	-
	317AZ3	Allied III –Botany I	4	3	25	50	75	3
		Allied Botany practical	2	-	-	-	-	-
	317NSC	Part IV – Non Major Elective – Sericulture	2	2	50	-	50	2
	317ZS1	Part IV – Skill Enhancement Course I – Apiculture	3	3	75	-	75	3
IV	417TA4/ 417MY4/ 417HD4/ 417FR4	Part I- Language IV	6	3	25	75	100	4
	417EN4	Part II – English IV	6	3	25	75	100	4
	417Z05	Part III Core V – Environmental Biology and Evolution	5	3	25	75	100	4
	417ZP2	Core Practical II	2	3	40	60	100	4
	417AZ4	Allied IV – Botany II	4	3	25	50	75	3
	417AZP	Allied Botany Practical	2	3	20	30	50	2
	417ZS2	Part IV - Skill Enhancement Course II – Ornamental Fishes	3	3	75	-	75	3
	417NGA	Part IV - General Awareness	-	1	50	-	50	2
	417GIS	Information Security	2	2	50	-	Grade	Grade
	417ALZ	Advanced Learners Course I – Vermiculture	-	-	-	100	100	4*

Sem	Course code	Course Title	Ins Hrs/ Week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
V	517Z06	Part III Core VI – Physiology	4	3	25	75	100	4
	517Z07	Core VII – Biotechnology	4	3	25	75	100	4
	517Z08	Core VIII – Biostatistics, Bioinformatics and Computer Applications	5	3	25	75	100	4
	517Z09	Core IX – Microbiology	4	3	25	75	100	4
	517ZE1/ 517ZE2	Elective I – Clinical Laboratory Techniques / Elective II – Biological Instrumentation	4	3	25	75	100	4
		Core Practical III	4	-	-	-	-	-
		Elective Practical I / Elective Practical II	2	-	-	-	-	-
	517ZS3	Part IV - Skill Enhancement Course III –Poultry farming	3	3	75	-	75	3
VI	617Z10	Part III Core X– Genetics	6	3	25	75	100	4
	617Z11	Core XI – Developmental Biology	5	3	25	75	100	4
	617Z12	Core X II– Group Project and Viva voce	5	3	50	50	100	4
	617ZE3/ 617ZE4	Elective III- Sericulture/ Elective IV – Pests and their control	5	3	25	75	100	4
	617ZP3	Core Practical –III	4	3	40	60	100	4
	617ZE5/ 617ZE6	Elective Practical I / Elective Practical II	2	3	20	30	50	2
	617ZS4	Part IV - Skill Enhancement Course IV – Internship (Training Report and viva voce)	3	-	75	-	75	3
	617EX1/ 617EX2/ 617EX3/ 617EX4/ 617EX5	Part V – Extension activity	-	-	50	-	50	2
	617ALZ	Advanced Learners Course II- Insect, Vectors and Diseases.	-	3	-	100	100	4*
Total							3500	140

Starred credits are treated as additional credits which are optional

1. To enable the students to learn the basics of Silkworm rearing technology.
2. To gain knowledge about mulberry cultivation.
3. To create awareness on self employment opportunities.

4. To create knowledge about the reeling process.
5. To gain knowledge about trade and export of silk.

UNIT I: (6hrs)

1. Definition and history of Sericulture
2. Economic importance of Sericulture
1. Architecture of mulberry plant
 - a) Plant height b) Stem c) Leaves d) Inflorescence
4. Pruning – types of pruning.

UNIT II (6 hrs)

1. Harvesting of leaves, time of harvesting and preservation of leaves.
2. Varieties of silkworm (Mulberry, Tasar, Eri and Muga)
3. Life cycle of *Bombyx mori*.
4. Structure of silk gland.

UNIT III (6 hrs)

1. Facilities of rearing – Rearing house and rearing equipments.
2. Optimum environmental conditions for rearing.
3. Incubation – Brushing
4. Feeding – Bed cleaning – Spacing

UNIT IV (6 hrs)

1. Rearing of young age and late age Silkworms.
2. Mounting – Harvesting of cocoons.
3. Stifling of cocoons (sun drying, steam stifling only)
4. Deflossing

UNIT V (6 hrs)

1. Reeling – Sunken system of reeling only.
2. Marketing
3. Diseases of Silkworm –Grasserie and Pebrine
4. Pest of Silkworm – Uzifly

Text book

1. An Introduction to Sericulture, G.Ganga and J.Sulochana Chetty, Oxford and IBH Publishing Company, 2010.

Reference Books

1. Sericulture manual 1, 2, 3 - Government of India, Oxford and IBH Publishing Company, Bombay , 1998.
2. A textbook of Sericulture - Madan Mohan Rao, 2005, B.S. Publisher, Hyderabad.
3. Hand book of Sericulture Technologies - S.B. Dandin, Jayant Jayaswal and K.Giridhar, 2003, CSB, Bangalore.

Course outcome:

On the completion of this course the student will

CO1: gain knowledge in mulberry cultivation.

CO2: be able to understand the different varieties of silk worm.

CO3: acquire knowledge in silkworm rearing and silk reeling.

CO4: can take up the sericulture activities for additional income.

CO5: gain knowledge about trade and export of silk.

**B.Sc., ZOOLOGY
SEMESTER III**

PART IV- SKILL ENHANCEMENT COURSE I - APICULTURE **317ZS1**
Credits: 3 **(Hours: 45)**

Objectives

1. To enable the students to learn the basics of honeybee rearing technology.
2. To create awareness on self employment opportunities.

UNIT I: Species of Honey bee and life cycle **(9 hrs)**

1. Types of honeybees: *Apis dorsata* (Rock bee) – *Apis indica* (Indian bee)
– *Apis florea* (Little bee)– *Apis mellifera* (European bee).
2. Polymorphism in honey bee: Morphology and development of honey bee
3. Life cycle of Honeybee, functions of queen bee, worker bee and drone.

UNIT II: Rearing techniques **(9 hrs)**

1. Social life in honeybees.
2. Structure of Bee hive: Natural bee hive and Newtons hive
3. Selection of Bees for Apiculture.
4. Methods of bee keeping – Indigenous method – modern method.

UNIT III: Functions of worker bee **(9 hrs)**

1. Collection of Pollen from flowering plants.
2. Collection of nectar from flowering plants.
3. Inspection of bee hives.
4. Communication and memory of honeybees.
5. Pesticidal poisoning by agriculture.

UNIT IV: Management of Honey bee **(9 hrs)**

1. Seasonal management of honeybee colonies.
2. Catching the swarm.
3. Natural enemies of honeybee.
4. Diseases of honeybee and their control.
5. Transportation of bee hives.

UNIT V: Products of Apiculture **(9 hrs)**

1. Honey
 - a. Equipments used for Honey Extraction
 - b. Chemical composition of honey
 - c. Nutritive and Medicinal values of honey
2. Bee wax and its uses
3. Royal jelly
4. Pollen
5. Propolis
6. Bee venom

Text Books:

1. The complete book on bee keeping and honey processing by NPCS Board of consultants and Engineers – Niir Project Consultancy Services 106-E, Kamala nagar, New Delhi –110007 (INDIA)

Reference Books

1. Economic Zoology- Dr.G.S.Shukla and Dr.V.B. Upadhyay, 2003. Rastogi publication, 4th edition.
2. Honey bee and their Management - S.B Withhead, 2010. Revised edition –10.

Course Outcomes

On the successful completion of the course students will be able to

- **CO1:** Define and enlist the different species of honey bees.
- **CO2:** Understand and differentiate caste of honey bees – Queen, Drone and worker
- **CO3:** Discuss the various stages of life cycle – Egg, larva, pupa and adult
- **CO4:** Analyze and discuss the various types equipments used for honey bee culture.
- **CO5:** Find the chemical composition, nutritional value and medicinal value of honey.

**B.Sc., ZOOLOGY
SEMESTER IV**

PART IV- SKILL ENHANCEMENT COURSE II - ORNAMENTAL FISHES 417ZS2

Credits: 3

(Hours: 45)

Objectives

1. To enable the students to gain knowledge about ornamental fishes and develop skill in rearing and marketing.
2. To establish a commercial level cottage industry and to improve the socio-economic status through market linkage.

UNIT – I

(9 hrs)

1. Introduction – history of ornamental Fishes.
2. Construction of fish tank.
3. Setting up of tank.
4. Accessories: hood, light source, aerator and filters, light, nets, suction and tube scrapper tool.

UNIT -II

(9 hrs)

1. Water quality management:
 - a).Total hardness
 - (b) Temperature
 - (c) pH
 - (d) Dissolved oxygen
 - (e) Alkalinity
 - (f) Ammonia
2. Ornamental plants.

UNIT – III

(9 hrs)

1. Popular freshwater ornamental fishes
 - a. Egg laying fishes – Siamese fighter fish, Gourami, gold fish, Barb, Tetras, Oscar, Cichlid and Angelfish.
 - b. Live bearing fish – Molly, Guppy, Swordtail, Platy
2. Breeding methods of gold fish and angelfish.

UNIT –IV**(9 hrs)**

1. Live feed organisms:

a) Infusoria

(b) Daphnia

(c)Tubifex

d) Chironomous larva

(e) Artemia

(f) Spirulina

2. Artificial feed preparation.

UNIT – V**(9 hrs)**

1. Brood stock management

2. Brief account on ornamental fish diseases.

3. Packing and transportation of live fishes.

Text Book

1. Manual of Ornamental Fishes and Farming techniques - Jameson.J.D and Santhanam.R, 1996, Fisheries College, Tuticorin.

Reference Book

1. Ornamental Fish Culture - Dr.V.K.Venkataramani, 2007, Fisheries College and Research Institute, Tuticorin.

Course Outcomes

On the successful completion of the course students will be able to

CO1: define and enlist the different species of ornamental fishes.

CO2: understand the water quality management

CO3: understand the various types of ornamental fishes

CO4: gain knowledge about the feed of ornamental fishes.

CO5: gain knowledge in brood stock management, diseases and transport.

B. Sc Zoology
Scheme of Examination –CBCS pattern

(For the students admitted from the academic year 2016- 2017 only)

Sem	Course code	Course Title	Ins Hrs/ Week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
I	115TA1/ 115MY1/ 115HD1/ 115FR1	Part I- Language I	6	3	25	75	100	4
	115EN1	Part II – English I	6	3	25	75	100	4
	115Z01	Part III- Core I –Non Chordates I	4	3	25	75	100	4
	115Z02	Core I I–Non Chordates II	4	3	25	75	100	4
		Core Practical I	2	-	-	-	-	-
	115AZ1	Allied I – Chemistry I	4	3	25	50	75	3
		Allied Chemistry practical	2	-	-	-	-	-
	115EVS	Part IV- Environmental Studies	2	2	50	-	50	2
II	215TA2/ 215MY2/ 215HD2/ 215FR2	Part I- Language II	6	3	25	75	100	4
	215EN2	Part II – English II	6	3	25	75	100	4
	215Z03	Part III- Core III – Chordates	8	3	25	75	100	4
	215ZP1	Core Practical I	2	3	40	60	100	4
	215AZ2	Allied II – Chemistry II	4	3	25	50	75	3
	215AZP	Allied chemistry practical	2	3	20	30	50	2
	215VEC	Part IV- Value Education	2	2	50	-	50	2

Sem	Course code	Course Title	Ins Hrs/ Week	Examination				Credits
				Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
III	315TA3/ 315MY3/ 315HD3/ 315FR3	Part I- Language I	6	3	25	75	100	4
	315EN3	Part II – English III	6	3	25	75	100	4
	315Z04	Part III Core IV – Cell Biology and Biochemistry	5	3	25	75	100	4
		Core Practical II	2	-	-	-	-	-
	316AZ3	Allied III –Botany I	4	3	25	50	75	3
		Allied Botany practical	2	-	-	-	-	-
	315NSC	Non Major Elective– Sericulture	2	2	50	-	50	2
	315ZS1	Part IV – Skill Based Course I – Apiculture	3	3	75	-	75	3
IV	415TA4/ 415MY4/ 415HD4/ 415FR4	Part I- Language IV	6	3	25	75	100	4
	415EN4	Part II – English IV	6	3	25	75	100	4
	415Z05	Part III – Core V – Environmental Biology and Evolution	5	3	25	75	100	4
	416ZP2	Core Practical II	2	3	40	60	100	4
	416AZ2	Allied IV – Botany II	4	3	25	50	75	3
	416AZP	Allied Botany Practical	2	3	20	30	50	2
	415ZS2	Part IV - Skill Based Course II – Ornamental Fishes	3	3	75	-	75	3
	415NGA	General Awareness (online)	-	1	50	-	50	2
	415GIS	Information Security	2	2	50	-	Grade	Grade
	415ALZ	Advanced Learners Course I – Vermiculture	-	-	-	100	100	4*

B.Sc. ZOOLOGY

Sem	Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
				Dur hrs	CIA Marks	ESE Marks	Total Marks	
V		Part III						
	515Z06	Core VI –Physiology	4	3	25	75	100	4
	515Z07	Core VII – Biotechnology	4	3	25	75	100	4
	515Z08	Core VIII – Biostatistics, and Computer Applications	5	3	25	75	100	4
	515Z09	Core IX – Microbiology	4	3	25	75	100	4
	515ZE1	Elective I - Clinical Laboratory Techniques	4	3	25	75	100	4
		Core Practical-III	4	-	-	-	-	-
		Elective Practical	2	-	-	-	-	-
	515ZS3	Part IV Skill Based Course III- Animal Culture –Poultry Farming	3	3	75	-	75	3
	615Z10	Part III Core X- Genetics	6	3	25	75	100	4
VI	615Z11	Core XI- Developmental Biology	5	3	25	75	100	4
	615Z12	Core XII-Group Project and Viva voce	5	3	50	50	100	4
	615ZE2	Elective II – Applied Biotechnology	5	3	25	75	100	4
	615ZP3	Core Practical-III	4	3	40	60	100	4
	615ZEP	Elective Practical	2	3	20	30	50	2
	615ZS4	Part IV-Skill Based course Internship-Training report and Viva Voce	3	-	75	-	75	3
	615EX1/ EX2/ EX3/ EX4/ EX5	Part V Extension Activities	-	-	50	-	50	2
	615ALZ	Advanced Learners Course-II Fundamentals of Bioinformatics	-	-	-	100	100	4*
Total							3500	140

PART IV- SKILL BASED COURSE I -ANIMAL CULTURE - APICULTURE
315ZS1

Credits: 3

Hours (C-40, A-5)

Objectives

1. Bee keeping has a definite role in building up the rural economy since there are enough opportunities and avenues for Entrepreneurship in apiculture.
2. Bee keeping does not require costly financial inputs.
3. Biology graduates with apiculture specialization can turn into self-employed person instead of hunting for job.

UNIT – I: Species of Honey bee and life cycle **(9 hrs)**

1. Types of honeybees: *Apis dorsata* (Rock bee) –*Apis indica* (Indian bee)

– *Apis florea* (Little bee)- *Apis mellifera* (European bee).
2. Polymorphism in honey bee: Morphology and development of honey bee
3. Life Cycle: Life cycle of Honeybee Functions of queen bee, worker bee and drone.

UNIT –II: Culture techniques **(9 hrs)**

1. Social life in honeybees.
2. Structure of Bee hive: Newtons hive
3. Selection of Bees for Apiculture.
4. Methods of bee keeping – Indigenous method – modern method.

UNIT – III: Functions of worker bee **(9 hrs)**

1. Collection of Pollen from flowering plants.
2. Collection of nectar from flowering plants.
3. Inspection of bee hives.
4. Communication and memory of honeybees.
5. Pesticidal poisoning by agriculture.

UNIT –IV: Management of Honey bee **(9 hrs)**

6. Seasonal management of honeybee colonies.
7. Catching the swarm.
8. Natural enemies of honeybee.
9. Diseases of honeybee and their control.
10. Transportation of bee hives.

UNIT –V: Products of Apiculture **(9 hrs)**

1. Honey
 - d. Equipments used for Honey Extraction
 - e. Chemical composition of honey
 - f. Nutritive and Medicinal values of honey
2. Bee wax and its uses 3. Royal jelly 4. Pollen 5. Propolis 6. Bee venom

Text Books:

1. The complete book on bee keeping and honey processing by NPCS Board of consultants and Engineers – Niir Project Consultancy Services 106-E, Kamala nagar, New Delhi – 110007 (INDIA)
2. Economic Zoology- Dr.G.S.Shukla and Dr.V.B. Upadhyay, 2003. Rastogi publication, 4th edition.
3. Honey bee and their Management - S.B Withhead, 2010. Revised edition –10.

II UG COURSE**PART IV- NON MAJOR ELECTIVE COURSE I - SERICULTURE****315NSC****Credits: 2****Hours: 30****Objectives**

1. No large investment is required.
2. Provides materials for cottage as well as large scale textile industries.
3. Provides self-employment opportunities.

UNIT I: Moriculture**(6hrs)**

1. Definition and history of Sericulture
2. Economic importance of Sericulture
3. Architecture of mulberry plant
 - a) Plant height
 - b) Stem
 - c) Leaves
 - d) Inflorescence
4. Soil condition – preparation of land

UNIT II**(6 hrs)**

5. Propagation - methods of propagation
6. Irrigation – frequency and methods of irrigation
7. Manuring – Types of Fertilizer – Methods of Application.
8. Pruning – types of pruning, harvesting of leaves, time of harvesting and preservation of leaves.

UNIT III: Silkworm Rearing & Reeling**(6 hrs)**

1. Varieties of silkworm
2. Life cycle of *Bombyx mori* – Structure of silk gland
3. Facilities of rearing – Rearing house and rearing equipments.
4. Optimum environmental conditions for rearing.

UNIT IV**(6 hrs)**

1. Incubation – Brushing
2. Feeding – Bed cleaning - Spacing
3. Rearing of young age and late age Silkworms.
4. Mounting – Harvesting of cocoons.

UNIT V**(6 hrs)**

1. Stifling of cocoons (sun drying, steam stifling only)
2. Deflossing
3. Reeling –Definition – Sunken system of reeling only.
4. Marketing

Text book

1. An Introduction to Sericulture, G.Ganga and J.Sulochana Chetty, 2005.

Reference Books

1. Sericulture manual 1, 2, 3 - Government of India, Oxford and IBH Publishing Company, Bombay , 1998.
2. A textbook of Sericulture - Madan Mohan Rao, 2005, B.S. Publisher, Hyderabad.
3. Hand book of Sericulture Technologies - S.B. Dandin, Jayant Jayaswal and K.Giridhar, 2003, CSB, Bangalore.

B.Sc. ZOOLOGY

PART IV- SKILL BASED COURSE II -ANIMAL CULTURE- ORNAMENTAL FISHES 415ZS2

Credits: 3

Hours (C-40, A-5)

Objectives

1. To enable the students to gain knowledge about ornamental fishes and develop skill in rearing and marketing of ornamental fishes.
2. To establish a commercial level cottage industry and to improve the socio-economic status through market linkage.

UNIT – I

(9 hrs)

1. Introduction – History of Ornamental Fishes.
2. Construction of fish tank.
3. Setting up of tank.
4. Accessories: hood, light source, aerator and filters, light, nets, suction tube scrapper tool.

UNIT –II

(9 hrs)

1. Water quality management:

- | | | |
|----------------------|-----------------|-------------|
| (a) Total hardness | (b) Temperature | (c) pH |
| (d) Dissolved oxygen | (e) Alkalinity | (f) Ammonia |

2. Ornamental plants.

UNIT – III

(9 hrs)

1. Popular freshwater ornamental fishes

- a. Egg laying fishes – Siamese Fighter Fish, Gourami, Gold Fish, Barb, Tetras, Oscar, Cichlid and Angelfish.
- b. Live bearing fish – molly, guppy, swordtail, platy

2. Breeding methods of gold fish and angelfish.

UNIT –IV

(9 hrs)

1. Live feed organisms:

- | | | |
|----------------------|--------------|---------------|
| b) Infusoria | (b) Daphnia | (c)Tubifex |
| d) Chironomous larva | (e) Artemia | (f) Spirulina |
2. Artificial feed preparation
- UNIT – V** **(9 hrs)**
1. Brood stock management
 2. Brief account on ornamental fish diseases.
 3. Packing and transportation of live fishes.

Text Book

Manual of Ornamental Fishes and Farming techniques - Jameson.J.D and Santhanam.R, 1996, Fisheries College, Tuticorin.

Reference Book

Ornamental Fish Culture - Dr.V.K.Venkataramani, 2007, Fisheries College and Research Institute, Tuticorin.

B.Sc. ZOOLOGY

Part III - CORE VII - BIOTECHNOLOGY

515Z07

Credits:4

Hours (C-56, T-2, A-2)

Objectives

Biotechnology is a new combination of biological sciences with technology. It enhances the understanding of biodiversity as resources that could yield products useful to man and enables understanding of principle behind techniques involved in biotechnology. Imparts awareness on safety issues involved in handling of transgenic organisms.

UNIT I

(12 Hrs)

1. Definition – Scope and importance of biotechnology.
2. Biotechnology in India – GATT, IPR, TRIPS.
3. Basics of genetic engineering.
4. Organisms important in Biotechnology – Bacteria, Virus.
5. Enzymes useful for Genetic engineering – (Reverse transcriptase, DNA ligase, Restriction Endonuclease)

UNIT II

(12Hrs)

1. Vectors – plasmids, shuttle vectors and cosmids
2. Antisense RNA technology, Flavr savr tomato.
3. Gene cloning – gene cloning methods – Applications
4. Genomic Library
5. Gene therapy

UNIT III

(12 Hrs)

1. DNA finger printing
2. Monoclonal antibodies – Production and Applications.
3. Blotting techniques- Northern, Southern and Western.

4. Structure of fermentor tank and Alcohol fermentation.
5. Production of single cell protein (SCP) – Spirulina, Chlorella.

UNIT IV

(12 Hrs)

1. Principles and techniques of plant and animal cell culture.
2. Protoplast technology – Isolation of protoplast, viability test for protoplast, plant regeneration from protoplasts, applications, Protoplast fusion methods and uses.
3. Importance of cell line culture.
4. Cryobiology-Methods and applications of cryopreservation.
5. Biodegradation.

UNIT V

(12Hrs)

1. Human genome project
2. Biosensors & Bio chips.
3. Transgenic technology – transgenic mice, fish, sheep, pig and *Bacillus thuringiensis*.
4. Risks of releasing genetically engineered organisms.

Text book

1. Biotechnology – V. Kumaresan, 2010, Saras Publications, Revised Edition.

Reference Books

1. A textbook of Biotechnology – U.Satyanarayana, 2005, Uppla Author Publisher Interlinks.
2. A textbook of Biotechnology – R.C. Dubey, 2006, S. Chand & Co, Revised Edition.

B.Sc. ZOOLOGY

Part III – Core IX– MICROBIOLOGY

515Z09

Credits: 4

Hours (C-56, T-2, A-2)

Objectives

1. Microbiology explains the structure, nature, occurrence, physiology, pathogenicity and application of microbes.
2. Microbes are widely applied in various fields such as clinical field, textiles, mining process, fermentation process, beverages, oil refiners, agricultural fields, biogas production etc.
3. Knowledge of microbes helps everyone to lead a disease free healthy life.
4. It also helps to provide new scopes for job opportunities.

UNIT I

(12 Hrs)

1. History and scope of microbiology
2. General Structure of Bacteria - Size, shape, cell wall, capsule, nucleoid, mesosomes, plasmids, pilli and flagella.
3. Asexual reproduction – Binary fission and fragmentation.
4. Cyanobacteria and its economic importance.

UNIT II: Nutrition and Culture of Bacteria

(12 Hrs)

1. Nutritional types of bacteria and Nutritional requirements.

2. Culture media – Types of culture medium – Composition of typical culture medium – liquid medium (or) broth, semisolid medium, solid medium, complex, selective medium, differential medium, enrichment medium.
3. Culture technique – Batch culture, continuous culture – Methods of growing microorganisms - broth culture, agar plate, agar slant and agar stab.
4. Isolation of pure culture – streak plate, pour plate, spread plate method.
5. Wet mount technique- Staining - differential staining, acid fast staining.

UNIT III: Food Microbiology

(12Hrs)

1. Microorganisms of food – Common food items – sources of microorganisms found in food – Microbial examination of foods.
2. Factors that influence Microbial growth – Microbial spoilage of foods – Biochemical changes of food spoilage.
3. Food poisoning – types of food poisoning – food intoxication – Botulism, Staphylococcal food poisoning, infantile Gastroenteritis and Travellers diarrhoea.
4. Food preservation – Methods of foods preservation – Prevention of food infection and food poisoning.

UNIT IV: Dairy Microbiology

(12Hrs)

1. Introduction Sources of microorganisms in milk.
2. Temperature Characteristics of bacteria in milk, pathogenic type of bacteria in milk.
3. Bacterial examination of milk.
4. Preservation of milk.
5. Microbial diseases of Cattle and control measures.

UNIT V: Medical Microbiology

(12 Hrs)

1. Bacterial diseases – Respiratory diseases – Whooping cough, Tuberculosis - Digestive tract diseases – Cholera and Typhoid - Genitourinary tract diseases – Gonorrhea and Syphilis.
2. Viral diseases: Rabies, Viral Hepatitis type A and Poliomyelitis.
3. Structure of fungi - fungal diseases – Economic importance of fungi.

Text Book

1. Microbiology - N. Arumugam, 2010, Saras Publication, IV Edition.

Reference Books

1. General Microbiology - Power, 2003, Himalaya Publishing house, II Edition.
2. Microbiology - P.D. Sharma, 2000, Rastogi Publications, II Edition.

B.Sc. ZOOLOGY

Part III – Elective I – CLINICAL LABORATORY TECHNIQUES

515ZE1

Credits: 4

Hours (C-56, T-2, A-2)

Objectives

1. The concise syllabus enables the student to have a basic idea of normal health, infections and diseases.

2. The students can equip themselves with basic knowledge of clinical techniques applicable for self-employment.

UNIT I : Collection and Sample Analysis (12 Hrs)

1. Collection and disposal of specimen (Brief account only) - Urine, blood, stool and sputum.
2. Reporting pattern of sample analysis.
3. Safety regulations in clinical lab.
4. First aid for superficial wounds, burns and electrical shocks.
5. Widal test
6. Mountoux test

UNIT II: Clinical Haematology (12 Hrs)

1. Collection of blood – capillary blood collection and venous blood collection.
2. Anti – coagulants preparation - Double oxalate mixture, EDTA, heparin and sodium citrate.
3. Blood cell count: RBC count and WBC count.
4. Erythrocyte sedimentation Rate (ESR): Westergren's method and wintrobe's method.
5. Haemoglobin Estimation (Hb): Acid haematin method
6. Bleeding Time (BT) Blotting paper method
Clotting time (CT) Slide Method

UNIT III: Serology and Blood bank (12 Hrs)

1. VDRL test – Kahn's test and flocculation test.
2. Blood – Urea – Nitrogen (BUN) estimation: Hensch and Aldrich's method
3. Serum cholesterol estimation – Anderson and Key's method.
4. Blood sugar estimation – Glucose Tolerance Test (GTT)
5. Quantitative analysis of sugar by Folin-wu tube method.
6. Testing the blood donor - blood transfusion – donor screening
7. Compatibility test – Coombs test only.

UNIT IV: Urine Analysis: (only 2 test for each) (12 Hrs)

1. Physical properties of urine: Colour, specific gravity, pH,
2. Microscopical examination of pus cells and casts in urine
3. Chemical properties of urine: Albumin, Sugar, Blood, Bile salt and Bile pigment: Bilirubin and Urobilinogen (qualitative analysis).

Faecal Analysis:

4. Physical and Microscopical Examination of stool
5. Identification of intestinal parasite – Direct smear examination – Anal Swab method only.
6. Diagnosis of chronic disease: *Mycobacterium leprae* causing leprosy.

UNIT V: Analysis of Gastric Juice and Body Fluids (12 Hrs)

1. GJ - aspiration by Ryles tube, Fractional test meal – Free acid and Total acid (FA & TA)
2. CSF examination: Composition, physical examination, chemical examination, total Count, differential count and Pandy's test.

3. Semen analysis: Total count, abnormality, movement, pH and Viscosity
4. Pregnancy test – Male frog test, gravindex test and card method.

Text books

1. Clinical Lab Techniques – K.M. Samuel, M.K.G. Iyyer & sons edition 1990
2. Clinical Pathology and Bacteriology, Dr.K.N. Sachdev, Jaypee Brothers Medical Publishers, 1990

Reference Book:

1. Medical Laboratory Techniques – Vol-I, II & III – Kanaiah Mukerjii, Tata MC Graw Hill publishing Company, 4th edition, 2006.
2. Medical Laboratory Technology – Dr. Ramnik Sood M.D. Jaypee Brothers, Medical publishers, 2003.

B.Sc. ZOOLOGY

PART IV - SKILL BASED COURSE III - ANIMAL CULTURE – POULTRY FARMING

515ZS3

Credits: 3

Hours (C-56, T-2, A-2)

Objectives:

1. To acquire knowledge of basic principles and economic importance of Poultry Farming.
2. To establish a commercial level cottage industry and to improve the socio- economic status through market – linkage.

UNIT-I

(9 hrs)

1. Poultry industry in India- Breeds of fowls – breeding methods- systems of breeding – modern methods of breeding .
2. Commercial layers & broilers.
3. Poultry housing.
4. The deep litter system.
5. Cage rearing.

UNIT –II

(9 hrs)

1. Practical aspects of chick rearing.
2. Management of layers & broilers
3. Summer and winter management of broilers.
4. Debeaking.

UNIT – III

(9 hrs)

1. Poultry nutrition
 - a) Protein & Amino acids
 - b) Vitamins
 - c) Essential inorganic elements.
2. Feed additives (Non-nutritive)
3. Feed stuffs for poultry
4. Feed formulation

UNIT –IV

(9 hrs)

1. Viral diseases
 - a) Ranikhet
 - b) Fowl pox

- | | | |
|-----------------------|------------------|------------------|
| 2. Bacterial diseases | a) Fowl Cholera | b) Salmonellosis |
| 3. Fungal Diseases | a) Aspergillosis | b) Aflatoxicosis |
| 4. Animal parasite | a) Coccidiosis. | |

UNIT – V

(9 hrs)

1. Vaccination - Vaccination programme.
2. Animal health products in the treatment of poultry diseases
3. Homeopathy in poultry diseases

Text Book

1. Modern aspects of Commercial Poultry keeping - Gnanamani.M.R., 2006, Giri publications, Madurai.

Reference Books

1. Disease of Poultry - Bisres, H.E., and Schwarte, 1989. Oxford and IBH, UK
2. Poultry husbandry – Jull M.A., 1972, Tata McGraw Hill, Chennai.

B.Sc., ZOOLOGY

Part III –CORE XII- Group project and Viva voce

615Z12

Credits: 4

(Hours: 75)

(5 students in a group)

Objectives:

- To expose the students to recent trends in science.
- To create research skill in students.
- To enable the students to gain knowledge in literature collection and research skill.

Project will equip the students with basic knowledge in zoology and create interest in research. Group project will be done by the students related to topics in zoology and project report must be submitted by the students at the end of sixth semester.

❖ A subject viva voce will be conducted by Internal and External Examiners.

Part III Elective Course II APPLIED BIOTECHNOLOGY

612ZE2

(65 hrs)

MODULE I

(13 Hrs)

Applications of genetic engineering in

1. Industry
2. Alcohol fermentation
3. Medicine (Insulin and Vaccine Production)
4. *Agriculture (N₂ fixation – agro bacterium).
5. Nif genes – genetically transformed plants.

MODULE II

(13 Hrs)

1. Production of single cell protein (SCP) – Spirulina, Chlorella
2. Production of Fungal biomass- Mushroom culture
3. Production of Bacterial algal biomass.
4. Production of yeast biomass.

5. Bioremediation

MODULE III

(13 Hrs)

1. Source and production of commercially important enzymes – cellulase, amylase, pectinase, proteinase.
2. Immobilization of enzymes-Applications.
3. Biodegradation
4. Cryobiology-Methods and applications of cryopreservation.

MODULE IV

(13 Hrs)

1. Human genome project
2. Manipulation of reproduction in animals- artificial insemination, embryo transfer.
3. In vitro fertilization technology – Embryo cloning, embryonic stem cells.

MODULE V

(13 hrs)

1. NanoBiotechnology-Definition, Drug delivery system, DNA micro array
2. Drug designing
3. Proteomics

Text Books

1. Biotechnology – V. Kumaresan, Sara's Publications, revised edition 2010.
2. A text book of Biotechnology – R.C. Dubey, S. Chand & Co 2010.

Reference Book

1. A textbook of Biotechnology – U. Satyanarayana, Uppla Author Publisher Interlinks, 2005

B. Sc Zoology
Scheme of Examination –CBCS pattern

(For the students admitted from the academic year 2015- 2016 only)

Sem	Course code	Course Title	Ins Hrs/ Week	Examination				Credits
				Dur .Hrs	CIA Marks	ESE Marks	Total Marks	
I	115TA1/ 115MY1/ 115HD1/ 115FR1	Part I- Language I	6	3	25	75	100	4
	115EN1	Part II – English I	6	3	25	75	100	4
	115Z01	Part III Core I –Non Chordates I	4	3	25	75	100	4
	115Z02	Core II–Non Chordates II	4	3	25	75	100	4
		Core Practical I	2	-	-	-	-	-
	115AZ1	Allied I – Chemistry I	4	3	25	50	75	3
		Allied Chemistry practical	2	-	-	-	-	-
	115EVS	Part – IV Environmental Studies	2	2	50	-	50	2
II	215TA2/ 215MY2/ 215HD2/ 215FR2	Part I- Language II	6	3	25	75	100	4
	215EN2	Part II – English II	6	3	25	75	100	4
	215Z03	Part III Core III – Chordates	8	3	25	75	100	4
	215ZP1	Core Practical I	2	3	40	60	100	4
	215AZ2	Allied II – Chemistry II	4	3	25	50	75	3
	215AZP	Allied chemistry practical	2	3	20	30	50	2
	215VEC	Part IV- Value Education	2	2	50	-	50	2

Sem	Course code	Course Title	Ins Hrs/ Week	Examination				Credits
				Dur .Hrs	CIA Mark s	ESE Marks	Total Marks	
III	315TA3/ 315MY3/ 315HD3/ 315FR3	Part I- Language I	6	3	25	75	100	4
	315EN3	Part II – English III	6	3	25	75	100	4
	315Z04	Part III Core IV – Cell Biology and Biochemistry	5	3	25	75	100	4
		Core Practical II	2	-	-	-	-	-
	315AZ3	Allied III –Botany I	4	3	25	50	75	3
		Allied Botany practical	2	-	-	-	-	-
	315NSC	Non Major Elective Course– Sericulture	2	2	50	-	50	2
	315ZS1	Part IV – Skill Based Course I – Apiculture	3	3	75	-	75	3
IV	415TA4/ 415MY4/ 415HD4/ 415FR4	Part I- Language IV	6	3	25	75	100	4
	415EN4	Part II – English IV	6	3	25	75	100	4
	415Z05	Part III Core V – Environmental Biology and Evolution	5	3	25	75	100	4
	415ZP2	Core Practical II	2	3	40	60	100	4
	415AZ2	Allied IV – Botany II	4	3	25	50	75	3
	415AZP	Allied Botany Practical	2	3	20	30	50	2
	415ZS2	Part IV - Skill Based Course II – Ornamental Fishes	3	3	75	-	75	3
	415NGA	General Awareness (online)	-	1	50	-	50	2
	415GIS	Information Security	2	2	50	-	Grade	Grade
	415ALZ	Advanced Learners Course I –Vermiculture	-	-	-	100	100	4*

Sem	Course	Course Title	Ins.	Examination				Credits
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	Code		Hrs/ Week	Dur hrs	CIA Marks	ESE Marks	Total Marks	
V	515Z06	Part III Core VI –Physiology	4	3	25	75	100	4
	515Z07	Core VII – Biotechnology	4	3	25	75	100	4
	515Z08	Core VIII – Biostatistics, and Computer Applications	5	3	25	75	100	4
	515Z09	Core IX – Microbiology	4	3	25	75	100	4
	515ZE1	Elective I - Clinical Laboratory Techniques	4	3	25	75	100	4
		Core Practical-III	4	-	-	-	-	-
		Elective Practical	2	-	-	-	-	-
	515ZS3	Part IV Skill Based Course III- Animal Culture –Poultry Farming	3	3	75	-	75	3
	615Z10	Part III Core X- Genetics	6	3	25	75	100	4
	615Z11	Core XI- Developmental Biology	5	3	25	75	100	4
VI	615Z12	Core XII-Group Project and Viva voce	5	3	50	50	100	4
	615ZE2	Elective II – Applied Biotechnology	5	3	25	75	100	4
	615ZP3	Core Practical-III	4	3	40	60	100	4
	615ZEP	Elective Practical	2	3	20	30	50	2
	615ZS4	Part IV-Skill Based course Internship-Training report and Viva Voce	3	-	75	-	75	3
	615EX1/ EX2/ EX3/ EX4/ EX5	Part V Extension Activities	-	-	50	-	50	2
	615ALZ	Advanced Learners Course- II Fundamentals of Bioinformatics	-	-	-	100	100	4*
Total							3500	140

PART IV- SKILL BASED COURSE I -ANIMAL CULTURE - APICULTURE
315ZS1

Credits: 3

Hours (C-40, A-5)

Objectives

1. Bee keeping has a definite role in building up the rural economy since there are enough opportunities and avenues for Entrepreneurship in apiculture.
2. Bee keeping does not require costly financial inputs.
3. Biology graduates with apiculture specialization can turn into self-employed person instead of hunting for job.

UNIT – I: Species of Honey bee and life cycle **(9 hrs)**

1. Types of honeybees: *Apis dorsata* (Rock bee) –*Apis indica* (Indian bee)

– *Apis florea* (Little bee)- *Apis mellifera* (European bee).
2. Polymorphism in honey bee: Morphology and development of honey bee
3. Life Cycle: Life cycle of Honeybee Functions of queen bee, worker bee and drone.

UNIT –II: Culture techniques **(9 hrs)**

5. Social life in honeybees.
6. Structure of Bee hive: Newtons hive
7. Selection of Bees for Apiculture.
8. Methods of bee keeping – Indigenous method – modern method.

UNIT – III: Functions of worker bee **(9 hrs)**

6. Collection of Pollen from flowering plants.
7. Collection of nectar from flowering plants.
8. Inspection of bee hives.
9. Communication and memory of honeybees.
10. Pesticidal poisoning by agriculture.

UNIT –IV: Management of Honey bee **(9 hrs)**

11. Seasonal management of honeybee colonies.
12. Catching the swarm.
13. Natural enemies of honeybee.
14. Diseases of honeybee and their control.
15. Transportation of bee hives.

UNIT –V: Products of Apiculture **(9 hrs)**

1. Honey
 - g. Equipments used for Honey Extraction
 - h. Chemical composition of honey
 - i. Nutritive and Medicinal values of honey
2. Bee wax and its uses 3. Royal jelly 4. Pollen 5. Propolis 6. Bee venom

Text Books:

1. The complete book on bee keeping and honey processing by NPCS Board of consultants and Engineers – Niir Project Consultancy Services 106-E, Kamala nagar, New Delhi – 110007 (INDIA)
2. Economic Zoology- Dr.G.S.Shukla and Dr.V.B. Upadhyay, 2003. Rastogi publication, 4th edition.
3. Honey bee and their Management - S.B Withhead, 2010. Revised edition –10.

II UG COURSE**PART IV- NON MAJOR ELECTIVE COURSE I - SERICULTURE****315NSC****Credits: 2****Hours: 30****Objectives**

4. No large investment is required.
5. Provides materials for cottage as well as large scale textile industries.
6. Provides self-employment opportunities.

UNIT I: Moriculture**(6hrs)**

5. Definition and history of Sericulture
6. Economic importance of Sericulture
7. Architecture of mulberry plant
 - a) Plant height
 - b) Stem
 - c) Leaves
 - d) Inflorescence

8. Soil condition – preparation of land

UNIT II**(6 hrs)**

9. Propagation - methods of propagation
10. Irrigation – frequency and methods of irrigation
11. Manuring – Types of Fertilizer – Methods of Application.
12. Pruning – types of pruning, harvesting of leaves, time of harvesting and preservation of leaves.

UNIT III: Silkworm Rearing & Reeling**(6 hrs)**

5. Varieties of silkworm
6. Life cycle of *Bombyx mori* – Structure of silk gland
7. Facilities of rearing – Rearing house and rearing equipments.
8. Optimum environmental conditions for rearing.

UNIT IV**(6 hrs)**

5. Incubation – Brushing
6. Feeding – Bed cleaning - Spacing
7. Rearing of young age and late age Silkworms.
8. Mounting – Harvesting of cocoons.

UNIT V**(6 hrs)**

3. Stifling of cocoons (sun drying, steam stifling only)
4. Deflossing
3. Reeling –Definition – Sunken system of reeling only.
4. Marketing

Text book

1. An Introduction to Sericulture, G.Ganga and J.Sulochana Chetty, 2005.

Reference Books

1. Sericulture manual 1, 2, 3 - Government of India, Oxford and IBH Publishing Company, Bombay , 1998.
2. A textbook of Sericulture - Madan Mohan Rao, 2005, B.S. Publisher, Hyderabad.
3. Hand book of Sericulture Technologies - S.B. Dandin, Jayant Jayaswal and K.Giridhar, 2003, CSB, Bangalore.

B.Sc. ZOOLOGY

PART IV- SKILL BASED COURSE II -ANIMAL CULTURE- ORNAMENTAL FISHES 415ZS2

Credits: 3

Hours (C-40, A-5)

Objectives

1. To enable the students to gain knowledge about ornamental fishes and develop skill in rearing and marketing of ornamental fishes.
2. To establish a commercial level cottage industry and to improve the socio-economic status through market linkage.

UNIT – I

(9 hrs)

5. Introduction – History of Ornamental Fishes.
6. Construction of fish tank.
7. Setting up of tank.
8. Accessories: hood, light source, aerator and filters, light, nets, suction tube scraper tool.

UNIT –II

(9 hrs)

1. Water quality management:

- | | | |
|----------------------|-----------------|-------------|
| (b) Total hardness | (b) Temperature | (c) pH |
| (d) Dissolved oxygen | (e) Alkalinity | (f) Ammonia |

2. Ornamental plants.

UNIT – III

(9 hrs)

1. Popular freshwater ornamental fishes

- a. Egg laying fishes – Siamese Fighter Fish, Gourami, Gold Fish, Barb, Tetras, Oscar, Cichlid and Angelfish.
- b. Live bearing fish – molly, guppy, swordtail, platy

2. Breeding methods of gold fish and angelfish.

UNIT –IV

(9 hrs)

1. Live feed organisms:

- | | | |
|----------------------|--------------|---------------|
| c) Infusoria | (b) Daphnia | (c)Tubifex |
| d) Chironomous larva | (e) Artemia | (f) Spirulina |
2. Artificial feed preparation
- UNIT – V** **(9 hrs)**
1. Brood stock management
 2. Brief account on ornamental fish diseases.
 3. Packing and transportation of live fishes.

Text Book

Manual of Ornamental Fishes and Farming techniques - Jameson.J.D and Santhanam.R, 1996, Fisheries College, Tuticorin.

Reference Book

Ornamental Fish Culture - Dr.V.K.Venkataramani, 2007, Fisheries College and Research Institute, Tuticorin.

B.Sc. ZOOLOGY

Part III - CORE VII - BIOTECHNOLOGY

515Z07

Credits:4

Hours (C-56, T-2, A-2)

Objectives

Biotechnology is a new combination of biological sciences with technology. It enhances the understanding of biodiversity as resources that could yield products useful to man and enables understanding of principle behind techniques involved in biotechnology. Imparts awareness on safety issues involved in handling of transgenic organisms.

UNIT I

(12 Hrs)

6. Definition – Scope and importance of biotechnology.
7. Biotechnology in India – GATT, IPR, TRIPS.
8. Basics of genetic engineering.
9. Organisms important in Biotechnology – Bacteria, Virus.
10. Enzymes useful for Genetic engineering – (Reverse transcriptase, DNA ligase, Restriction Endonuclease)

UNIT II

(12Hrs)

6. Vectors – plasmids, shuttle vectors and cosmids
7. Antisense RNA technology, Flavr savr tomato.
8. Gene cloning – gene cloning methods – Applications
9. Genomic Library
10. Gene therapy

UNIT III

(12 Hrs)

6. DNA finger printing
7. Monoclonal antibodies – Production and Applications.
8. Blotting techniques- Northern, Southern and Western.

9. Structure of fermentor tank and Alcohol fermentation.
10. Production of single cell protein (SCP) – Spirulina, Chlorella.

UNIT IV

(12 Hrs)

6. Principles and techniques of plant and animal cell culture.
7. Protoplast technology – Isolation of protoplast, viability test for protoplast, plant regeneration from protoplasts, applications, Protoplast fusion methods and uses.
8. Importance of cell line culture.
9. Cryobiology-Methods and applications of cryopreservation.
10. Biodegradation.

UNIT V

(12Hrs)

5. Human genome project
6. Biosensors & Bio chips.
7. Transgenic technology – transgenic mice, fish, sheep, pig and *Bacillus thuringiensis*.
8. Risks of releasing genetically engineered organisms.

Text book

2. Biotechnology – V. Kumaresan, 2010, Saras Publications, Revised Edition.

Reference Books

3. A textbook of Biotechnology – U.Satyanarayana, 2005, Uppla Author Publisher Interlinks.
4. A textbook of Biotechnology – R.C. Dubey, 2006, S. Chand & Co, Revised Edition.

B.Sc. ZOOLOGY

Part III – Core IX– MICROBIOLOGY

515Z09

Credits: 4

Hours (C-56, T-2, A-2)

Objectives

5. Microbiology explains the structure, nature, occurrence, physiology, pathogenicity and application of microbes.
6. Microbes are widely applied in various fields such as clinical field, textiles, mining process, fermentation process, beverages, oil refiners, agricultural fields, biogas production etc.
7. Knowledge of microbes helps everyone to lead a disease free healthy life.
8. It also helps to provide new scopes for job opportunities.

UNIT I

(12 Hrs)

5. History and scope of microbiology
6. General Structure of Bacteria - Size, shape, cell wall, capsule, nucleoid, mesosomes, plasmids, pilli and flagella.
7. Asexual reproduction – Binary fission and fragmentation.
8. Cyanobacteria and its economic importance.

UNIT II: Nutrition and Culture of Bacteria

(12 Hrs)

6. Nutritional types of bacteria and Nutritional requirements.

7. Culture media – Types of culture medium – Composition of typical culture medium – liquid medium (or) broth, semisolid medium, solid medium, complex, selective medium, differential medium, enrichment medium.
8. Culture technique – Batch culture, continuous culture – Methods of growing microorganisms - broth culture, agar plate, agar slant and agar stab.
9. Isolation of pure culture – streak plate, pour plate, spread plate method.
10. Wet mount technique- Staining - differential staining, acid fast staining.

UNIT III: Food Microbiology

(12Hrs)

5. Microorganisms of food – Common food items – sources of microorganisms found in food – Microbial examination of foods.
6. Factors that influence Microbial growth – Microbial spoilage of foods – Biochemical changes of food spoilage.
7. Food poisoning – types of food poisoning – food intoxication – Botulism, Staphylococcal food poisoning, infantile Gastroenteritis and Travellers diarrhoea.
8. Food preservation – Methods of foods preservation – Prevention of food infection and food poisoning.

UNIT IV: Dairy Microbiology

(12Hrs)

6. Introduction Sources of microorganisms in milk.
7. Temperature Characteristics of bacteria in milk, pathogenic type of bacteria in milk.
8. Bacterial examination of milk.
9. Preservation of milk.
10. Microbial diseases of Cattle and control measures.

UNIT V: Medical Microbiology

(12 Hrs)

4. Bacterial diseases – Respiratory diseases – Whooping cough, Tuberculosis - Digestive tract diseases – Cholera and Typhoid - Genitourinary tract diseases – Gonorrhea and Syphilis.
5. Viral diseases: Rabies, Viral Hepatitis type A and Poliomyelitis.
6. Structure of fungi - fungal diseases – Economic importance of fungi.

Text Book

2. Microbiology - N. Arumugam, 2010, Saras Publication, IV Edition.

Reference Books

3. General Microbiology - Power, 2003, Himalaya Publishing house, II Edition.
4. Microbiology - P.D. Sharma, 2000, Rastogi Publications, II Edition.

B.Sc. ZOOLOGY

Part III – Elective I – CLINICAL LABORATORY TECHNIQUES

515ZE1

Credits: 4

Hours (C-56, T-2, A-2)

Objectives

1. The concise syllabus enables the student to have a basic idea of normal health, infections and diseases.

2. The students can equip themselves with basic knowledge of clinical techniques applicable for self-employment.

UNIT I : Collection and Sample Analysis (12 Hrs)

1. Collection and disposal of specimen (Brief account only) - Urine, blood, stool and sputum.
2. Reporting pattern of sample analysis.
3. Safety regulations in clinical lab.
4. First aid for superficial wounds, burns and electrical shocks.
5. Widal test
6. Mountoux test

UNIT II: Clinical Haematology (12 Hrs)

1. Collection of blood – capillary blood collection and venous blood collection.
2. Anti – coagulants preparation - Double oxalate mixture, EDTA, heparin and sodium citrate.
3. Blood cell count: RBC count and WBC count.
4. Erythrocyte sedimentation Rate (ESR): Westergren's method and wintrobe's method.
5. Haemoglobin Estimation (Hb): Acid haematin method
6. Bleeding Time (BT) Blotting paper method
7. Clotting time (CT) Slide Method

UNIT III: Serology and Blood bank (12 Hrs)

1. VDRL test – Kahn's test and flocculation test.
2. Blood – Urea – Nitrogen (BUN) estimation: Hensch and Aldrich's method
3. Serum cholesterol estimation – Anderson and Key's method.
4. Blood sugar estimation – Glucose Tolerance Test (GTT)
5. Quantitative analysis of sugar by Folin-wu tube method.
6. Testing the blood donor - blood transfusion – donor screening
7. Compatibility test – Coombs test only.

UNIT IV: Urine Analysis: (only 2 test for each) (12 Hrs)

1. Physical properties of urine: Colour, specific gravity, pH,
2. Microscopical examination of pus cells and casts in urine
3. Chemical properties of urine: Albumin, Sugar, Blood, Bile salt and
4. Bile pigment: Bilirubin and Urobilinogen (qualitative analysis).

Faecal Analysis:

1. Physical and Microscopical Examination of stool
2. Identification of intestinal parasite – Direct smear examination – Anal Swab method only.
3. Diagnosis of chronic disease: *Mycobacterium leprae* causing leprosy.

UNIT V: Analysis of Gastric Juice and Body Fluids (12 Hrs)

1. GJ - aspiration by Ryles tube, Fractional test meal – Free acid and Total acid (FA & TA)
2. CSF examination: Composition, physical examination, chemical examination, total Count, differential count and Pandy's test.
3. Semen analysis: Total count, abnormality, movement, pH and Viscosity

4. Pregnancy test – Male frog test, gravindex test and card method.

Text books

1. Clinical Lab Techniques – K.M. Samuel, M.K.G. Iyyer & sons edition 1990
2. Clinical Pathology and Bacteriology, Dr.K.N. Sachdev, Jaypee Brothers Medical Publishers, 1990

Reference Book:

1. Medical Laboratory Techniques – Vol-I, II & III – Kanaiah Mukerjii, Tata MC Graw Hill publishing Company, 4th edition, 2006.
2. Medical Laboratory Technology – Dr. Ramnik Sood M.D. Jaypee Brothers, Medical publishers, 2003.

B.Sc. ZOOLOGY

PART IV - SKILL BASED COURSE III - ANIMAL CULTURE – POULTRY FARMING

515ZS3

Credits: 3

Hours (C-56, T-2, A-2)

Objectives:

1. To acquire knowledge of basic principles and economic importance of Poultry Farming.
2. To establish a commercial level cottage industry and to improve the socio- economic status through market – linkage.

UNIT-I

(9 hrs)

1. Poultry industry in India- Breeds of fowls – breeding methods- systems of breeding – modern methods of breeding .
2. Commercial layers & broilers.
3. Poultry housing.
4. The deep litter system.
5. Cage rearing.

UNIT –II

(9 hrs)

1. Practical aspects of chick rearing.
2. Management of layers & broilers
3. Summer and winter management of broilers.
4. Debeaking.

UNIT – III

(9 hrs)

1. Poultry nutrition
 - i. Protein & Amino acids
 - ii. Vitamins
 - iii. Essential inorganic elements.
2. Feed additives (Non-nutritive)
3. Feed stuffs for poultry
4. Feed formulation

UNIT –IV

(9 hrs)

- | | | |
|-----------------------|-----------------|------------------|
| 1. Viral diseases | a) Ranikhet | b) Fowl pox |
| 2. Bacterial diseases | a) Fowl Cholera | b) Salmonellosis |

Fungal Diseases	a) Aspergillosis	b) Aflatoxicosis
Animal parasite	a) Coccidiosis.	

UNIT – V **(9 hrs)**

1. Vaccination - Vaccination programme.
2. Animal health products in the treatment of poultry diseases
3. Homeopathy in poultry diseases

Text Book

1. Modern aspects of Commercial Poultry keeping - Gnanamani.M.R., 2006, Giri publications, Madurai.

Reference Books

1. Disease of Poultry - Bisres, H.E., and Schwarte, 1989. Oxford and IBH, UK
2. Poultry husbandry – Jull M.A., 1972, Tata McGraw Hill, Chennai.

B.Sc., ZOOLOGY

Part III –CORE XII- Group project and Viva voce

Credits: 4

615Z12
(Hours: 75)

(5 students in a group)

Objectives:

- To expose the students to recent trends in science.
- To create research skill in students.
- To enable the students to gain knowledge in literature collection and research skill.

Project will equip the students with basic knowledge in zoology and create interest in research. Group project will be done by the students related to topics in zoology and project report must be submitted by the students at the end of sixth semester.

❖ **A subject viva voce will be conducted by Internal and External Examiners.**

B.Sc.Zoology

Part III Elective Course II APPLIED BIOTECHNOLOGY

612ZE2
(65 hrs)
(13 Hrs)

MODULE I

Applications of genetic engineering in

1. Industry
2. Alcohol fermentation
3. Medicine (Insulin and Vaccine Production)
4. *Agriculture (N₂ fixation – agro bacterium).
5. Nif genes – genetically transformed plants.

MODULE II

(13 Hrs)

6. Production of single cell protein (SCP) – Spirulina, Chlorella
7. Production of Fungal biomass- Mushroom culture
8. Production of Bacterial algal biomass.
9. Production of yeast biomass.

10. Bioremediation

MODULE III

(13 Hrs)

5. Source and production of commercially important enzymes – cellulase, amylase, pectinase, proteinase.
6. Immobilization of enzymes-Applications.
7. Biodegradation
8. Cryobiology-Methods and applications of cryopreservation.

MODULE IV

(13 Hrs)

4. Human genome project
5. Manipulation of reproduction in animals- artificial insemination, embryo transfer.
6. In vitro fertilization technology – Embryo cloning, embryonic stem cells.

MODULE V

(13 hrs)

4. NanoBiotechnology-Definition, Drug delivery system, DNA micro array
5. Drug designing
6. Proteomics

Text Books

3. Biotechnology – V. Kumaresan, Sara's Publications, revised edition 2010.
4. A text book of Biotechnology – R.C. Dubey, S. Chand & Co 2010.

Reference Book

1. A textbook of Biotechnology – U. Satyanarayana, Uppla Author Publisher Interlinks, 2005

B. Sc Zoology

**Semester Wise Distribution with Scheme of Examination With Credits
(For candidates admitted during the academic year 2012-2013 and onwards)**

Semester	Courses	Credits	Duration of Exam Hrs (ESE)	Marks CIA	ESE	Total
I	Part I – Language – I	3	3	25	75	100
	Part II – English Course – I	3	3	25	75	100
	Part III – Core I – Non Chordates I	4	3	25	75	100
	Part III – Core II– Non Chordates II	4	3	25	75	100
	Part – III Allied– I – Chemistry – I	4	3	15	60	75
	Part IV – Environmental Studies	2	-	50	-	50

Semester	Courses	Credits	Duration of Exam Hrs (ESE)	Marks CIA	ESE	Total
II	Part I – Language– II	3	3	25	75	100
	Part – II English – II	3	3	25	75	100
	Part III – Core III – Chordates	5	3	25	75	100
	Core Practical – I	2	3	40	60	100
	Part-III Allied– I-Chemistry – II	4	3	15	60	75
	Allied Chemistry Practical	2	3	20	30	50
	Advanced learners Course – I - Vermiculture	3*	3	--	100	100
	Part IV -Value Education – Yoga for Human Excellence	2	-	50	-	50

Semester	Courses	Credits	Duration of Exam Hrs (ESE)	Marks CIA	ESE	Total
III	Part I – Language – III	3	3	25	75	100
	Part II – English– III	3	3	25	75	100
	Part III – Core IV – Cell Biology and Biochemistry	5	3	25	75	100
	Allied – III – Botany – I	4	3	15	60	75
	Part IV Non major Elective -Sericulture	2	-	75	-	75
	Part IV – Skill based course in Animal culture - I- Apiculture	3	-	100	-	100

Semester	Courses	Credits	Duration of Exam Hrs (ESE)	Marks CIA	ESE	Total
IV	Part I – Language – IV	3	3	25	75	100
	Part – II English – IV	3	3	25	75	100
	Part III – Core V – Environmental Biology and Evolution	5	3	25	75	100
	Core Practical – II	2	3	40	60	100
	Allied – IV- Botany – II	4	3	15	60	75
	Allied -IV-Botany Practical	2	3	20	30	50
	Part IV - General awareness	2	-	75	-	75
	Part IV Skill based course in Animal culture –II – Ornamental fishes	3	-	100	-	100
	Part-III – Advanced learners course – II - Applied Biology	3*	-	--	100	100
	Part V – Extension activity	1	-	50	-	50

Semester	Courses	Credits	Duration of Exam Hrs (ESE)	Marks CIA	ESE	Total
V	Part III – Core– VI Physiology	5	3	25	75	100
	Core VII - Biotechnology	5	3	25	75	100
	Core VIII - Biostatistics	5	3	25	75	100
	Core IX - Microbiology	5	3	25	75	100
	Elective I - Clinical Laboratory Techniques	5	3	25	75	100
	Part IV Skill based course in Animal culture - III – Poultry Farming	3	-	100	-	100

Semester	Courses	Credits	Duration of Exam Hrs (ESE)	Marks CIA	ESE	Total
VI	Part III – Core – X Genetics	5	3	25	75	100
	Core – XI Developmental Biology	4	3	25	75	100
	Core – XII Immunology	5	3	25	75	100
	Elective II – Applied Biotechnology	5	3	25	75	100
	Core Course Practical – III	2	3	40	60	100
	Elective Practical	2	3	40	60	100
	Part IV Skill based Course –Internship Training report and viva voce	3	-	100	-	100
	Part-III Advanced learners course – III Fundamentals of Bioinformatics	3*	3	--	100	100

1. Starred credits are treated as additional credits.
2. Non-major elective course offered by the department-Sericulture.
3. 30% of the teaching syllabus in each course should be handled using OHP, LCD and Projection microscope

SEMESTER III

Non Major Elective Course - SERICULTURE

312NSC

(26 hrs)

Module I: Moriculture

(6hrs)

1. Definition and history of sericulture
2. Economic importance of sericulture
3. Architecture of mulberry plant
 - a) Plant height
 - b) Stem
 - c) Leaves
 - d) Inflorescence
4. Soil condition – preparation of land

Module II

(5 hrs)

1. Propagation - methods of propagation
2. Irrigation – frequency and methods of irrigation
3. Manuring – Types of Fertilizer – Methods of Application.
4. Pruning – types of pruning and harvesting of leaves, time of harvesting and preservation of leaves.

Module III: Silkworm Rearing & Reeling

(5 hrs)

1. Varieties of silkworm
2. Life cycle of *Bombyx mori* –structure of silk gland
3. Facilities of rearing – rearing house and rearing equipments.
4. Optimum environmental conditions for rearing.

Module IV

(5 hrs)

1. Incubation – Brushing
2. Feeding – Bed cleaning - Spacing
3. Rearing of young age and late age silkworms.
4. Mounting – Harvesting of cocoons.

Module V:

(5 hrs)

1. Stifling of cocoons (sun drying, steam stifling only)
2. Deflossing
3. Reeling –Definition – sunken system of reeling only.
4. Marketing

Text book

1. An introduction to sericulture , G.Ganga and J.Sulochana Chetty, Edition 2005.

Reference Books

1. Sericulture manual 1, 2, 3 - Government of India, Oxford and IBH Publishing Company, Bombay
2. A textbook of sericulture Madan Mohan Rao, B.S. publisher, Hyderabad, Edition

- 2005.
3. Hand book of sericulture Technologies- S.B Dandin, Jayant Jayaswal and K.Giridhar, CSB, Bangalore, Edition 2003.

B.Sc.ZOOLOGY
PART IV SKILL BASED COURSE IN ANIMAL CULTURE II- APICULTURE
312ZS1
(38 hrs)

MODULE – I **(8 hrs)**

1. **Types of honeybees:** *Apis dorsata* (Rock bee) –*Apis indica* (Indian bee)
– *Apis florea* (Little bee)- *Apis mellifera* (European bee).
2. **Polymorphism in honey bee:** Morphology and development of honey bee
3. **Life Cycle:** Life cycle of Honeybee functions of queen bee, worker bee and drone.

MODULE –II **(8 hrs)**

- 1.Social life in honeybees.
- 2.Structure of Beehive: Newtons hive
- 3.Selection of Bees for Apiculture.
- 4.Methods of bee keeping – Indigenous method – modern method.

MODULE – III **(8 hrs)**

- 1.Collection of Pollen from flowering plants.
- 2.Collection of nectar from flowering plants.
- 3.Inspection of bee hives.
- 4.Communication and memory of honeybees.
- 5.Pesticidal poisoning by agriculture.

MODULE –IV **(7 hrs)**

- 1.Seasonal management of honeybee colonies.
- 2.Catching the swarm.
- 3.Natural enemies of honeybee.
- 4.Diseases of honeybee and their control.
- 5.Transportation of bee hives.

MODULE –V

PRODUCTS OF APICULTURE **(7 hrs)**

1. Honey
 - I. Extraction of honey and equipments used
 - II. Chemical composition of honey
 - III. Nutritive and medicinal values of honey
2. Bee wax and its uses 3.Royal jelly 4.Pollen 5.Propolis 6.Bee venom

Text Books:

1. The complete book on bee keeping and honey processing by NPCS Board of consultants and Engineers – NIIR PROJECT CONSULTANCY SERVICES , 106-E, Kamala nagar, NEW DELHI –110007 (INDIA)

2. Honey bee and their Management. -S.B Withhead, revised edition –2010

B.Sc.Zoology
Part III CORE - VII - BIOTECHNOLOGY **512Z07.**

MODULE I

(11 Hrs)

1. Definition – Scope and importance of biotechnology.
2. Biotechnology in India – GATT, IPR, TRIPS.
3. Basics of genetic engineering.
4. Enzymes useful for Genetic engineering – (Reverse transcriptase, DNAligase, Restriction Endonuclease)

MODULE II

(11 Hrs)

1. Organisms important in Biotechnology – Bacteria, Virus.
2. Vectors – plasmids, shuttle vectors and cosmids
3. Antisense RNA technology, Flavr saver tomato.
4. DNA finger printing.

MODULE III

(10 Hrs)

1. Gene cloning – gene cloning methods – Applications.
2. Genomic Library.
3. Gene therapy.
4. Monoclonal antibodies – production and applications.
5. Blotting techniques- Northern, Southern, Western.

MODULE IV

(10 Hrs)

1. Principles and techniques of plant and animal cell culture.
2. Protoplast technology – isolation of protoplast, viability test for protoplast, plant regeneration from protoplasts, Applications, Protoplast fusion methods and uses.
3. Importance of cell line culture.
4. Biosensors & Bio chips

MODULE V

(10 Hrs)

1. Assisted reproductive technology in cattle and man.
2. Transgenic technology – transgenic mice, fish, sheep, pig and *Bacillus thuringiensis*.
3. Risks of releasing genetically engineered organisms

Text book

1. Biotechnology – V. Kumaresan, Saras Publications, Revised Edition, 2010.

Reference Books

1. A textbook of Biotechnology – U. Satyanarayana, Uppla Author Publisher Interlinks, 2005
2. A textbook of Biotechnology – R.C. Dubey, S. Chand & Co, Revised Edition, 2006.

B.Sc.Zoology

Part – III – Core Course I X- MICROBIOLOGY

512Z09

(52 hrs)

Module I

(11 Hrs)

1. * History and scope of microbiology

General Structure of Bacteria and reproduction

2. Size, shape, cell wall, capsule, nucleoid, mesosomes, plasmids, pilli and flagella.
3. Asexual reproduction – Binary fission, fragmentation.
4. Cyanobacteria and its economic importance.

Module II: Nutrition and culture of Bacteria

(11 Hrs)

1. * Nutritional types of bacteria and Nutritional requirements.

2. Culture media – Types of culture medium – Composition of typical culture medium – liquid medium (or) broth, semisolid medium, solid medium, complex, selective medium, differential medium, enrichment medium.
3. Culture technique – Batch culture, continuous culture – methods of growing microorganisms - broth culture, agar plate, agar slant and agar stab.
4. Isolation of pure culture – streak plate, pour plate, spread plate method.
5. Wet mount technique-Staining-differential staining, acid fast staining.

Module III: Food Microbiology

(10 Hrs)

1. Microorganisms of food – Common food items – sources of microorganisms found in food – Microbial examination of foods.
2. Factors that influence Microbial growth – Microbial spoilage of foods – Biochemical changes of food spoilage.
3. Food poisoning – types of food poisoning – food intoxication – Botulism, Staphylococcal food poisoning, infantile Gastroenteritis and Travellers diarrhoea.
- 4.***Food preservation – Methods of foods preservation – Prevention of food infection and food poisoning.**

Module IV: Dairy Microbiology

(10 Hrs)

- 1.***Introduction, *Sources of microorganisms in milk.**
- 2.Temperature Characteristics of bacteria in milk, pathogenic type of bacteria in milk.
- 3.Bacterial examination of milk.
- 4.Preservation of milk.
- 5.Microbial diseases of cattle and control measures.

Module V: Industrial Microbiology

(10 Hrs)

- 1.Biomass into bioenergy- biomining.
2. Production of antibiotics and vaccines.

Medical Microbiology

3. **Bacterial diseases** – Respiratory diseases – Whooping cough, Tuberculosis, Digestive tract diseases – Cholera and Typhoid. Genito-Urinary tract diseases – Gonorrhoea and Syphilis.
4. **Viral diseases:** Rabies, Viral Hepatitis type A, Poliomyelitis.
- 5.* **Structure of fungi and fungal diseases – Economic importance of fungi.**

Text Book

Microbiology - N. Arumugam, Saras Publication, IV Edition, 2010.

Reference Books

- 1.General Microbiology - Power, Himalaya Publishing house, II Edition, 2003.
- 2.Microbiology - P.D. Sharma, Rastogi Publications, II Edition, 2000.

B.Sc.Zoology

Part – III – Elective Course I – CLINICAL LABORATORY TECHNIQUES 512ZE1 (52 hrs)

Module I Collection and Sample Analysis

(11 Hrs)

- 1.* **Collection and disposal of specimen (Brief account only)**
Urine, blood, stool and sputum.
2. Reporting pattern of sample analysis.
- 3.Safety regulations in clinical lab.
- 4.First aid for superficial wounds, burns and electrical shocks.
- 5.Widal test
- 6.Mountoux test

Module II: Clinical Haematology

(11 Hrs)

1. ***Collection of blood – capillary blood collection and venous blood collection.**

2. Anti – coagulants preparation - Double oxalate mixture, EDTA, heparin and sodium citrate.
3. Blood cell count: RBC count and WBC count.
4. Erythrocyte sedimentation Rate (ESR) : Westergren's method and wintrobe's method.
5. Haemoglobin Estimation (Hb): (Acid haematin method)
6. I. Bleeding Time (BT) a) Sabreeze's capillary tube method b) Blotting paper method
II. Clotting time (CT) a) Slide Method

Module III: Serology and Blood bank:

(10 Hrs)

1. VDRL test – Kahn test and flocculation test.
2. Blood – Urea – Nitrogen (BUN) estimation: (Hench and Aldrich's method)
3. Serum cholesterol estimation – (Anderson and Key's method.)
4. Blood sugar estimation – Glucose Tolerance Test (GTT)
5. Quantitative analysis of sugar by (folin – wu tube method)
6. ***Testing the blood donor**.- blood transfusion – donor screening
7. Compatibility test – coombs test only.

Module IV: Urine Analysis: (only 2 test for each)

(10 Hrs)

- 1 Physical properties of urine: Colour, specific gravity, pH,
2. ***Microscopical examination for pus cells and casts in urine**
3. Chemical properties of urine: Albumin, sugar, Blood, Bile salt and Bile pigment (Bilirubin and Urobilinogen) (qualitative analysis)

Faecal Analysis:

4. Physical and Microscopical Examination of stool
5. Identification of intestinal parasite – Direct smear examination – Anal Swab method only.
6. Diagnosis of chronic disease: *Mycobacterium leprae* causing leprosy.

Module V: Analysis of Gastric Juice & body fluids

(10 Hrs)

1. GJ-aspiration by Ryles tube, Fractional test meal – free acid and total acid (FA & TA)
2. CSF examination: Composition, physical examination, chemical examination, total Count, differential count and pandy's test.
3. Semen analysis: Total count, abnormality, movement, pH and viscosity (Brief account only)
4. ***Pregnancy test – Male frog test and gravindex test and card method**

Text books

1. Clinical Lab Techniques – K.M. Samuel, M.K.G. Iyyer & sons edition 1990
2. Clinical Pathology and Bacteriology, Dr.K.N. Sachdev, Jaypee Brothers Medical Publishers, 1990

Reference Book:

1. Medical Laboratory Techniques – Vol-I, II & III – Kanaiah Mukerjee, Tata MC Graw Hill publishing Company, 4th edition.
2. Medical Laboratory Technology – Dr. Ramnik Sood M.D. Jaypee Brothers, Medical publishers.

B.Sc.ZOOLOGY

PART IV - SKILL BASED COURSE IN ANIMAL CULTURE III - POULTRY FARMING 512ZS3

(38 hrs)

MODULE-I

(8 hrs)

1. Poultry industry in India
2. Commercial layers & broilers.
3. Poultry housing.
4. The deep litter system.
5. Cage rearing.

MODULE –II

(8 hrs)

1. Practical aspects of chick rearing.
- 2 Management of layers & broilers
3. Summer and winter management of broilers.
4. Debeaking.

MODULE – III

(8 hrs)

1. Poultry nutrition
 - a. Protein & Amino acids
 - b Vitamins
 - c. Essential inorganic elements.
2. Feed additives (Non-nutritive)
3. Feedstuffs for poultry
4. Feed formulation

MODULE –IV

(7 hrs)

1. Viral diseases
 - a) Ranikhet
 - b) Fowl pox
2. Bacterial diseases
 - a) Fowl Cholera
 - b) Salmonellosis
3. Fungal Diseases
 - a) Aspergillosis
 - b) Aflatoxicosis
4. Animal parasite
 - a) Coccidiosis.

MODULE – V

(7 hrs)

1. Vaccination programme.
- 2 Vaccination methods.
3. Animal health products in the treatment of poultry diseases
4. Homeopathy in poultry diseases

Text Book

Gnanamani.M.R. 2006. Modern aspects of Commercial Poultry keeping. Giri publications, Madurai.

Reference Books

1. Bisres, H.E., and Schwarte, 1989. Disease of Poultry, Oxford and IBH, UK
2. Jull.M.A. 1972, Poultry husbandry. Tata McGraw Hill, Chennai.

B.Sc.Zoology

Part III Elective Course II APPLIED BIOTECHNOLOGY 612ZE2

(65 hrs)

MODULE I

(13 Hrs)

Applications of genetic engineering in

1. Industry
2. Alcohol fermentation
3. Medicine (Insulin and Vaccine Production)
4. *Agriculture (N₂ fixation – agro bacterium).

5. Nif genes – genetically transformed plants.

MODULE II

(13 Hrs)

11. Production of single cell protein (SCP) – Spirulina, Chlorella
12. Production of Fungal biomass- Mushroom culture
13. Production of Bacterial algal biomass.
14. Production of yeast biomass.
15. Bioremediation

MODULE III

(13 Hrs)

9. Source and production of commercially important enzymes – cellulase, amylase, pectinase, proteinase.
10. Immobilization of enzymes-Applications.
11. Biodegradation
12. Cryobiology-Methods and applications of cryopreservation.

MODULE IV

(13 Hrs)

7. Human genome project
8. Manipulation of reproduction in animals- artificial insemination, embryo transfer.
9. In vitro fertilization technology – Embryo cloning, embryonic stem cells.

MODULE V

(13 hrs)

7. NanoBiotechnology-Definition, Drug delivery system, DNA micro array
8. Drug designing
9. Proteomics

Text Books

5. Biotechnology – V. Kumaresan, Sara's Publications, revised edition 2010.
6. A text book of Biotechnology – R.C. Dubey, S. Chand & Co 2010.

Reference Book

1. A textbook of Biotechnology – U. Satyanarayana, Uppl Author Publisher Interlinks, 2005

Curriculum Design
SRI G.V.G.VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Commerce
Programme - B.Com
Scheme of Examination - CBCS
(For the students admitted from the academic year 2017-2018 onwards)

Course Code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	TOTAL Marks	
117TA1/ 117MY1/ 117HD1/ 117FR1	Semester – I Part I – Language – I	6	3	25	75	100	4
117EN1	Part II – English – I	6	3	25	75	100	4
117B01/ 117R01/ 117N01	Part III - Core I- Financial Accounting - I	5	3	25	75	100	4
117B02/ 117R02	Core II- Business Organisation	5	3	25	75	100	4
117AB1	Allied I – Office Automation Tools - Practicals	6	3	40	60	100	4
117EVS	Part IV – Environmental Studies	2	2	50	-	50	2
217TA2/ 217MY2/ 217HD2/ 217FR2	Semester – II Part I – Language -II	6	3	25	75	100	4
217EN2	Part II – English – II	6	3	25	75	100	4
217B03/ 217R03/ 217N03	Part III - Core III – Financial Accounting – II	5	3	25	75	100	4
217 B04/ 217R04/ 217V04	Core IV –Principles of Marketing	5	3	25	75	100	4
217AB2	Allied II – Business Economics	6	3	25	75	100	4
217VEC	Part IV – Value Education	2	2	50	-	50	2
317B05/ 317R05/ 317N05	Semester – III Part III-Core V–Corporate Accounting	5	3	25	75	100	4
317 B06/ 317V06	Core VI - Commercial Law	5	3	25	75	100	4
317 B07/ 317 N07	Core VII- Principles of Management	5	3	25	75	100	4

317 B08	Core VIII- Entrepreneurial Development	4	3	25	50	75	3
317 AB3/ 317AR3/ 317AN3	Allied III – Mathematics in Business	6	3	25	75	100	4
317NED	Part IV – Non Major Elective - Entrepreneurial Development	2	2	50	-	50	2
317BS1/ 317NS1	Part IV Skill Enhancement Course I – Business Application Tools: Image Designing – Practicals	3	3	75	-	75	3
417B09/ 417N09	Semester – IV Part III - Core IX - Company Law	5	3	25	75	100	4
417B10/ 417R10/ 417N10/	Core X - Cost Accounting	5	3	25	75	100	4
417B11/ 417R11	Core XI - Banking Law and Practice	5	3	25	75	100	4
417B12	Core XII-Auditing	4	3	25	75	100	4
417AB4/ 417AR4/ 417AN4	Allied IV- Statistics for Business	6	3	25	75	100	4
417NGA	Part IV – General Awareness	-	1	50	-	50	2
417BS2/ 417NS2	Part IV Skill Enhancement Course II – Business Application Tools: Image Editor – Practicals	3	3	75	-	75	3
417GIS	Information Security	2	2	50	-	Grade	Grade
417ALB	Advanced Learners Course I Principles of Insurance	-	-	-	100	100	3*
517B13/ 517R13/ 517N13/ 517V13	Semester – V Part III – Core XIII- E Accounting- Practicals	5	3	40	60	100	4
517B14/ 517R14/ 517N14/ 517V14	Core XIV- Income Tax	6	3	25	75	100	4
517B15/ 517R15/ 517N15/ 517V15	Core XV- Business Finance	5	3	25	75	100	4
517B16/ 517R16/ 517N16/ 517V16	Core XVI- Business Communication	5	3	25	75	100	4
517BE1/	Elective I – Investment Management/	6	3	25	75	100	4

517BE2	Retail Marketing						
517BS3/ 517NS3	Part IV– Skill Enhancement Course III : Business Data Analytics using EXCEL- Practicals	3	3	75	-	75	3
617B17/ 617R17/ 617N17	Semester – VI Part III-Core XVII-Management Accounting	6	3	25	75	100	4
617B18	Core XVIII – Export Management	6	3	25	75	100	4
617B19	Core XIX – Institutional Training	3	-	-	75	75	3
617BE3/ 617BE4	Elective II – Capital Markets/ Services Marketing	6	3	25	75	100	4
617BE5/ 617BE6	Elective III – Financial Services/ Digital Marketing	6	3	25	75	100	4
617BS4/ 617RS4/ 617NS4	Part IV – Skill Enhancement Course IV – Business Skills- Practical	3	3	25	50	75	3
617EX1/ 617EX2/ 617EX3/ 617EX4/ 617EX5	Part V – Extension Activity	-	-	50	-	50	2
617ALB	Advanced Learners Course II E Commerce	-	-	-	100	100	3*
Total						3500	140

*Starred Credits are treated as additional credits, which are optional.

For B.Com

- Allied III –Mathematics in Business handled by Department of Mathematics.

For B.Sc. Mathematics

- Allied III – Principles of Accountancy handled by Department of Commerce.

B.Com/B.Com (CA)/B.Com (e-Commerce)

Semester I

Part III - Core I - Financial Accounting I 117B01/117R01/117N01

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives (65 Hours)

- To provide an in-depth knowledge of accounting concepts and conventions.
- To enable the students acquaint with the methods of applying accounting principles.

Unit I

Accounting concepts and conventions – Journal – Ledger – Preparation of Trail balance.
(13 Hours)

Unit II

Adjusting entries and closing entries – Preparation of final accounts of a sole trader.
(13 Hours)

Unit III

Rectification of errors – Bank Reconciliation Statement.
(13 Hours)

Unit IV

Bill of exchange including accommodation bill.
(13 Hours)

Unit V

Accounts of Non - Trading Concerns: Receipts and Payments account – Income and Expenditure account- Balance Sheet.
(13 Hours)

Note: Distribution of marks for Theory and Problem shall be 20% and 80% respectively.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I - V	S.P.Jain and K.L.Narang	Advanced Accountancy	Kalyani Publishers, New Delhi, Ed. 2015.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
T.S.Reddy and A.Murthy	Financial Accounting	Margham Publishers, Chennai, Ed. 2017
R.S.N.Pillai and Bagavathi	Advanced Accountancy	Konark Publishers Pvt.Ltd. Delhi.Ed. 2015

Course Designed By : R.SuryaPriya
Course Reviewed By : Dr.R.Vanamadevi
Checked By : Dr.N.Lakshmi

B.Com/B.Com (CA)
Semester I
Part III - Core II –Business Organisation **117B02/117R02**
(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives **(65 Hours)**

- To enable the student to understand the basic concepts in business organisation.
- To impart knowledge of various forms of organisation.

Unit I

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk – business ethics. **(13 Hours)**

Unit II

Forms of organization: Sole Proprietorship – Characteristics – Advantages – Disadvantages.

Partnership: Characteristics – Kinds – Registration of Partnership – Partnership Deed – Advantages – Disadvantages – Rights and Obligations of Partners – Dissolution of a partnership firm. **(13 Hours)**

Unit III

Joint Stock Company: Characteristics – Kinds – shares-debentures-merits – demerits.

Co-operatives: Characteristics – Types.

Public Enterprises: Characteristics – Objectives – Forms — Problems of Public Enterprises.

Privatisation – Rationale – Public Utilities: Characteristics and Forms. **(13 Hours)**

Unit IV

Location of a business unit - Theories of location –factors influencing location – Localisation Vs delocalisation. Size of a unit and scale of operations- measuring size of a unit – Factors determining size – Optimum Firm-factors determining optimum size. **(13 Hours)**

Unit V

Business Combinations: Causes-Types-Forms-Advantages-Disadvantages.

Concentration of economic power: Causes-Consequences-Measures-Combination movement in India. **(13 Hours)**

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I - V	R.K.Sharma and Shashi, K.Gupta	Business Organization and Office Management	Kalyani Publishers, Ludhiana, 3 rd Edition, Re-Print 2015.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Y.K .Bhusan	Fundamentals of Business Organization and Management	Sultan Chand and Sons, New Delhi, Edition –X, 2013
S.A Sherlekar	Modern Business Organization and Management	Himalaya Publishing House, New Delhi, 2017

Course Designed By : Mrs. P.Jayamary
Course Reviewed By : Dr. M.Kalavathi
Checked By : Dr.N.Lakshmi

B.Com

Semester I

Allied I – Office Automation Tools – Practicals

217AB1

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(75 Hours)

- To inculcate knowledge on the usage of essential tools in office automation.
- To provide knowledge on application of computers in office automation.

List of Practicals

Word

- Preparation of a curriculum vita.
- Design a cheque leaf for a bank.
- Design an invoice bill.
- Send invitation to various colleges for the workshop using Mail Merge.
- Preparation of an advertisement copy/ programme sheet.
- Prepare a process flow chart.

My SQL

- Prepare a student database.
- Create an employee database.
- Prepare a customer database.

PowerPoint

- Prepare a slide show for organising a seminar.
- Prepare a slide show for paper presentation.
- Prepare a presentation on the classification of forms of organisation.
- Demonstrate a product using custom animation.

Course Designed By : Mrs.R.Surya Priya
Course Reviewed By : Dr.K.Umamaheswari
Checked By : Dr.N.Lakshmi

B.Com/B.Com (CA)/B.Com (e-Commerce)

Semester II

Part III – Core III- Financial Accounting II

217B03/217R03/217N03

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To provide knowledge on accounting principles.
- To expose the students with the knowledge of different business transactions.

Unit I

Single Entry System: Meaning and Features – Statement of Affairs Method and Conversion Method. **(13 Hours)**

Unit II

Hire Purchase and Installment Purchase System – Hire Purchase trading account.

(13 Hours)

Unit III

Branch Accounting (excluding foreign branches) – Departmental Accounts. (13 Hours)

Unit IV

Fire Claims including loss of profit claims. (13 Hours)

Unit V

Depreciation: Meaning- methods - reserves and provisions. (13 Hours)

Note: Distribution of marks for Theory and Problem shall be 20% and 80% respectively.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I - V	S.P.Jain and K.L.Narang	Advanced Accountancy	Kalyani Publishers, New Delhi, Ed. 2015.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
T.S.Reddy and A.Murthy	Financial Accounting	Margham Publishers, Chennai, Ed. 2017
R.S.N.Pillai and Bagavathi	Advanced Accountancy	Konark Publishers Pvt.Ltd. Delhi.Ed. 2015

Course Designed By : Dr. R.Vanamadevi

Course Reviewed By : Dr. M.Kalavathi

Checked By : Dr.N.Lakshmi

B.Com/B.Com (CA)/BBA(CA)

Semester II

Part III - Core IV- Principles of Marketing 217B04/217R04/217V04

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives (65 Hours)

- To impart the knowledge on various aspects of marketing functions.
- To give a comprehensive understanding of the marketing concepts.

Unit I

Marketing- Objectives – importance of modern marketing concept – Marketing mix.

Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales. (13 Hours)

Unit II

Functions of physical supply: Transportation: functions – classification of transport – merits – choice of mode of transportation. Storage – advantages. Warehousing: functions – kinds. Standardization and Grading: types. Marketing finance: kinds of finance. Marketing risk: causes – methods of handling risk. (13 Hours)

Unit III

Product– Product Life Cycle — New product planning – steps in New Product Planning.

Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing. (13 Hours)

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections.

(13Hours)

Unit V

Channels of Distribution: importance – types – classification of middlemen – Agent middlemen- Wholesaler, Retailer: Kinds - services rendered – elimination of middlemen.

(13 Hours)

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I - V	R.S.N. Pillai and Bagavathi	Modern Marketing Principles and practice	S. Chand and company, New Delhi. Ed. 2013.

Book for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr. N. Rajan Nair and Sanjith R. Nair	Marketing	Sultan Chand and sons, New Delhi, Ed. 2016

Course Designed By : U.Thaslim Ariff
Course Reviewed By : Dr.R.Parameswari
Checked By : Dr.N.Lakshmi

Curriculum Design
SRI G.V.G.VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Commerce
Scheme of Examination - CBCS Pattern
Programme - M.Com
(For the students admitted from the academic year 2017 - 2018 onwards)

Course Code	Course Title	Inst Hrs/ week	Exam				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
Semester I							
17MC01	Core I - Business Environment	5	3	25	75	100	4
17MC02	Core II - Marketing Management	5	3	25	75	100	4
17MC03	Core III - Financial Management	5	3	25	75	100	4
17MC04	Core IV- Computer Applications in Business- Practicals	5	3	40	60	100	4
17MC05	Core V- Executive Communication	5	3	25	75	100	4
17MCE1/ 17MCE2	Elective I - International Business/ Security Analysis and Portfolio Management	5	3	25	75	100	4
Semester II							
17MC06	Core VI - Research Methodology	5	3	25	75	100	4
17MC07	Core VII - Human Resource Management	5	3	25	75	100	4
17MC08	Core VIII - Statistical Methods	5	3	25	75	100	4
17MC09	Core IX-Accounting in Computerised Environment- Practicals	5 2	3 2	40 50	60 -	100 Grade	4 Grade
17MCIT	Cyber Security-Level I	3	-	-	50	50	2
17MCE3/ 17MCE4	Institutional Training Elective II - International Marketing/	5 -	3 -	25 -	75 100	100 100	4 4*
17MCA1	Stock Market Operations Advanced Learners Course - I Online Course(s)(Self Learning)						
Semester III							
17MC10	Core X - E Tools and Techniques for Research-Practicals	5	3	40	60	100	4
17MC11	Core XI - Organisational	5	3	25	75	100	4

17MC12	Behaviour	5	3	25	75	100	4
17MC13	Core XII - Applied Costing	5	3	25	75	100	4
17MCE5/	Core XIII - Services Marketing						
	Elective III - Export and Import	5	3	25	75	100	4
17MCE6	Procedures and Documentation/ Financial Services						
17MCPV	Project / Optional paper:	5	-	-	-	-	-
17MCRM	Project	5	3	25	75	100	4
	Optional paper: Retail Management						
Semester IV							
17MC14	Core XIV - Managerial Economics	6	3	25	75	100	4
17MC15	Core XV- Entrepreneurial Development	6	3	25	75	100	4
17MC16	Core XVI - Advanced Corporate Accounting	6	3	25	75	100	4
17MCE7/	Elective IV - Institutional Support for International Trade/	6	3	25	75	100	4
17MCE8	Internship in Financial Sector	6	-	-	100	100	4
	Project / Optional paper:						
17MCPV	Project	6	-	100	100	200	8
17MCIB	Optional paper: Information Technology in Business	6	3	25	75	100	4
17MCA2	Advanced Learners Course - II Online Course(s)(Self Learning)	-	-	-	100	100	4*
	Total					2250	90

*Starred Credits are treated as additional credits which are optional.

**M.Com
Semester I**

Core I - Business Environment

17MC01

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To develop the ability to understand the environment in business establishments.
- To gain awareness on foreign trade practices.

UNIT I

Business and Society: Changing concept of Business - Objectives of Business - Factors influencing choice of objectives. Business Environment - Nature and Significance of Business Environment - Types of Business Environment - Elements of External Environment - Micro and Macro Environment - Impact of Environment on Business and Strategic Decisions.

(13 Hours)

UNIT II

Business Ethics and Values: Concept and Nature of Business Ethics - Elements of Business Ethics - Sources of Ethical Standards - Need for Ethics in Business - Factors governing Business Ethics - Corporate Ethical Programme - Benefits of Ethical Codes - Models of Business Conduct - Concepts of Corporate Values in Business. Industrial Policy upto 1991 - The New Industrial Policy- Evaluation of New Policy.

(13 Hours)

***UNIT III**

Privatisation and Disinvestment: Ways of Privatisation - Benefits of Privatisation - Arguments against Privatisation - Sins and Pitfalls - Privatisation in India.

(13 Hours)

UNIT IV

Globalisation of Business: Features of Globalisation - Foreign Market Entry Strategies - Implications and Impact of Globalisation - Globalisation of Indian Business - GATT and WTO - Functions of WTO.

(13 Hours)

UNIT V

International Investment: Significance - Government Policy towards Foreign Investments in India.

Multinational Corporations: Reasons for growth of MNCs- Merits and Demerits of MNC's - Regulations of MNC's.

(13 Hours)

Starred Unit is self- learning portion.

Books for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
II,III,IV and V	Francis Cherunilam	Business Environment: Text and Cases	Himalaya Publishing House, Mumbai, 25 th Ed., 2016.
I,II,IV and V	C. B. Gupta	Business Environment	Sultan Chand and Sons New Delhi. Edition 2014.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
K. Aswathappa	Essentials of Business Environment	Himalaya Publishing House, Mumbai. Edition 2016.
Justin Paul	Business Environment Text and Cases	Tata McGraw-Hill Publishing Company Limited., New Delhi. Edition 2012.
S.Sankaran	Business Environment	Margham Publication, Chennai. Edition 2016.

Course Designed By : Dr.K.Umameswari
 Course Reviewed By : Dr.R. Parameswari
 Course Checked By : Dr.N.Lakshmi

M.Com
Semester I

Core II -Marketing Management

17MC02

(For the Students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To understand conceptual framework of marketing activities.
- To develop the application of marketing concepts in real time marketing.

UNIT I

Modern marketing concept: Approaches to the study of marketing- Evolution of marketing concept- Changing concept of marketing- Features of marketing concept- Importance of marketing concept. Marketing environment and marketing system: Micro environment-Macro environment.

(13 Hours)

UNIT II

Consumer behaviour: Need for understanding consumer behaviour - factors influencing Consumer buying behaviour- Theories of consumer behaviour.

Market segmentation: Benefits - Bases of segmentation.

(13 Hours)

UNIT III

Marketing Mix: Elements - Importance -Factors determining marketing mix. Product Mix: Concept of product- Levels of a product- Product planning- significance of product planning- Product mix - factors affecting Product mix- Product item and Product line trading up and down. New product development: Steps in new product development- Product Life Cycle.

(13 Hours)

UNIT IV

Price mix: Significance - Factors affecting price of a product- Pricing objectives- pricing policies- Kinds of pricing decisions.

Promotion mix: Promotion strategies- Objectives - Kinds - Methods - Factors affecting promotion mix. (13 Hours)

*UNIT V

Channels of Distribution: Importance of Distribution channel- Selection of Distribution channel- Marketing middlemen-Functions of middleman. Wholesaler: functions. Retailer: functions. Consumer Protection Act: Rights and Responsibilities - Redressal of consumer grievances. (13 Hours)

Starred Unit is self- learning portion.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
I-V	C. B. Gupta and N. Rajan Nair	Marketing Management	Sultan Chand and Sons, New Delhi, 2013
Books for Reference			
Author		Title	Publisher, Place of Publication, Edition, Year of Publication
Philip Kotler, Kevin Lane Keller, Abraham Koshy, Mithileshwar Jha		Marketing Management	Pearson Education, New Delhi, 3 rd Edition 2016
Rajan Saxena		Marketing Management	Tata McGraw-Hill Publishing Company Ltd, New Delhi, 3 rd Edition 2013
S.A.Sherlekar		Marketing Management	Himalaya Publishing House, Chennai, 2016

Course Designed By : Dr.S.Bhuvaneswari

Course Reviewed By : Dr.R. Parameswari

Course Checked By : Dr.N.Lakshmi

M.Com

Semester I

Core III - Financial Management

17MC03

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To help students understand the conceptual framework of financial management.
- To acquaint learners with the knowledge of corporate financial applications.

UNIT I

Nature and Scope of Financial Management: Definition - Importance - Approaches to Finance Function - Scope of Financial Management - Objectives of Financial Management - Financial Decisions - Risk - Return Trade Off - Functional areas of Financial Management - Functions of Finance Manager . (13 Hours)

UNIT II

Cost of capital: Significance - Classification of Cost - Determination of Cost of Capital: cost of debt, preference, equity and retained earnings -weighted average cost of capital - marginal cost of capital. (13 Hours)

UNIT III

Capital Budgeting: Nature and importance - Process - Kinds of Capital Budgeting Decisions. Techniques: Pay back method - Accounting Rate of Return method, Net Present Value Method, Internal Rate of Return Method, Profitability Index Method. (13 Hours)

UNIT IV

Capital structure: Patterns - Importance - Optimal Capital Structure - Theories of capital structure - Net Income approach - Net Operating Income approach -Traditional Approach - MM approach - Determinants of Capital structure. Financial leverage: Impact - Significance - Operating leverage - Composite Leverage. (13 Hours)

*UNIT V

Dividend: Theories of dividend - Residual Approach - MM Approach - Walter's Model - Gordon -Types of dividend policy - Forms of Dividend - Procedural aspects of payment of dividend - Determinants of dividend policy. (13 Hours)

Note: Theory Only

Starred Unit is self- learning portion.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
I - V	Shashi K Gupta & R K Sharma	Financial Management: Theory and Practice	Kalyani Publishers, Ludhiana, 8 th revised Edition, 2014
Books for Reference			
Author		Title	Publisher, Place of Publication, Edition, Year of Publication
IM Pandey		Financial Management	Vikas Publishing House, New Delhi. Edition 2015.
M.Y. Khan and P.K. Jain		Financial Management	TataMcGraw Hill Publishing, Co., Ltd., New Delhi, Edition 2014.
S.N.Maheswari		Financial Management	Sultan Chand and Sons, New

		Delhi, Edition 2014.
Prasanna Chandra	Financial Management	Tata Mc-Graw Hill Publishing Company Limited, New Delhi, Edition 2015.
A.Murthy	Financial Management	Margham Publisher, Edition 2016.

Course Designed By : Dr.K.Umamageswari
Course Reviewed By : Dr.R. Parameswari
Checked By : Dr.N.Lakshmi

M.Com
Semester I

Core IV- Computer Applications in Business -Practicals 17MC04

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives (65 Hours)

- To expose the students on the practical applications of computer in business.
- To work efficiently in documentation, spreadsheet, presentation and database management.

List of Practicals:

Word

- Formatting a document: Alignment and font formatting, Inserting bullets, Find and Replace, Inserting header, Footer and Page number, Paragraph formatting and Column creation.
 - Creation of resume without using wizard
 - Creation of resume using wizard.
 - Creation of an advertisement copy / Program sheet preparation / Invitation card designing.
 - Using mail merge, create and send invitation / notice of meeting / opening a new Bank branch / Special Offer / Department function. (minimum 10 recipients)

Excel

- Creation of workbook, apply insert options, Editing and Style formatting options menu.
 - Creation of Employees payroll.
 - Preparation of Students mark sheet.
 - Creation of Pivot table.
 - Diagrammatic and graphic representation.
 - Calculation of Standard Deviation, Variance, minimum value, maximum value, range.
 - Correlation calculation.

PowerPoint

- Preparation of Power Point presentation and setting hyperlinks to slides, animation effect, slide transition, time setting:
 - Product Advertisement / Sports day celebration.
 - Product Demonstration / College Day celebration.

MY SQL

- Creation of Student database.
- Creation of Employee database.
- Creation of Customer database.
- Creation of Product database.

Course Designed By : Dr.C.Pushpalatha
Course Reviewed By : Dr.M.Kalavathi
Checked By : Dr.N.Lakshmi

M.Com Semester I

Core V- Executive Communication

17MC05

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To sharpen oral and written communication skills.
- To facilitate experiential learning through use of role plays, presentations, group discussion and mock interview.

UNIT I

Communication - Importance of effective communication in business - objectives - types-media -Principles of Communication- barriers to communication.

(13 Hours)

UNIT II

Non-verbal communication: Characteristics- Sign language- Kinesics- Paralanguage- Artifactual communication- Proxemics- chronemics- Listening-functions of non-verbal communication- Positive and negative non-verbal clues- guidelines for developing non-verbal communication.

Soft skills-importance –Kinds of soft skills: corporate skills – employability skills- growth skills – developing soft skills. Interpersonal communication- characteristics- importance- developing inter - personal skills.

(13 Hours)

UNIT III

Job Application letter and preparation of resume: personal analysis – types of application letters -preparation of resume/ bio-data/ curriculum vitae.

Inter departmental communication-Memorandums: purpose- format- advantages-office orders. Circulars- notices- preparation of agenda and minutes. **(13 Hours)**

UNIT IV

Reports: importance- types of business reports-steps for preparing a report- organisation of a report- characteristics of a report-report by individuals – reports by committees. **(13 Hours)**

*** UNIT V**

Oral and other forms of communication- Speech-characteristics of good speech.

Telephone skills: making effective telephone calls - guidelines for effective use of telephone and answering telephone-voice mail.

Interviews: Interviewee's preparation for the interview -facing the interviews.

Presentation skills- stages.

Group discussion- participating in group discussion -effective participation in a Group discussion. **(13 Hours)**

Starred Unit is self- learning portion.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
I-V	Rajendra Paul and J.S.Korlahalli	Essentials of Business Communication	S Chand and Sons, New Delhi, Edition 2013.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr. C.B. Gupta	Basic Business Communication	Sultan Chand and Sons, New Delhi, Edition 2014.
Dr.V.K.Jain and Dr.Omprakash Biyani	Business Communication	Sultan Chand and Sons, New Delhi, Edition 2015.

Course Designed By : Dr.R.Vanamadevi
Course Reviewed By : Dr.C.Pushpalatha
Checked By : Dr.N.Lakshmi

**M.Com
Semester I**

Elective I - International Business 17MCE1

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives (65 Hours)

- To provide a conceptual framework of international business.
- To provide knowledge on international business environment.

UNIT I

International Business: Definition-Nature and scope of international business- importance of international business- Gains from trade and terms of trade - Foreign trade policy of India - Composition and direction of India's foreign trade. **(13 Hours)**

UNIT II

Theories of International Trade-Absolute cost theory- Comparative cost theory - Opportunity cost theory - Factor endowment Theory - Complementary theories.

Trade blocs and co-operation: Objectives- types of integration- European union- south co operation -SAARC -SAPTA- Indo – Lanka Free Trade Agreement – commodity agreements and state trading. **(13 Hours)**

***UNIT III**

Environment of International Business: Economic environment-Political and Regulatory environment-Legal environment - Demographic environment- Social environment- Cultural environment- Geographic environment. **(13 Hours)**

UNIT IV

Balance of Payment: Nature-Components - BOP disequilibrium - correction of disequilibrium-Financing of BOP-Trade and BOP of India. **(13 Hours)**

UNIT V

Foreign Exchange Market: Functions of Foreign exchange market- methods affecting International payments-Dealings on the Foreign exchange market-determination of Exchange rate-Exchange control - exchange rate system- exchange rate classification- convertibility of rupee- devaluation - limitations of devaluation- currency exchange risk and management – types of foreign exchange risk- strategies for managing exchange risk. **(13 Hours)**

Starred Unit is self- learning portion.

Books for study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
I and III	Francis Cherunilam	International Business Environment	Himalaya Publishing House-Mumbai, Edition 2015.
I,II,IV and V	Francis Cherunilam	International Trade and Export Management	Himalaya Publishing House-Mumbai-Nineteenth revised Edition 2015.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Subba Rao P	International Business: Text and Cases	Himalaya Publishing House, New Delhi, Ed. 2013.
C.Jeevanandam	International Business	Sultan & Sons, New Delhi, Ed. 2014.
T.A.S. Balagopal	Export Management	Himalaya Publishing House, New Delhi, Ed. 2014.

Course Designed By : Dr.K.Umameswari & Dr.S.Bhuvaneswari

Course Reviewed By : Dr.R.Vanamadevi

Checked By : Dr.N.Lakshmi

M.Com

Semester II

Core VII - Human Resource Management

17MC07

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To impart knowledge on various aspects of human resource management.
- To help students to understand the human resource management practices.

UNIT I

Human Resource Management: Functions- Qualities of HR Manager - Features of HRM - Environmental Influences on HRM- Human Resource Planning: Importance - Process - Techniques for Forecasting Human Resource Needs - Barriers - HR Information System.

(13 Hours)

UNIT II

Job Analysis: Uses - Process -Job description - Job specification - Recruitment: Recruitment Policy - Factors affecting Recruitment Policy and Programme - Recruitment Process - Sources.

(13 Hours)

UNIT III

Selection : Selection Process - Selection Tests - Selection Interview: Types- Steps.

Orientation- Placement - Promotion - Transfer - Separation.

(13 Hours)

UNIT IV

Human Resource Development: Need for HRD - Human Re-engineering - Learning Organisation - Knowledge Management.

Training : Role of Training and Development- Methods.

(13 Hours)

***UNIT V**

Performance Appraisal: Objectives - Process - Methods - Barriers.

Compensation Management: Objectives - Job Evaluation: Process of Job Evaluation - Methods - Compensation Plan - Factors. HRM Audit. **(13 Hours)**

Starred Unit is self- learning portion.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
I-V	L.M.Prasad	Human Resource Management	Sultan Chand and Sons, New Delhi. Edition, 2014.
Books for Reference			
Author		Title	Publisher, Place of Publication, Edition, Year of Publication
L.M.Prasad		Human Resource Management	Sultan Chand and Sons, New Delhi. Edition, 2015.

Course Designed By : Dr.S.Bhuvaneswari

Course Reviewed By : Dr.M.Kalavathi

Checked By : Dr.N.Lakshmi

M.Com Semester II

Core IX - Accounting in Computerised Environment-Practicals 17MC09

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives (65 Hours)

- To expose the students on the practical applications of computer in accounting.
- To enable the students to gain expertise in working with accounting package.

List of practical:

- **Company Information**
 - Company creation
 - Selecting a Company
 - Shutting a Company
 - Altering Company
- **Accounts information**
 - **Creating Group**
 - Displaying Groups
 - Altering Groups
 - **Ledger creation**
 - Displaying Ledgers

- Altering Ledgers
- Deleting Ledgers
- **Cost Categories and Cost centres.**
 - Creating Cost Categories
 - Displaying Cost Categories
 - Altering Cost Categories
- **Creating a Cost centre**
 - Displaying a Cost centre
 - Altering a Cost centre
 - Deleting a Cost centre
- **Vouchers**
 - Creating Vouchers
 - Displaying Vouchers
 - Altering Vouchers
 - Cancelling Vouchers
- **Inventory information**
- **Stock Group**
 - Creating Stock Group
 - Displaying Stock Group
 - Altering Stock Group
- **Stock Category**
 - Creating Stock Category
 - Displaying Stock Category
 - Altering Stock Category
 - Deleting Stock Category
- **Stock item**
 - Creating Stock item
 - Displaying Stock item
 - Altering Stock item
- **Godowns**
 - Creating Godowns
 - Displaying Godowns
 - Altering Godowns
- **Units of Measure**
 - Creating Units of Measure
 - Displaying Units of Measure
 - Altering Units of Measure
- **Inventory Vouchers**
- **Payroll**
 - Pay heads

- Employee group
- Employee head
- Managing units
- Vouchers
- Attendance Sheet
- Payroll reports
- **Statutory and Taxation**
 - Tax Head Creation
 - Tax Deducted at Source (TDS)
 - Tax Collected at Source (TCS)
 - Service Tax
- **Display**
 - Trial Balance
 - Day Book
 - Accounts Book
 - Statement of Accounts
 - Inventory Books
 - Statement of Inventory
 - Cash flow and Fund flow Statements

Course Designed By	: Dr.C.Pushpalatha
Course Reviewed By	: Dr.R.Parameswari
Checked By	: Dr.N.Lakshmi

M.Com
Semester II
Institutional Training

17MCIT

(For the students admitted from the academic year 2017-2018 onwards)

The student shall undergo the institutional training in any of the following institutions for two weeks:

- Commercial Banks
- Insurance Companies
- Joint Stock Companies
- Logistic Companies
- Co-operative Societies
- Share Brokers, Firms of Investment Consultants
- Professional Firms - like firms of Chartered Accountants / Cost Accounts / Company Secretaries

- Travel Agencies and Courier Services.

A Report submitted by the student on the completion of the training would be subject to evaluation by two internal examiners.

**M.Com
Semester II**

Elective II - International Marketing

17MCE3

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To provide theoretical knowledge on various managerial aspects of international marketing.
- To develop students to pursue careers in international marketing field.

UNIT I

International marketing: Definition- reasons for International marketing - International stages - International Marketing decisions-Driving and restraining forces- Participants in International Marketing- Problems of International Marketing-Future of International marketing.

(13 Hours)

***UNIT II**

Market selection and market entry strategies: Market selection process- Determinants of market selection-Market profile and market segment selection. Methods of market entry strategies -entry strategies of Indian firms.

(13 Hours)

UNIT III

International product decisions -product and product decisions-components and levels of product-product mix-product life cycle-product life cycle and international marketing-New product development-steps in new product development-Branding and branding decisions-branding problems in International marketing-scope for use of Indian brands. Packaging and labeling -product strategies.

(13 Hours)

UNIT IV

International pricing-Pricing objectives-factors affecting prices-steps in pricing-export price structure-export price quotations and INCOTERMS-Information requirements for export pricing.

(13 Hours)

UNIT V

International distribution: International channel system-international logistics. International promotion-major decision in international marketing communication-communication mix-trade fairs and exhibitions-personal selling-problems in international marketing communication.

(13 Hours)

Starred Unit is self- learning portion.

	Book for Study		
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
I - V	Francis Cherunilam	International Marketing (Text and Cases)	Himalaya Publishing House, New Delhi, Ed.2017.
Books for Reference			
Author		Title	Publisher, Place of Publication, Edition, Year of Publication
Francis Cherunilam		International Trade and export management	Himalaya Publishing House, New Delhi, 19 th revised edition, 2015.
Rothor B.S. and Rothor J.S.		Export Marketing	Himalaya Publishing House, New Delhi, Ed.2014

Course Designed By : Dr.K.Umamageswari & Dr.S.Bhuvaneswari
 Course Reviewed By : Dr.R.Vanamadevi
 Checked By : Dr.N.Lakshmi

Curriculum Design
SRI G.V.G.VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Commerce
Programme - B.Com
Scheme of Examination - CBCS
(For the students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	TOTAL Marks	
115TA1/ 115MY1/ 115HD1/ 115FR1	Semester – I Part I – Language – I	6	3	25	75	100	4
115EN1	Part II – English – I	6	3	25	75	100	4
115B01/ 115R01/ 115N01/	Part III - Core I- Financial Accounting	5	3	25	75	100	4
115 B02/ 115R02/ 115N02/ 115V02	Core II- Business Management	5	3	25	75	100	4
115AB1/ 115AR1/ 115AN1/ 115AV1	Allied I – Office Automation Tools - Practicals	6	3	40	60	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
215TA2/ 215MY2/ 215HD2/ 215FR2	Semester – II Part I – Language -II	6	3	25	75	100	4
215EN2	Part II – English – I	6	3	25	75	100	4
215B03/ 215R03/ 215N03	Part III - Core III – Company Law	5	3	25	75	100	4
215 B04/ 215R04/ 215N04/ 215V04	Core IV – Marketing	5	3	25	75	100	4
215AB2	Allied II – Business Economics	6	3	25	75	100	4
215VEC	Part IV – Value Education	2	2	50	-	50	2
315B05/ 315R05/	Semester – III Part III-Core V– Higher Financial Accounting	5	3	25	75	100	4

315N05							
315 B06/ 315V06	Core VI - Commercial Law	5	3	25	75	100	4
315 B07	Core VII- Principles of Insurance	5	3	25	75	100	4
315 B08	Core VIII- Entrepreneurial Development	4	3	25	50	75	3
315 AB3/ 315AR3/ 315AN3	Allied III – Mathematics in Business	6	3	25	75	100	4
315NED	Part IV – Non Major Elective Course I - Entrepreneurial Development	2	2	50	-	50	2
314BS1/ 315 BS1	Part IV Skill Based Course I – Business Application Tools- Page Maker	3	3	75	-	75	3
415B09/ 415R09/ 415N09/ 415V09	Semester – IV Part III - Core IX - Business Communication	5	3	25	75	100	4
415B10/ 415R10/ 415N10/ 415V10	Core X - Cost Accounting	5	3	25	75	100	4
415B11	Core XI - Banking Law and Practice	5	3	25	75	100	4
415B12	Core XII-Auditing	4	3	25	75	100	4
415AB4/ 415AR4/ 415AN4	Allied IV- Statistics for Business	6	3	25	75	100	4
415NGA	Part IV – Non Major Elective Course II - General Awareness (online)	-	1	50	-	50	2
414BS2/ 415BS2	Part IV Skill Based Course II – Business Application Tools- Photo Shop	3	3	75	-	75	3
415GIS	Information Security	2	2	50	-	Grade	Grade
415ALB	Advanced Learners Course I Subject Viva Voce	-	-	-	100	100	3*
515B13/ 515RP5/ 515N13/ 515V13	Semester – V Part III – Core XIII- E Accounting	6	3	40	60	100	4
515B14/ 515R14/ 515N14/ 515V14	Core XIV- Income Tax	6	3	25	75	100	4
515B15/	Core XV- Business Finance	5	3	25	75	100	4

515R15/ 515N15/ 515V15							
515B16/ 515R16/ 515N16	Core XVI- Higher Corporate Accounting	5	3	25	75	100	4
515BE1	Elective I – Investment Management	5	3	25	75	100	4
514BS3/ 515BS3/ 515VS3	Part IV– Skill Based Course III – Business Data Analytics using EXCEL	3	3	75	-	75	3
615B17/ 615R17/ 615N17/ 615V17	Semester – VI Part III-Core XVII-Management Accounting	6	3	25	75	100	4
615B18/ 615R18/ 615N18	Core XVIII – E Commerce	6	3	25	75	100	4
615B19	Core XIX - Export Import Procedures	3	3	25	50	75	3
615BE2	Elective II – Capital Markets	6	3	25	75	100	4
615BE3/ 615RE3/ 615NE3	Elective III – Financial Services	6	3	25	75	100	4
614BS4/ 615BS4	Part IV – Skill Based Course IV – Export Import Documentation-Practicals	3	3	75	-	75	3
615ALB	Advanced Learners Course II Subject Viva Voce	-	-	-	100	100	3*
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V – Extension Activities	-	-	50	-	50	2
Total						3500	140

Starred Credits are treated as additional credits, which are optional.

B.Com/B.Com (CA)/B.Com (e-Commerce)

Semester I

Part III - Core I - Financial Accounting 115B01/115R01/115N01

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65 Hours)

The objectives of this course are:

- To provide an in-depth knowledge of accounting concepts and conventions.
- To acquaint with the methods of applying accounting principles.

Unit I

Accounting concepts and conventions – Preparation of final accounts of a Sole trader.

(13 Hours)

Unit II

Depreciation: meaning- methods - reserves and provisions.

(13 Hours)

Unit III

Bill of exchange including accommodation bill.

(13 Hours)

Unit IV

Accounts of Non - Trading Concerns: Receipts and Payments a/c – Income and Expenditure a/c- Balance Sheet.

(13 Hours)

Unit V

Single Entry System – Net worth method- Conversion Method.

(13 Hours)

Note: Distribution of marks for Theory and Problem shall be 20% and 80% respectively.

Book for Study

Advanced Accountancy : S.P.Jain and K.L.Narang,
Kalyani Publishers, New Delhi, Ed. 2013.

Books for Reference

Financial Accounting : T.S.Reddy and A.Murthy,
Margham Publishers, Chennai, Ed. 2013

Advanced Accountancy : R.S.N.Pillai and Bagavathi,
Konark Publishers Pvt.Ltd. Delhi. Ed. 2013

Course Designed By : Dr. R.Vanamadevi

Course Reviewed By : Dr. C. Pushpalatha

Checked By : Dr. K. Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA (CA)

Semester I

Part III - Core II - Business Management 115B02/115R02/115N02/115V02

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65 Hours)

The objectives of this course are:

- To gain knowledge on concepts of management.
- To familiarise with the managerial skills.

Unit I

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk.

Definition of Management – Nature and Scope of Management - Contribution of F.W. Taylor, Henry Fayol - Functions of Management. **(13 Hours)**

Unit II

Planning – Nature and Importance of planning – Advantages and Limitations – Steps in planning – Decision making – Decision making process. **(13 Hours)**

Unit III

Organising – Meaning, Nature and importance -Principles of Organisation– Classification of Organisation – Span of Control – Types of Organisation: Line, Functional, Line and Staff. **(13 Hours)**

Unit IV

Staffing: Definition –Functions-Recruitment – selection-promotion.

Directing: characteristics - techniques. **(13 Hours)**

Unit V

Leadership – Meaning – Importance of Leadership – Functions of a Leader – Qualities of a Leader – Types of Leadership.

Controlling: Steps in Control Process – Techniques of Control. **(13 Hours)**

Book for study

Principles of Management : T. Ramasamy,
Himalaya Publishing House, New Delhi. 6th Ed 2014.

Books for Reference

Principles of Management : Dinkar Pagare,
Sultan Chand and Sons, New Delhi. 5th Ed 2008.

Business Organization and Office Management : R.K.Sharma and Shashi, K.Gupta,
Kalyani Publishers, Ludhiana, 3rd Ed. 2013.

Course Designed By : Dr.S.Bhuvaneswari

Course Reviewed By : Dr.N.Lakshmi

Checked By : Dr.K.Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA (CA)

Semester I

Allied I – Office Automation Tools – Practical 115AB1/115AR1/115AN1/115AV1

(For the students admitted from the academic year 2015-2016 onwards)

List of Practicals (75 Hours)

Ms Word

1. Preparation of Curriculum Vitae.
2. Design: Cheque Leaf for a Bank
- Preparation of Invoice
3. Send an Invitation to various colleges for the workshop using Mail Merge.
4. Preparation of Advertisement Copy.

Ms Access

5. Prepare a Student Database.
6. Create an Employee Database.

7. Prepare a Customer Database.

Ms PowerPoint:

8. Prepare a Slide Show for organising a Seminar.

9. Prepare a Slide show for Paper Presentation.

10. Demonstrate a product using Custom Animation.

Course Designed By : Dr.C.Pushpalatha

Course Reviewed By : Dr.N.Lakshmi

Checked By : Dr.K.Punithavalli

B.Com/B.Com (CA)/ B.Com (e-Commerce)

Semester II

Part III - Core III – Company Law 215B03/215R03/215N03

(For the Students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objective of this course is:

- To impart the basic principles of Company Law.

Unit I

Company – Definition and Features – kinds of companies– Incorporation of company – Certificate of Incorporation – Certificate of Commencement. **(13 Hours)**

Unit II

Memorandum of Association: Contents, Alteration.

Articles of Association - Contents - alteration - Doctrine of Ultra Virus – Constructive notice of Memorandum and Articles - Doctrine of indoor Management. **(13 Hours)**

Unit III

Prospectus: Definition –Matters to be stated in prospectus – Red herring prospectus – Shelf prospectus- Public offer and Private placement- Invitation for subscription of securities on private placement - Liability for Misstatement in prospectus. **(13 Hours)**

Unit IV

Company Meetings – Statutory Meeting - Annual General Meeting –Extraordinary General Meetings and Board Meetings – Resolutions, Minutes, Quorum and Proxy. **(13 Hours)**

Unit V

Company Management - Board of Directors: Appointment, Qualification, Powers, duties, liabilities, and position of directors. **(13 Hours)**

Book for Study

Elements of Company Law : N.D. Kapoor,
Sultan Chand and Sons, New Delhi, 29th Ed2013.

Books for Reference

Company Law : Dr.N.Premavathy
Sri Vishnu Publication.,Chennai.,Ed 2009

Company Law : Dr.M.R.Sreenivasan
Margham Publication.,Chennai.,Ed 2013

Course Designed By : Dr.C.Pushpalatha

Course Reviewed By : Dr.K.Umameswari

Checked By : Dr.K.Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA (CA)

Semester II

Part III - Core IV- Marketing 215B04/215R04/215N04/215V04

(For the Students admitted from the academic year 2015-2016 onwards)

Preamble (65 Hours)

The objectives of this course are:

- To impart the knowledge on various aspects of marketing functions.
- To give a comprehensive understanding of the marketing concepts.

Unit I

Marketing: meaning – objectives – importance of modern marketing concept – Marketing mix.

Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales. **(13 Hours)**

Unit II

Functions of physical supply – Transportation: functions – classification of transport – merits – choice of mode of transportation. Storage – advantages – Warehousing: functions – kinds. Standardization and Grading: types. Marketing finance: kinds. Marketing risk: causes – methods of handling risk. **(13 Hours)**

Unit III

Product– Product Life Cycle — New product planning – steps in New Product Planning. Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing. **(13 Hours)**

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections. **(13 Hours)**

Unit V

Channels of distribution: importance – types – Classification of middlemen – Agent middlemen- Wholesaler – Retailer – kinds – services rendered – elimination of middlemen. **(13 Hours)**

Book for Study

Modern Marketing : R.S.N. Pillai and Bagavathi
Principles and practice S. Chand and company, New Delhi. Ed. 2013.

Books for Reference

Marketing : Dr. N. Rajan Nair and Sanjith R. Nair
Sultan Chand and sons, New Delhi, Ed. 2010

Course Designed By : Dr.S. Bhuvaneshwari
Course Reviewed By : Dr.R.Parameswari
Checked By : Dr.K.Punithavalli

B.Com/BBA(CA)

Semester III

Part III - Core VI – Commercial Law

315B06/315V06

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objectives of this course are:

- To impart the students with basic knowledge of important laws applicable to business, trade and industry.
- To help students to gain complete knowledge about different elements of a valid contract.

Unit I

Indian Contract Act 1872 – Contract – Definition – Nature of contract and classification – Essentials of valid Contract – Offer and acceptance. **(13 Hours)**

Unit II

Consideration – Capacity to Contract – Free consent. **(13 Hours)**

Unit III

Legality of Object - Performance of Contract – Quasi contracts – Contingent Contracts. **(13 Hours)**

Unit IV

Modes of discharge of contract – Remedies for Breach of Contract. **(13 Hours)**

Unit V

Sale of Goods Act 1930 – Sale and agreement to sell – Rules regarding passing of property – conditions and warranties – Rights of unpaid vendor. **(13 Hours)**

Book for Study

Elements of Mercantile Law : N.D. Kapoor,
Sultan Chand and Sons, New Delhi. 36th Ed. 2014.

Book for Reference:

Business Law : R.S.N. Pillai and Bagavathi,
S.Chand and Company Ltd., Edition 2012.

Course Designed By : Dr.N.Lakshmi

Reviewed & Checked By : Dr.K. Punithavalli

B.Com

Semester III

Part III - Core VII – Principles of Insurance

315B07

(For the students admitted from the academic year 2015-2016 onwards)

Preamble :

(65 Hours)

The objectives of this course are:

- To provide basic knowledge of insurance business.
- To enhance employability of students in insurance sector.

Unit I

Risk: Classification – Methods of handling risk- importance – Risk management objectives- Risk insurance management– scope– principles. **(13 Hours)**

Unit II

Insurance –Characteristics of insurance contract- Functions – importance-benefits of insurance – essential elements of insurance – insurance documents.

(13 Hours)

Unit III

Life Insurance - essential elements of life assurance – Classification of Policies – Assignment of life policy-Nomination-Surrender value- payment of claims-advantages.

(13 Hours)

Unit IV

Marine Insurance – Characteristics – essential elements – double insurance- Kinds of marine policies – important clauses in marine policy –Marine losses and abandonment.

(13 Hours)

Unit V

Fire Insurance – principles – fire policy-types of fire policies –fire insurance claims .

Miscellaneous Insurance – Fidelity guarantee insurance- Property insurance-Motor vehicle Insurance – Health Insurance.

(13 Hours)

Book for Study

Principles and Practice of Insurance : Dr. P. Periasamy
Himalaya Publishing House, New Delhi, Ed. 2013.

Books for Reference

Insurance Principles and Practice : M.N. Mishra and Dr. S.B. Mishra
S.Chand and Company Ltd,
New Delhi. 10thEd. 2013.

Course Designed By : Dr.R. Parameswari

Course Reviewed By : Dr.N. Lakshmi

Checked By : Dr.K. Punithavalli

B.Com

Semester III

Part III - Core VIII – Entrepreneurial Development

315B08

(For the students admitted from the academic year 2015-2016 onwards)

Preamble :

(50 Hours)

The objectives of this course are:

- To provide exposure to entrepreneurial environment.
- To guide students to setup and manage small units.

Unit I

Entrepreneur: Meaning– Characteristics – skills for Entrepreneur- Functions - Types – Entrepreneurs and managers – Entrepreneur and Economic Development.

(10 Hours)

Unit II

Entrepreneurship – Entrepreneur Vs Entrepreneurship – Factors stimulating Entrepreneurship – Environment for Entrepreneurship -Factors affecting Entrepreneurship growth.

(10 Hours)

Unit III

Entrepreneurial Development Programmes- need – objectives –phases of EDP - Problems of EDP. Women Entrepreneurs –types-problems-remedial measures.

(10 Hours)

Unit IV

Project Identification and project Appraisal

(10 Hours)

Unit V

Micro Small and Medium Enterprises - Steps for starting MSME.

Institutional support to Entrepreneurs –Small Scale Industries Board-Small Industries Development Organization - Small Industries Service Institute - National Small Industries Corporation - Khadi and Village Industries Commission.

(10 Hours)

Book for study

Entrepreneurship development : E. Gordon and K. Natarajan
Himalayan Publishing House, New Delhi, Reprint 2013.

Books for Reference

Entrepreneurial development : C.B. Gupta and N.P. Srinivasan
Sultan Chand and Sons, Delhi, Reprint 2014.

Course Designed By : Dr. R. Vanamadevi

Course Reviewed By : Dr. R. Parameswari

Checked By : Dr. K. Punithavalli

B.Com

Semester III

Part IV Skill Based Course I –Business Application Tools – PageMaker 314BS1/315BS1

(For the students admitted from the academic year 2014-2015 onwards)

List of Practical:

(35 Hours)

1. Resize an object and modify text.
2. Design a product using drawing tool.
3. Import an image and make alignment.
4. Place graphic in page maker.
5. Design a business card.
6. Design an invitation for inauguration of an organisation.
7. Design a newsletter.
8. Design a banner for a function with pictures.
9. Design a cover page of a magazine.
10. Design an advertisement copy.

Course Designed By : Mrs.R.Suryapriya
Course Reviewed By : Mrs.R.Jayalakshi
Checked By : Dr.K.Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA (CA)

Semester IV

**Part III - Core IX– Business Communication 415B09/415R09/415N09/415V09
(For the students admitted from the academic year 2015-2016 onwards)**

Preamble: (65 Hours)

The objectives of this course are:

- To develop the communicative abilities of the students.
- To train the student in drafting effective business letters on matters relevant to day to day business operations with special emphasis on quality of presentation.

Unit I

Communication - Meaning – Communication Cycle- Importance- objectives – media – Types of Communication: formal and informal – Barriers of communication - Principles of Communication.

(13 Hours)

Unit II

Business Letters: need, functions and kinds of business letters – Planning business messages and layout- Enquiries and Replies - Orders and execution.

(13 Hours)

Unit III

Credit and Status Enquiries – Complaints and Adjustments.

(13 Hours)

Unit IV

Collection letters – Sales letters – Circular letters.

(13 Hours)

Unit V

Report – qualities of good report – types of report- Report by Individuals.

Application Letters.

(13 Hours)

Book for Study

Essentials of Business Communication: Rajendra Paul and J.S.Korlahalli,
S Chand and Sons, New Delhi, Ed..2012

Books for Reference

Business Communication and : Dr. C.B. Gupta,
Customer Relations Sultan Chand and Sons, New Delhi. Ed 2010.
Business Communication : Dr.V.K.Jain and Dr.Omprakash Biyani.
Sultan Chand and Sons, New Delhi-2013

Course Designed By : Dr.R.Vanamadevi
Course Reviewed By : Dr. N. Lakshmi
Checked By : Dr. K. Punithavalli

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester IV

Part III – Core X – Cost Accounting 415B10/415R10/415N10/415V10

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65

Hours)

The objectives of this course are:

- To impart knowledge about various methods of costing.
- To keep the students conversant with the frontiers of cost accounting.

Unit I

Cost Accounting – Meaning and Scope – Concept and classification – costing an aid to Management – Elements of cost – Types and methods of cost – Preparation of cost sheet.

(13 Hours)

Unit II

Material Control: Levels of material Control – Purchases and Stores Control: Purchasing of Materials – Procedure and documentation involved in purchasing - Stores Control – Perpetual inventory - Economic Order Quantity – ABC analysis - Methods of valuing material issue: FIFO, LIFO, Simple Average and Weighted Average.

(13 Hours)

Unit III

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover.

Overhead – Classification of overhead – allocation and absorption of overhead- Calculation of Machine Hour Rate.

(13 Hours)

Unit IV

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production).

(13 Hours)

Unit V

Operating Costing – Contract costing – Reconciliation of Cost and Financial accounts.

(13 Hours)

Note: Distribution of marks between theory and problem shall be 40% and 60% respectively.

Book for Study

Cost Accounting : S.P. Jain and K.L. Narang
Kalyani Publishers, New Delhi. Ed. 2013

Book for Reference

Cost Accounting : T.S.Reddy and Y.Hari Prasad Reddy
Margham Publications ,Chennai, Reprint 2015

Course Designed By : Dr. K. Umamageswari

Course Reviewed By : Dr. M. Kalavathi

Checked By : Dr. K. Punithavalli

B.Com
Semester IV
Part III - Core XI – Banking Law and Practice **415B11**
(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objectives of this course are:

- To make the students to understand the banking system.
- To familiarize the students with the banking operations.

Unit I

Financial System - Definition - Features of Banking - Classification of Banks - Banking System - Banks and Economic Development.

Commercial Banks- Functions of Commercial Banks- Commercial Banks and Credit Creation .

(13 Hours)

Unit II

Central Banking - Functions of the Central Bank- Credit Control - Methods of Credit Control: quantitative and qualitative. Reserve Bank of India: functions.

(13 Hours)

Unit III

Cheque: features of a Cheque- Distinction between Cheque and Bill of Exchange- Cheque vs. Draft-Proper Drawing of a Cheque. Material Alteration- Effect of Material Alteration.

(13 Hours)

Unit IV

Crossing-Kinds of Crossing. Endorsement-Kinds of Endorsement. Paying Banker: Precautions before honouring a Cheque-Circumstances for dishonour of cheque-Statutory Protection to a Paying Banker-Payment in Due Course-Holder in Due Course.

(13 Hours)

Unit V

Collecting Banker: Banker as a holder for value- statutory protection - Basis of Negligence - Duties of a Collecting Banker. KYC - E Banking - Importance of Technology in Banking Industry-ATM-Phone Banking-Internet Banking – RTGS – NEFT -SWIFT.

(13 Hours)

Book for Study:

Indian Banking	: S.Natarajan and Dr. R.Parameswaran S.Chand & Co Ltd., New Delhi Ed 2012
Banking Theory Law and Practice	: E.Gordon and K.Natarajan Himalaya Publishing House., Mumbai. Ed. 2014.
Course Designed By	: Dr.C.Pushpalatha
Course Reviewed By	: Dr.K. Umamageswari
Checked By	: Dr.K. Punithavalli

B.Com
Semester IV
Part III - Core XII – Auditing

415B12

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(50 Hours)

The objectives of this course are:

- To impart knowledge about principles and methods of auditing.
- To familiarise students with the techniques of auditing and its applications.

Unit I

Auditing: Definition – Objectives– Advantages and limitations–Auditing and investigation – Qualities of an Auditor – Qualification of a Company Auditor.
(10 Hours)

Unit II

Types of audit: Continuous audit – Final audit – Interim audit – Balance Sheet audit.
(10 Hours)

Unit III

Audit procedure – Planning of audit – Audit programme – Audit note book – Audit working papers – Internal control and internal check – Internal check as regards cash, wages and sales etc.
(10 hours)

Unit IV

Vouching: Meaning – Vouchers – Vouching of cash transactions – Trading transactions – Impersonal ledgers.
(10 Hours)

Unit V

Verification and valuation of assets and liabilities – Auditor's position - Auditor's duty regarding depreciation – Reserves and provisions. Auditing and assurance standards.
(10 Hours)

Book for Study

A Hand book of Practical Auditing :B.N. Tandon, S.Sudharsanam &
S.Sundharabahu,S.Chand & Co Ltd.,
NewDelhi Ed 2013.

Books for Reference

Auditing : R. Sharma
Lakshmi Narain Agarwal
Educational Publisher Agra. Ed., 2000

Course Designed By : Dr. R. Parameswari
Course Reviewed By : Dr. C. Pushpalatha
Checked By : Dr. K. Punithavalli

B.Com
Semester IV
Part IV Skill Based Course II –Business Application Tools – Photoshop
414BS2/415BS2

(For the students admitted from the academic year 2014-2015 onwards)

List of Practical:

(35 Hours)

1. Change an image using Brush.
2. Make colour balance adjustment.
3. Make Curve adjustment on an image.
4. Basic image correction, minor retouches.
5. Apply filter to an image.
6. Create, modify and transform an image.
7. Merge two or more images.
8. Design a logo with 3D effect.
9. Create light effect on an image for web poster.
10. Animate Images.

Course Designed By : Mrs.R.Suryapriya

Course Reviewed By : Mrs.R.Jayalakshi

Checked By : Dr.K.Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA (CA)

Semester V

Part III –Core XIII –E Accounting 515B13/515RP5/515N13/515V13

(For the students admitted from the academic year 2015-2016 onwards)

List of Practicals

(75 Hours)

- 1) Creation of Company in Tally and Enabling Accounting Features.
- 2) Group Creation and Alteration (single and multiple).
- 3) Ledger Creation and Alteration (single and multiple).
- 4) Entering transactions in accounting vouchers.
- 5) Display of list of accounts, books.
- 6) Report display: Trial Balance, Profit and Loss Account and Balance Sheet.
- 7) Altering Inventory, Statutory, Taxation Features.
- 8) Measures of units, Stock Group, Stock Item creation and alteration, Display of Stock summary.
- 9) Cost centre creation and alteration.
- 10) Creation of Tax Masters.

Course Designed By : Dr. C.Pushpalatha

Course Reviewed By : Dr. N. Lakshmi

Checked By : Dr. K. Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA (CA)

Semester V

Part III - Core XIV – Income Tax 515B14/515R14/515N14/515V14

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (75 Hours)

The objectives of this course are:

- To provide an in-depth knowledge of Income Tax Provisions.
- To impart practical knowledge about Income Tax calculation.

Unit I

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Residential Status – Exempted Income. **(15 Hours)**

Unit II

Income from Salaries. **(15 Hours)**

Unit III

Income from House Property – Income from Other Sources. **(15 Hours)**

Unit IV

Profit and Gains of Business or Profession. **(15 Hours)**

Unit V

Capital Gains – Deductions from Gross Total Income with respect to payments only. **(15 Hours)**

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Book for Study

Income Tax Law and Practice: V.P. Gaur and D.B. Narang,
Kalyani Publishers, Ludhiana

Course Designed By : Dr. C.Pushpalatha

Course Reviewed By : Dr. N. Lakshmi.

Checked By : Dr. K. Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)

Semester V

Part III-Core XVI-Higher Corporate Accounting 515B16/515R16/515N16

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65 Hours)

The objectives of this course are:

- To expose the students to the basic concepts in corporate accounting.
- To provide knowledge and develop skills in the construction of accounts of companies.

Unit I

Issue of Shares and Debentures – Forfeiture and Re-issue of shares – Underwriting of Shares and Debentures. **(13 Hours)**

Unit II

Redemption of Preference Shares and Debentures. **(13 Hours)**

Unit III

Profits prior to Incorporation - Preparation and Presentation of Final Accounts – Legal requirements: Depreciation – Reserves and Provisions. Managerial Remuneration. **(13 Hours)**

Unit IV

Accounting for Amalgamation: merger - purchase. (Excluding inter- company holdings).
(13 Hours)

Unit V

Reconstruction- Reduction and re-organization of Share capital. (13 Hours)

Note: Distribution of marks for Theory and problem shall be 20% and 80% respectively.

Book for Study

Advanced Accountancy : S.P. Jain and K.L.Narang,
Kalyani Publishers, New Delhi Ed. 2013.

Books for Reference

Corporate Accounting : T.S. Reddy and A. Murthy,
Margham Publishers, Chennai. 6th Ed. 2014.

Course Designed By : Dr. M. Kalavathi

Course Reviewed By : Dr. K. Umamageswari

Checked By : Dr. K. Punithavalli

B.Com.

Semester V

Part III - Elective I - Investment Management

515BE1

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65

Hours)

The objective of this course is to acquaint students with the basics of Investment and Portfolio Management.

Unit I

Investment Management: Investment – Speculation – Gambling – Importance of Investment – Factors favourable for Investments – Features of an Investment Programme – Investment Process- Investment Media. (13

hours)

Unit II

Risk: Classification of Risk – Return: Measurement of Return - Investor Classification.

Equity Shares: Characteristics of Equity Shares – Advantages – Problems of Investing in Equity Shares – types – Factors influencing share price. (13

Hours)

Unit III

Preference Shares: Features of Preference Shares – Types of Preference Shares- Return on Preference stock.

Bond: Definition – Features –Types of Bonds- Evaluation of Corporate bonds.

Debentures: Types of Debentures. (13

hours)

Unit IV

Fundamental Analysis-Economic analysis-Industry Analysis-Company Analysis. (13

hours)

Unit V

Technical Analysis- Assumptions-Principles -Dow Theory – Chart Patterns – Technical Analysis Vs Fundamental Analysis. Portfolio management - phases. (13 hours)

Books for Study

Investment Management – Security Analysis and Portfolio Management : Preeti Singh
Himalaya Publishing House,
Mumbai. 18thEd., 2013.

Books for Reference

Personal Investment and Tax Planning : N.J.Yasaway,
Vision Books Pvt Ltd.,
New Delhi. 7thEd.2010.

Security Analysis and Portfolio Management : S.Kevin
PHI Learning Pvt Ltd, Delhi.
12th Ed., 2014.

Course Designed By : Dr. N. Lakshmi
Course Reviewed By : Dr. G. Suguna
Checked By : Dr. K. Punithavalli

B.Com/BBA (CA)**Semester V**

Part IV Skill Based Course III –Business Data Analytics using EXCEL
514BS3/515BS3/515VS3

(For the students admitted from the academic year 2014-2015 onwards)

List of Practicals:**(35 Hours)**

1. Sort data in ascending and descending order.
2. Prepare employee payroll.
3. Design Mark Sheet.
4. Prepare chart for analysing students result.
5. Summarise and present data using pivot table.
6. Calculate mean, median and standard deviation.
7. Analyse the data using correlation.
8. Analyse the data using regression.
9. Calculate Time Value of money - NPV, IRR, ROI, using FV, NPER, PMT, PV, TYPE functions.
10. Calculate interest using financial functions.

Course Designed By : Mrs.R.Suryapriya
Course Reviewed By : Mrs.R.Jayalakshi
Checked By : Dr.K.Punithavalli

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA (CA)**Semester VI**

Part III - Core XVII – Management Accounting 615B17/615R17/615N17/615V17

(For the students admitted from the academic year 2015-2016 onwards)

Preamble**(75****Hours)**

The objectives of this course are:

- To develop an understanding of the conceptual framework of management accounting.
- To acquaint the students with the management accounting techniques that facilitates managerial decision making.

Unit I

Management Accounting: Meaning – Objectives and Scope – Relationship between Management Accounting, Cost Accounting and Financial Accounting.

(15 hours)

Unit II

Ratio Analysis – Analysis of liquidity, solvency and profitability – Construction of Balance Sheet.

(15 Hours)

Unit III

Fund Flow Analysis and Cash Flow Analysis.

(15 Hours)

Unit IV

Marginal costing and Break Even Analysis – Managerial applications of marginal costing – Significance and limitations of marginal costing.

(15 Hours)

Unit V

Budgeting and Budgetary control – Definition – Importance, Essentials, Preparation of cash budget and flexible budget.

(15 Hours)

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Books for Study

Management Accounting : Sharma and S.K.Gupta
Kalyani Publishers,
New Delhi. Ed.: 2013.

Book for Reference

Management Accounting : T.S.Reddy and Y.Hari Prasad Reddy
Margham Publications ,Chennai, Reprint 2015

Course Designed By : Dr. K. Umamageswari

Course Reviewed By : Dr. M. Kalavathi

Checked By : Dr. K. Punithavalli

B.Com

Semester VI

Part III - Core XIX – Export-Import Procedures

615B19

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(35 Hours)

The objectives of this course are:

- To expose the students with export and import trade.
- To familiarize the students with procedures of export import trade.

Unit I

Export – meaning- classification of goods for exports-methods of exporting-advantages and disadvantages –Export Marketing Organisations in India- Foreign Trade Policy of India-General Objectives of Foreign Trade Policy – Highlights of Foreign Trade Policy 2009-14.

(7 hours)

Unit II

Export Promotion measures in India –Duty Drawback-Deemed Exports- Assistance to States for Developing Export infrastructure and allied Activities (ASIDE) – Market Development Assistance (MDA) - Market Access Initiative (MAI)-Towns of Export Excellence-Export Promotion Capital Goods Scheme (EPCG).

(7 hours)

Unit III

Export procedure – registration formalities– pre-shipment procedure– shipment procedure - post-shipment procedure.

(7 hours)

Unit IV

Procedure for Excise clearance and quality inspection –Excise clearance-procedure-quality control and pre-shipment inspection-methods of quality control-procedure-shipping and customs formalities – procedure for realization of export proceeds – realisation of export incentives.

(7 hours)

Unit V

Import procedure -liberalisation of imports - categories of importers - special schemes for importers -import procedure-legal dimensions of import procedure – Import documentation – retirement of import documents – customs clearance for imported goods.

(7 hours)

Book for Study

Export Import Procedures & Documentation : Khushpat S.Jain
Himalaya Publishing House,26thEd., 2013, Mumbai.

Book for Reference

Export Management : T.A.S. Balagopal,
Himalaya Publishing House,20th Ed, 2012,
Mumbai

Course Designed By : Dr.R.Vanamadevi

Course Reviewed By : Dr.N.Lakshmi

Checked By : Dr.K.Punithavalli

B.Com.

Semester VI

Part III - Elective II – Capital Markets

615BE2

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(75 Hours)

The objective of this course is

- To acquaint students with the basics knowledge on financial system and its components.

Unit I

Financial System in India-Functions of the Financial System-Financial Assets-Financial Markets- Classification- Capital Market - Money market-Importance of capital market- Capital Market Vs Money market-Financial Instruments-Characteristics.

(15 hours)

Unit II

New Issue Markets: Functions- Methods of floating new issues- steps of public issue- steps of private placement- steps involved in offer for sale- instruments of issue- Players in New Issue Market - SEBI guidelines for IPO- Characteristics of Book building.

(15 hours)

Unit III

Stock Market: Functions- Listing of securities- functions of stock brokers- kinds of brokers – Distinction between New Issue Market and Stock market –Relationship between New Issue Market and Stock market. Methods of trading in a stock exchange- Settlement Procedure.

(15 hours)

Unit IV

On Line Share Trading: procedure- merits-Types of orders- Types of Speculators - Speculative transactions- Stock indices of BSE and NSE.

(15 hours)

Unit V

Depository system: process-benefits.

SEBI: Objectives – Functions –Powers.

(15 hours)

Books for Study

Financial Markets and Services : E.Gordon and K.Natarajan
Himalaya Publishing House,
Mumbai. 9thEd. 2014.

Book for Reference

Investment Management – Security : Preeti Singh
Analysis and Portfolio Management Himalaya Publishing House,
Mumbai. 18thEd., 2013.

Personal Investment and Tax Planning : N.J.Yasaway,
Vision Books Pvt Ltd.,
New Delhi. 7thEd.2010.

Security Analysis and Portfolio : S.Kevin
Management PHI Learning Pvt Ltd, Delhi,
12th Ed., 2014.

Course Designed By : Dr. N. Lakshmi

Course Reviewed By : Dr. G. Suguna

Checked By : Dr. K. Punithavalli

B.Com/B.Com(CA)/B.Com(e-Commerce)

Semester VI

Part III- Elective III – Financial Services

615BE3/615RE3/615NE3

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(75 Hours)

The objective of this course is

- To enhance the employability of students in financial service sector.

Unit I

Financial Services: Features –Importance- –Scope – Causes for Financial Innovations
Financial services and promotion of industries- Innovative Financial Instruments–Challenges
Facing Financial Service Sector.

(15 hours)

Unit II

Merchant Banking: Definition –Merchant Banks and Commercial Banks – Services of
Merchant Banks – Qualities required for Merchant Bankers – Merchant Bankers as Lead
Managers – Guidelines – Problem.

(15 hours)

Unit III

Venture Capital:Concept – Features –Stages of Venture Capital financing – Importance.
Factoring: Meaning - Modus operandi – Functions –Types - Merits– Financial aspects of
Factoring.Forfeiting: Meaning - Modus operandi — Merits and Demerits- Factoring Vs
Forfeiting.

(15 hours)

Unit IV

Mutual Funds:– Meaning – Unit Vs Share — Types of Funds – Importance of Mutual
Funds – Organization of the Fund –Net Asset Value – Facilities available to Investors –Selection
of a fund- Merits and demerits of investment in mutual fund.

(15 hours)

Unit V

Credit Rating: Meaning – Functions of Credit Rating – Benefits of Credit Rating - Credit
Rating Agencies in India: CRISIL – IICRA – CARE.

(15 hours)

Book for Study

Financial Markets and Services : E.Gordon and K.Natarajan
Himalaya Publishing House,
Mumbai. 9thEd. 2014.

Books for Reference

Financial Markets Institutions : Dr.S.Gurusamy,
Tata Mc Graw Hill Education Pvt Ltd.,
New Delhi, Ed.3 2012

Financial Services and Markets : G.S.Batra
Deep and Deep Publications Pvt Ltd.,
New Delhi,Ed.2005.

Financial Services : E.Dharmaraj
Sultan Chand and Sons,
New Delhi. 1st Ed. 2008

Financial Services : D.Joseph Anbarasu, V.K.Boominathan,
P.Monaharan, G.Gnanaraj
Sultan Chand and Sons,
New Delhi. 2nd Ed. 2004

Financial Markets,
Institutions and Services : N. K. Gupta and Monika Chopra
Ane Books India
New Delhi. 2008

Course Designed By : Dr. N. Lakshmi
Reviewed & Checked By : Dr. K. Punithavall

B.Com

Semester VI

Part IV-Skill Based Course IV-Export and Import Documentation-Practicals

614BS4/ 615BS4

(For the students admitted from the academic year 2014-2015 onwards)

Preamble:

(35

Hours)

To give practical exposure to the students by filling up the documents relating to export and import formalities.

1. Application form for Obtaining Importer and Exporter Code Number (IEC)
2. Application form for modification of existing IEC number.
3. Obtaining bank certificate for obtaining of IEC.
4. Application for Registration cum Membership (RCMC) Certificate.
5. Commercial invoice.
6. Packing list.
7. Mates receipt.
8. Bill of Lading.
9. Certificate of Origin.
10. Shipping bill
11. Shipment Advice
12. Guaranteed Remittance (GR) form
13. Export license.
14. Preparing bill of Entry

Course Designed By	: Dr.R.Vanamadevi
Course Reviewed By	: Dr.C.Pushpalatha
Checked By	: Dr.K.Punithavalli

Curriculum Design
SRI G.V.G.VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Commerce
Scheme of Examination – CBCS Pattern
Programme - M.Com
(For the students admitted from the academic year 2015 – 2016 onwards)

Course Code	Course Title	Inst Hrs/ week	Exam				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
15MC01	Core I - Business Environment	5	3	25	75	100	4
15MC02	Core II - Marketing Management	5	3	25	75	100	4
15MC03	Core III - Financial Management	5	3	25	75	100	4
15MC04	Core IV- Computer Applications in Business	5	3	40	60	100	4
15MC05	Core V - Entrepreneurship	5	3	25	75	100	4
15MCE1	Elective I - Managerial Economics	5	3	25	75	100	4
	Semester II						
15MC06	Core VI – Research Methodology	5	3	25	75	100	4
15MC07	Core VII – Human Resource Management	5	3	25	75	100	4
15MC08	Core VIII - Working Capital Management	5	3	25	75	100	4
15MC09	Core IX – Computerised Accounting	5	3	40	60	100	4
15MGCS		2	2	50	-	Grade	Grade
15MCIT	Cyber Security	-	-	50	-	50	2
15MCE2	Institutional Training	5	3	25	75	100	4
	Elective II - Services Marketing						
15MCL1	Advanced Learners' Course – I Subject Viva-Voce	-	-	-	100	100	4*
	Semester III						
15MC10	Core X – E Tools and Techniques for Research	5	3	40	60	100	4
15MC11	Core XI - Security Analysis and Portfolio Management	5	3	25	75	100	4
15MC12	Core XII – Applied Costing	5	3	25	75	100	4
15MC13	Core XIII - Information Technology in Business	5	3	25	75	100	4
15MCE3	Elective III - Organisational Behaviour	5	3	25	75	100	4
15MCPV/	Project / Optional paper:	-	-	-	-	-	-
15MCRM	Retail Management	5	3	25	75	100	4

	Semester IV						
15MC14	Core XIV – Strategic	5	3	25	75	100	4
15MC15	Management	5	3	25	75	100	4
15MC16	Core XV- Financial Services	5	3	25	75	100	4
15MCE4	Core XVI – Export Management	5	3	25	75	100	4
15MCPV/	Elective IV Logistics	-	-	100	100	200	8
15MCMI	Management	5	3	25	75	100	4
15MCL2	Project / Optional paper Management Information System Advanced Learners' Course II Subject Viva Voce	-	-	-	100	100	4*
	Total					2250	90

*Starred Credits are treated as additional credits which are optional.

M.Com
Semester I
Core I - Business Environment **15MC01**
(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: **(65 Hours)**

- The objective of this course is to develop the ability to understand and scan the Business Environment.

UNIT I

Business and Society: Changing concept of Business – Objectives of Business — Factors influencing choice of objectives.

Business Environment – Concept – Nature and Significance of Business Environment – Types of Business Environment – Internal and External Environment – Elements of External Environment – Micro and Macro Environment – Impact of Environment on Business and Strategic Decisions.

(13 Hours)

UNIT II

Business Ethics and Values: Concept and Nature of Business Ethics – Elements of Business Ethics – Sources of Ethical Standards – Need for Ethics in Business.

Industrial Policy upto 1991 – The New Industrial Policy. Department of Industrial Policy and Promotion.

(13 Hours)

***UNIT III**

Privatisation and Disinvestment - Ways of Privatisation - Benefits of Privatisation – Arguments against Privatisation.

(13 Hours)

UNIT IV

Globalisation of Business – Meaning and Features of Globalisation – Foreign Market Entry Strategies – Implications and Impact of Globalisation – Globalisation of Indian Business – GATT and WTO – Functions of WTO.

(13 Hours)

UNIT V

Foreign Investment: Significance – Government Policy towards Foreign Investments in India – Multinational Corporations: Reasons for growth of MNCs– Merits and Demerits of MNC's – Regulation of MNC's.

(13 Hours)

Starred Unit is self- learning portion.

Books for Reference:

- | | |
|------------------------------------|---|
| Business Environment | : Francis Cherunilam
Himalaya Publishing Co. Ltd Edition 2011 |
| Business Environment | : C. B. Gupta
Sultan Chand and Sons
New Delhi. 3 rd Edition 2011 |
| Economic Environment of Business | : M. Adhikary
Sultan Chand and Sons, New Delhi, 2006 |
| Essentials of Business Environment | : K. Aswathappa
Himalaya Publishing House, Mumbai, 2011 |

Business Environment : Justin Paul
Text and Cases Tata McGraw-Hill Publishing Company Limited
New Delhi 2nd Edition 2012

Course Designed By : Dr. G.Suguna
Course Reviewed & Checked By : Dr. K.Punithavalli

M.Com

Semester I

Core II -Marketing Management 15MC02

(For the Students admitted from the academic year 2015 – 2016 onwards)

Preamble: (65 Hours)

- The objective of this course is to facilitate understanding of the conceptual framework of marketing and its applications in decision making under various environmental constraints.

UNIT I

Modern marketing concept: Approaches to the study of marketing- Evolution of marketing concept- Changing concept of marketing- Features of the marketing concept- Importance of marketing concept. Marketing environment and marketing system: Micro environment-Macro environment.

(13 Hours)

UNIT II

Consumer behaviour: Need for understanding consumer behaviour - factors influencing Consumer buying behaviour- Theories of consumer behaviour.Market segmentation: Benefits - Bases.

(13 Hours)

UNIT III

Marketing Mix: Meaning - Elements - Importance -Factors determining marketing mix.

Product Mix: Concept of product- Levels of a product- Product planning- Significance of product planning- Product mix - factors affecting Product mix- Product item and Product line trading up and down. New product development: Meaning - Steps in new product development- Product Life Cycle.

(13 Hours)

UNIT IV

Price mix: Significance - Factors affecting price of a product- Pricing objectives- pricing policies- Kinds of pricing decisions. Promotion mix: Meaning - Promotion strategies- Objectives - Kinds - Methods - Factors affecting promotion mix.

(13 Hours)

***UNIT V**

Channels of distribution: - Importance of Distribution channel- Selection of Distribution channel- Marketing middlemen-Functions of middleman-Wholesaler: functions –Retailer: functions. Consumer Protection Act –Rights –Redressal of consumer grievances.

(13 Hours)

Starred Unit is self- learning portion.

Books for Reference:

Marketing Management	: C. B. Gupta and N. Rajan Nair Sultan Chand and Sons New Delhi, 2013
Marketing Management	: Philip Kotler, Kevin Lane Keller, Abraham Koshy, Mithileshwar Jha Pearson Education New Delhi, 3 rd Edition, 2009
Marketing Management	: Rajan Saxena Tata McGraw-Hill Publishing Company Ltd New Delhi, 3 rd Edition 2010
Marketing Management	: S.A.Sherlekar Himalaya Publishing House Chennai,2010
Course Designed By	: Dr.R. Parameswari
Course Reviewed By	: Dr.N.Lakshmi
Course Checked By	: Dr.K. Punithavalli

M.Com**Semester I****Core III – Financial Management****15MC03****(For the students admitted from the academic year 2015 – 2016 onwards)****Preamble :****(65 Hours)**

The objectives of this course are:

- To help students to understand the conceptual framework of financial management.
- To acquaint them with the knowledge of corporate financial applications.

UNIT I

Nature and Scope of Financial Management-Objectives-Traditional and Modern approach of Financial Management-Financial decisions-Relationship between risk and return-Role and functions of Financial Manager.

(13 Hours)**UNIT II**

Cost of capital: Meaning and importance – cost of debt, preference, equity and retained earnings-Weighted average cost of capital – Marginal cost of capital.

(13 Hours)**UNIT III**

Capital Budgeting: Meaning and importance – Techniques: Pay back method – Accounting Rate of Return method and Discounted cash flow methods.

(13 Hours)**UNIT IV**

Capital structure: Theories of capital structure – Net Income approach - Net Operating Income approach – MM Hypothesis – Determinants of Capital structure - Financial leverage - measures – EBIT and EPS analysis – Operating leverage – Financial, business and operating risk

(13 Hours)

***UNIT V:**

Dividend –Meaning – Theories of dividend – Walter’s Model – Gordon and MM’s Models –Dividend policy and forms of dividend - Determinants of dividend policy.

(13 Hours)

Note: Theory Only

Starred Unit is self- learning portion.

Books for Reference:

1. Financial Management : IM Pandey, Vikas Publishing House, New Delhi, Edition 2013.
2. Financial Management : Khan and Jain, Tata McGraw Hill Publishing, Co., Ltd., New Delhi, Edition 2006.
3. Financial Management : S.N.Maheswari, Sultan Chand and Sons, New Delhi, Edition 2014.
4. Financial Management : Prasanna Chandra, Tata Mc-Graw Hill Publishing Company Limited, New Delhi, Edition 2011.

Course Designed By : Dr.R. Parameswari
Course Reviewed By : Dr.G. Suguna
Checked By : Dr.K. Punithavalli

**M.Com
Semester I**

**Core IV- Computer Applications in Business –Practicals 15MC04
(For the students admitted from the academic year 2015 – 2016 onwards)**

Preamble: (65 Hours)

- To expose the students on the practical applications of computer in business.
- To work efficiently in Word, Excel, Power Point, and Access.

List of Practicals:

Word

1. Type a document and perform the following:
 - alignment and font formatting
 - inserting bullets
 - find and replace
 - insert footnote and head note
 - paragraph formatting
 - column creation
 - inserting page numbers
2. Using mail merge, create and send invitation / notice for the following situations (at least 10 addresses to be entered)
 - Opening a new branch / ATM / scheme / product / special offer / College / department function
3. Create a resume without using wizard and using wizard.
4. Create an advertisement copy / Program sheet preparation / Invitation card designing.

Excel

Prepare a table for:

5. Employees payroll
6. Sales data of 5 products for 5 years
7. Students mark list for one semester and perform the following functions:
(Total, Result, CPA, CGPA and show the results in chart)

PowerPoint

Prepare a PowerPoint presentation ensuring hyperlinks to slides, animation effect, slide transition, timing rehearsals (Minimum 5 slides).

8. Product / Company Advertisement
9. Report of Annual General Meeting / Conference / College Day / Department function.

Access

Creating a database and table (using Wizard view and directly) with one of the fields as Primary Key; apply sort option; create form, query; generate reports by using queries, establish relational database.

10. Student / employee / customers database

Course Designed By : Dr.N.Lakshmi

Course Reviewed and Checked By : Dr.K. Punithavalli

M.Com**Semester I****Core V –Entrepreneurship****15MC05****(For the students admitted from the academic year 2015 – 2016 onwards)****Preamble:****(65 Hours)**

The objectives of this course are:

- To give exposure to the students about entrepreneurship.
- To impart knowledge to identify the role of various institutions for developing entrepreneurship.

UNIT I

Entrepreneur – characteristics- functions- Entrepreneurship- Entrepreneurship Vs Entrepreneur- Growth of Entrepreneurship in India- Theories of Entrepreneurship - Factors stimulating Entrepreneurship –factors affecting Entrepreneurship growth- qualities of Entrepreneurship - Role of Entrepreneurship in Economic Development.

(13 Hours)**UNIT II**

Entrepreneurship Development Programme (EDP)- need for EDP-objective-phases-Institutions for Entrepreneurship Development –Problems of Entrepreneurship Development-Role of the Government in Entrepreneurial growth.

(13 Hours)**UNIT III**

Micro Small and Medium Enterprises (MSME)-Features-objectives-promotional measures-problems. Starting MSME. Business Idea –business idea generation techniques- Identification of business opportunities and selection – steps for setting up MSME– formulation of business plan. Growth strategies in small scale enterprises – types of growth strategies.

(13 Hours)

UNIT IV:

Project appraisal-methods of project appraisal-general guidelines for project appraisal.
Institutional Support to Entrepreneurs: Need-NSIC, SIDO, SSIB, SSID, SISI, DIC, industrial estates and TCO.

(13 Hours)

***UNIT V:**

Intellectual Property Rights (IPR) and MSMES: Patent: Meaning-types-process.

Copyrights: Meaning-objectives.

Trade Marks: Categories-registration of trademark- geographical indications- industrial designs- trade secrets- integrated circuits- significance of IPR.

(13 Hours)

Starred Unit is self- learning portion.

Books for Reference:

1. Entrepreneurial Development : Dr.S.S. Khanka,
S. Chand & Company PVT. Ltd.
New Delhi, Revised Edition Edition 2012, Reprint,2013.
2. Entrepreneurial Development : Dr.C.B. Gupta & Dr. N.P. Srinivasan,
Sultan Chand & Sons,
New Delhi Revised Edition Edition 2013, Reprint,2014.
3. Entrepreneurship Development : E. Gordon & K. Natarajan
Himalaya Publishing House,
New Delhi Fourth Revised Edition 2012, Reprint 2013.
4. Entrepreneurial Development : Jayshree Suresh,
MarghamPublications, Chennai, Reprint 2015

Course Designed By	: Dr.S.Bhuvaneswari
Course Reviewed By	: Dr.R.Vanamadevi
Checked By	: Dr.K. Punithavalli

M.Com

Semester II

Core VII – Human Resource Management

15MC07

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are :

- To impart knowledge on various aspects of human resource management.
- To help students to understand the human resource management practices.

UNIT I :

Human Resource Management– Functions– Qualities of HR Manager – Features of HRM – Environmental Influences on HRM- Human Resource Planning: Meaning – Importance – Process – Techniques for Forecasting Human Resource Needs – Barriers – HR Information System.

(13 Hours)

UNIT II :

Job Analysis : Meaning – Uses – Process –Job description – Job specification – Recruitment: Meaning – Recruitment Policy – Factors affecting Recruitment Policy and Programme – Recruitment Process – Sources.

(13 Hours)

UNIT III :

Selection : Meaning –Selection Process – Selection Tests – Selection Interview: Types- Steps. Orientation– Placement – Promotion – Transfer – Separation.

(13 Hours)

UNIT IV :

Human Resource Development : Concept – Need for HRD–Human Re engineering- Learning Organisation – Knowledge Management.

Training : Concept–Role of Training and Development– Methods.

(13 Hours)

***UNIT V :**

Performance Appraisal : Objectives – Process – Methods – Barriers.

Compensation Management : Objectives – Job Evaluation: Process of Job Evaluation – Methods – Compensation Plan – Factors.HRM Audit.

(13 Hours)

Starred Unit is self- learning portion.

Books for Reference:

Human Resource Management : L.M.Prasad,
Sultan Chand and Sons,
New Delhi. Ed. 2011

Human Resource Management : Dr. C.B. Gupta
Sultan Chand and Sons
New Delhi,Ed. 2014.

Course Designed By : Dr.R. Parameswari

Course Reviewed By : Dr.N. Lakshmi

Checked By : Dr.K. Punithavalli

M.Com**Semester II****Core IX – Computerised Accounting****15MC09**

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:**(65 Hours)**

The objectives of this course are:

- To expose the students on the practical applications of computer in accounting.
- To enable students to gain expertise in working with accounting package.

List of Practicals

1. Company , account category creation and alteration.
2. Creating and Display of Ledger accounts.
3. Entering financial transactions in vouchers.
4. Adjustment entries creation.
5. Altering statutory, taxation and inventory features.
6. Creation and alteration: measures of units, stock group, stock item, godown, cost

- centre, tax masters.
7. Display list of books, Stock Summary, Trial Balance.
 8. Creation of payroll masters, pay heads, deductions and processing pay roll.
 9. Display of reports: Profit & Loss a/c and Balance Sheet.
 10. Display of Ratio, Fund flow and cash flow.

M.Com
Semester II
Institutional Training **15MCIT**

(For the students admitted from the academic year 2015 – 2016 onwards)

Institutional Training

The student shall undergo the Institutional Training in any of the following institutions for two weeks

1. Commercial Banks
2. Insurance Companies
3. Joint Stock Companies
4. Logistic Companies
5. Co-operative Societies
6. Share Brokers, Firms of Investment Consultants
7. Professional Firms – like firms of Chartered Accountants / Cost Accounts / Company Secretaries
8. Travel Agencies and Courier Services

A Report submitted by the student on the completion of the training would be subject to Internal Evaluation with 50 marks for Report and viva voce 50 marks.

M.Com
Semester II
Elective II - Services Marketing **15MCE2**

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble : **(65 Hours)**

- To expose the students to the dynamics of services marketing.
- To develop the ability to understand the marketing practices of all major services.

UNIT I

Services Marketing: Features–need – significance– Behavioural profile of users – Marketing Information System – emerging key service

(13 Hours)

UNIT II

Marketing mix in service marketing: Meaning – The seven Ps: Product decisions, Pricing – Strategies and Tactics, Promotion of services and placing - distribution methods for services. Dimension in services marketing – People, Physical Evidence and Process – Capacity planning – capacity scheduling – Internal Marketing.

(13 Hours)

UNIT III

Transport Marketing: Uses— marketing segmentation for transportation. –Railways – Road Transportation - Civil Aviation.

(13 Hours)

UNIT IV

Tourism Marketing : concept – user of tourism services – behavioural profile of users – product planning and development – marketing segmentation for tourism – Marketing Information System for tourism – marketing mix for tourism.

Hotel Marketing : Hotel and its typology – Hotel marketing – concept – users of Hotel services – Market Segmentation for Hotels – behavioural profile of users – MIS for Hotels – Product planning and development – marketing mix for Hotels.

(13 Hours)

***UNIT V**

Personal care Marketing: concept – users of personal care services – behavioural profile of users – marketing segmentation for the personal care organizations – MIS for the personal care organizations – formulation of Marketing mix to the personal care organization.

Hospital Marketing: Types of hospitals – Marketing Medicare — strategic thrust areas for medicine – services Marketing for Hospitals. Product planning and development.

(13 Hours)

Starred Unit is self- learning portion.

Books for reference:

- Services Marketing : S.M. Jha ,
Himalaya Publishing house,
Mumbai. Edition 2008
- Services Marketing : B. Balaji, S. Chand and Co.
and Management New Delhi, Edition 2012
- Services Marketing : R.Srinivasan
The Indian Context PHI Learning Private Limited, Delhi 4th Ed 2014.
- Course Designed By : Dr.M.Kalavathi
- Course Reviewed By : Dr.N.Lakshmi
- Checked By : Dr.K. Punithavalli

M.Com

Semester III

Core X – E Tools and Techniques for Research – Practicals 15MC10

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To provide knowledge of the applications of computers in research activities.
 - To enlighten on the statistical tools applicable for research in business and management.
1. Preparation of a questionnaire.
 2. Coding and Preparation of Master Table.
 3. Measures of Central Value: Mean, Quartiles and Percentiles.
 4. Measures of Variation: Range, Quartile deviation, Standard deviation, Coefficient of Variation.
 5. Correlation Analysis: simple correlation, rank correlation.
 6. Regression analysis.

7. Hypothesis Testing for Mean.
8. Hypothesis Testing for Variance
9. Hypothesis Testing: Chi-square test.
10. Diagrammatic and graphic representation.

Course Designed By : Dr.N.Lakshmi

Course Reviewed and Checked By : Dr.K. Punithavalli

M.Com
Semester III

Core XI– Security Analysis and Portfolio Management **15MC11**
(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To acquaint students with the process of investment management.
- To enhance the employability of students in security analysis and portfolio management.

***UNIT I :**

Investment: importance of investment – factors favourable for investment -investment media – features of investment programme – investment process –Security valuation - risk and return. Securities Market: constituents, instruments.

(13 Hours)

UNIT II :

SEBI : functions and powers, regulatory role, investors protection.
New Issue Market: services – intermediaries in the NIM - methods of marketing securities.
Book Building: Characteristics, process of book building, advantages of book building.

(13 Hours)

UNIT III :

Secondary Market: Method of trading - online share trading – factors influencing security prices.
Depository System : process of dematerialization – depositories in India – benefits of depositories.

(13 Hours)

UNIT IV :

Fundamental Analysis :economic, industry and company analysis.
Technical Analysis : tools of technical analysis – Dow Theory.

(13 Hours)

UNIT V :

Portfolio Management: phases of portfolio management-Portfolio Analysis -Portfolio selection – Portfolio Revision - Portfolio performance evaluation - Markowitz Theory - CAPM.

(13 Hours)

Note: Theory only.

Starred Unit is self- learning portion.

Books for Reference:

Investment Management:

Security Analysis and Portfolio Management : Preeti Singh
Himalaya Publishing House,
Mumbai 18th, Edition, 2013.

Investment and Securities Markets in India	: V.A.Avadhani,Himalaya Publishing House, Mumbai, 9 th Ed, 2011.
Capital Markets	: Dr. S. Gurusamy, Tata McGraw Hill Education Private Ltd, New Delhi, 2 nd Reprint, 2011
Security Analysis and Portfolio Management	: S. Kevin Prentice-Hall of India(P)Ltd, New Delhi, 12 th Printing 2014
Investments	: William F. Sharpe, Gordon J. Alexander, Jeffery V. Bailey. Prentice-Hall of India(p)Ltd, Delhi, 04
Course Designed By	: Dr. N. Lakshmi
Course Reviewed & Checked By	: Dr.K. Punithavalli

M.Com
Semester III

Core XII – Applied Costing

15MC12

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To expose students to accounting techniques and practices.
- To familiarize students with innovations in accounting.

UNIT I:

Cost Management –Strategic Cost Management – Activity Based Costing – Target Costing – Life Cycle Costing – Value Chain Analysis.

(13 Hours)

UNIT II:

Cost Volume Profit Analysis – Marginal Costing – Break Even Analysis – Applications of Marginal Costing and Cost Volume Profit Analysis – Cost Analysis for Decision Making – Differential Cost – Practical Applications of Differential Costs.

(13 Hours)

UNIT III:

Standard Costing – Analysis of Variances: Material Variance – Labour Variance – Overhead Variance – Sales Variance.

(13 Hours)

UNIT IV:

Budget and Budgetary Control:Preparation of sales budget – Production budget–Cost of production budget– Flexible budget - Master budget.

(13 Hours)

***UNIT V:**

ERP: features - need – scope.

MRP: system inputs – outputs.

Cost Control and Cost Reduction – Productivity and Value Analysis.

(13 Hours)

Note: Distribution of marks between theory 40% (only from I & V Module) and problems 60% respectively.

Starred Unit is self- learning portion.

Books for Reference:

Advanced Cost Accounting : S.P. Jain and K.L. Narang

Kalyani Publishers, New Delhi.Edn.2012

Cost Management : Liming Guan, R Hansen, Maryanne. M. Mowen

Cengage Learning India Pvt Ltd, New Delhi 2013

Course Designed By : Dr.N. Lakshmi

Course Reviewed By : Dr.G. Suguna

Checked By : Dr.K. Punithavalli

M.Com

Semester III

Project Optional Paper I - Retail Management

15MCRM

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To understand the concepts in retail management.
- To promote the practitioners of retail trade.

Unit I

Retail – Meaning- Role of the retailer- Growth of retailer- Challenges of retailers- evolution of retail in India-drivers of retail change in India – Factors influencing retailing.

(13 Hours)

Unit II

Retail strategy-steps in retail strategy- retail value chain.

Retail location- types- steps in choosing retail location.

(13 Hours)

***Unit III**

Retail merchandising- role and responsibilities of merchandiser- role and responsibilities of buyer- methods of buying- principles of merchandising - types of merchandise - Merchandise planning- process of merchandise planning .

(13 Hours)

Unit IV

Category management- concept- reasons for the emergence of category management – components of category management – process of category management – role of Category Captain - drawbacks of category management.

Retail Marketing - Retail marketing mix – STP Approach -Retail communication mix.

(13 Hours)

Unit-V

Role of technology in retail – need for product identification : UPC – importance of IT in retail – Data Base Management, Data Warehousing, Data Mining – Internet Retailing .

Legal aspects of retail business –People perspective – Operations perspective. Ethical issues in retailing.

(13 Hours)

Starred Unit is self- learning portion.

Books for Reference

- | | |
|--|--|
| 1.Retail Management
Text and Cases | : Swapna Pradhan
Tata McGraw-Hill Education Pvt Ltd
New Delhi. 4 th Ed. 2012. |
| 2. Retail Management
A Strategic Approach – | : Barry Berman and Joel R Evans
Prentice Hall of India (P) Ltd.
New Delhi 2007 |
| Course Designed By | : Dr.C.Pushpalatha |
| Course Reviewed By | : Dr.K.Umamageswari |
| Checked By | : Dr.K. Punithavalli |

**M.Com
Semester IV**

Core XV- Financial Services

15MC15

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The objective of this course are :

- To familiarize students with the recent financial services.
- To enhance employability of students in financial sector.

UNIT I :

Financial Services: functions – characteristics - problems of financial services sector – regulatory framework – forces influencing financial services.

Securitization: features - need for securitization- benefits of securitization.

(13 Hours)

UNIT II :

Merchant Banking: functions - SEBI guidelines for merchant banking.

Factoring and forfaiting: characteristics, types – legal implications of factoring – advantages and disadvantages – functions of a factor – factoring Vs bills discounting.

Forfaiting: modus operandi, advantages, factoring Vs forfaiting.

(13 Hours)

***UNIT III :**

Leasing : characteristics – types – financial lease Vs operating lease - leasing process - benefits – limitations of lease financing.

Venture Capital: features, stages of venture capital financing – benefits of venture capital funds.

(13 Hours)

UNIT IV:

Mutual Funds : features, categories of schemes, organisation of a mutual funds in India - portfolio management process – evaluating mutual funds – SEBI regulations for mutual funds.

(13 Hours)

UNIT V:

Credit Rating : features, advantages of credit rating, CRISIL, ICRA, CARE - factors determining credit rating – equity grading.

(13 Hours)

Starred Unit is self- learning portion.

Books for Reference:

1. Merchant Banking and Financial Services : Dr.S. Gurusamy ,
Vijay NicoleImprints (p)Ltd,
4th Ed, 2013, Chennai, 2010
2. Financial Services : M.Y.Khan, Tata Mc Graw-Hill publishing
Company Limited, New Delhi, 2009.
3. Financial Services : E. Gordon and K.Natarajan,
Himalaya Publishing House, Delhi-9thEd-2014.

Course Designed By : Dr.N. Lakshmi
Checked Reviewed & Checked By : Dr.K. Punithavalli

**M.Com
Semester IV**

Core XVI – Export Management

15MC16

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The main objective of this paper is

- To provide a conceptual framework of export trade.
- To help students gain practical knowledge about the subject.

UNIT I

Exports-Methods of exporting: direct exporting and indirect exporting-Registration formalities- obtaining IEC Number- RCMC and Export license - Selection of export products- Selection of markets for exports - Selection of overseas buyers. Composition and Direction of India's exports.

(13 hours)

***UNIT II**

Foreign Trade Policy 2009-2014-Background-General objectives-Highlights of Foreign Trade Policy 2009-2014 - Special focus initiatives - Export promotion measures in India. Institutional framework of foreign Trade. .

(13 hours)

UNIT III

Export Procedure and Documentation: Export procedure-steps in export procedure-Pre-shipment procedure-Shipment procedure-Post-shipment procedure-export contract-elements of export contract- Aligned Documentation System (ADS)-Commercial Documents-principal commercial documents and auxiliary commercial documents-Regulatory Documents.

(13 hours)

UNIT IV

Export pricing and methods of payment- Factors affecting determination of export price-importance of export pricing-export pricing strategies-components of export pricing-INCOTERMS-methods of payments-Letter of credit- Procedure for opening letter of credit-types of letter of credit-advantages of letter of credit.

(13 hours)

UNIT V

Export finance-need-Terms of payment-Pre-shipment finance-features-types-Post-shipment finance-features –types-comparison of pre-shipment finance and post-shipment

finance-Role of RBI and Commercial banks in export finance-Export and Import Bank of India (EXIM)-Export Credit Guarantee Corporation of India.

(13 hours)

Starred Unit is self- learning portion.

Books for Reference:

Export Import Procedures
and Documentation:

: Khushpat S.Jain ,Himalaya Publishing
House, 6th Ed. 2013, Mumbai

Export Management

: T.A.S. Balagopal,
Himalaya Publishing House, 20thEd, 2010, Mumbai

International Trade and Export :
Management:

Francis Cherunilam,
Himalaya Publishing House, 16th Ed 2014, Mumbai

Export Management

: D.C.Kapoor,
Vikas Publishing House, Edition 2007, New Delhi

Course Designed By : Dr.R.Vanamadevi

Course Reviewed By : Dr.G.Suguna

Checked By : Dr.K.Punithavalli

M.Com

Semester IV

Elective IV – Logistics Management

15MCE4

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To know the concepts and role of logistic management.
- To understand the importance of customer service in logistics management.

UNIT I

Supply Chain and Competitive performance- Marketing and Logistics Interface- work of logistics-Inventory Management policy-operating objectives of integrated logistics-barriers of internal integration.

(13 Hours)

UNIT II

Principles of Logistics Information – Principles of Designing –logistics information architecture- application of information technology.

Forecasting: forecasting process - characteristics of forecast components-forecast approaches-inventory planning - type-inventory functionality-conceptual framework of inventory-inventory categorization-costs associated with an inventory - EOQ Model-ABC analysis and CVA analysis.

(13Hours)

UNIT III

Inventory management policies-Inventory control procedures - inventory planning methods - conceptual design of a combined DRP/MRP system -transportation-transport functionally and principles-principles of transportation -participants in transportation decisions-modal characteristics – intermodal operators-transport economics.

(13Hours)

***UNIT IV**

Materials handling and packaging-types of material handling system-packaging-containerization and material handling - warehousing-role of warehousing in logistical system-principles of warehouse design - types of warehouses-warehousing strategies-warehouse functions - logistics costing-concept of total logistics cost logistics performance evaluation - outsourcing considerations - issues of outsourcing decision.

(13 Hours)

UNIT V

Logistical organization-development of logistical organization - storehouse operations and control - objectives of stores functions-stores location and layout –storekeeping - stores accounting-integrated global logistics - basics of global logistics - global intermediaries - barriers to global logistics - cargo insurance and claims procedures-procedure and documentation.

(13 Hours)

Starred Unit is self- learning portion.

Books for Reference

- | | | |
|----------------------------|---|--|
| Logistics Management | : | Satish C.Ailawadi
Rakesh P. Singh
PHI Learning Private Limited
Delhi 2nd edition 2013 |
| Logistic Management | : | D. Ilangovan &S. Soosai John Rosario
United publishers, Mangalore First Ed.2011 |
| Logistics Management | : | Sussna K. Miller
Random Exports New Delhi |
| Logistics Management | : | V. V. Sople
Dorling Kindersley Pvt Ltd South Asia |
| Logistics and supply chain | : | Dr. S. Rathore
Advance Learner Press New Delhi First Ed.2013. |
- | | | |
|--------------------|---|-------------------|
| Course Designed By | : | Dr.R.Vanamadevi |
| Course Reviewed By | : | Dr.N.Lakshmi |
| Checked By | : | Dr.K.Punithavalli |

Curriculum Design
SRI G.V.G.VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Commerce
Scheme of Examination – CBCS Pattern
Programme - M.Com

(For the students admitted from the academic year 2015 – 2016 onwards)

	Semester IV						
15MC14	Core XIV – Strategic Management	5	3	25	75	100	4
15MC15	Core XV- Financial Services	5	3	25	75	100	4
15MC16	Core XVI – Advanced Corporate Accounting	5	3	25	75	100	4
15MCE4	Elective IV: Export Management	5	3	25	75	100	4
15MCPV/	Project / Optional paper	-	-	100	100	200	8
15MCM	Management Information System	5	3	25	75	100	4
	Advanced Learners' Course II						
15MCA2	Subject Viva Voce	-	-	-	100	100	4*

*Starred Credits are treated as additional credits which are optional.

M.Com

Semester IV

Core XVI - Advanced Corporate Accounting 15MC16

(For the students admitted from the academic year 2015-2016 onwards)

Preamble: **(65 Hours)**

The objectives of this course are:

- To provide knowledge on corporate accounting.
- To expose students on recent developments in corporate environment.

Unit I (Problem Only)

Issue of Shares and Debentures – Forfeiture and Re-issue of shares. **(13Hours)**

Unit II (Problem Only)

Preparation of Final Accounts of Companies. **(13 Hours)**

Unit III (Problem Only)

Accounts of Holding Companies [excluding cross holdings and chain holdings]: Definition – Consolidated Balance sheet – Minority interest – Cost of control – Pre- acquisition reserves and profits – post-acquisition profit.

(13 Hours)

Unit IV (Theory Only)

Financial Statements: Definition-nature-attributes-importance- limitations. Analysis of Financial Statements: objectives-types-Techniques: Comparative and common size Financial Statement Analysis- Trend Analysis –Fund Flow Analysis

– Cash Flow Analysis – Ratio Analysis –limitations of Financial Statement Analysis. **(13 Hours)**

*** Unit V (Theory Only)**

Financial Reporting: Objectives-users of accounting information-statutory reporting and non-statutory reporting-approaches. Disclosure requirements: Directors' report- Auditors' report-recent trends in published accounts- interim financial reporting.

Environment Accounting: need- scope-forms- advantages- elements – mechanism.

Green Accounting:-need - benefits- limitations. **(13 Hours)**

Note: Distribution of marks for Theory and problem shall be 40% and 60% respectively.

Books for Reference

Advanced Accountancy VOL II: S.P.Jain and K.L.Narang,
Kalyani Publishers, New Delhi 20th Ed. 2016.

Corporate Accounting :T.S.Reddy and A. Murthy,
Margham Publishers, Chennai. 6thEd. 2017.

Starred Unit is self- learning portion.

M.Com

Semesterwise Distribution with Scheme of Examination
(For students admitted from 2014 – 2015 onwards)

Semester	COURSE	Duration of Exam Hrs (ESE)	Marks		Total	Credits
			CIA	ESE		
I	Core I - Business Environment	3	25	75	100	5
	Core II - Managerial Economics	3	25	75	100	5
	Core III - Financial Management	3	25	75	100	5
	Elective I - Marketing Management	3	25	75	100	3
	Diploma Paper I - Ms Office - Practicals	3	100	-	100	3
II	Core IV - Research Methodology	3	25	75	100	5
	Core V- Managerial Accounting	3	25	75	100	5
	Core VI - Human Resource Management	3	25	75	100	5
	Institutional Training	3	100	-	100	3
	Elective II - Retail Management	3	25	75	100	3
	Diploma Paper II – HTML & DHTML	3	100	-	100	3
	Advanced Learners' Course - I					
	Services Marketing	3	-	100	100	4*
III	Core VII – Statistical Methods	3	25	75	100	5
	Core VIII Security Analysis and Portfolio Management	3	25	75	100	5
	Core IX- Export Management	3	25	75	100	5

	Project	-	-	-	-	-
	Elective III - Organisational Behaviour	3	25	75	100	3
	Diploma Paper III – Data Analysis using Ms Excel	3	100	-	100	3
IV	Core X– Strategic Management	3	25	75	100	5
	Core XI- Financial Services	3	25	75	100	5
	Project	-	100	100	200	8
	Elective IV Logistics Management	3	25	75	100	3
	Diploma Paper IV - Photoshop	3	100	-	100	3
	<u>Advanced Learners' Course II</u>					
	Income Tax	3	-	100	100	4*

Total Credits

90

*Starred Credits are treated as additional credits.

M.Com

Semester I

14MC01

Core I - Business Environment

(For students admitted from 2014 – 2015 onwards)

Preamble:

(75 Hours)

The objective of this course is to develop the ability to understand and scan the Business Environment.

Module I:

Business and Society: Changing Concept of Business – Objectives of Business — Factors Influencing the Choice of Objectives.

Business Environment – Concept – Nature and Significance of Business Environment – Types of Business Environment – Internal and External Environment – Elements of External Environment – Micro and Macro Environment – Impact of Environment on Business and Strategic Decisions. (15 Hours)

Module II:

Business Ethics and Values: Concept and Nature of Business Ethics – Elements of Business Ethics – Sources of Ethical Standards – Need for Ethics in Business. Industrial Policy up to 1991 – The New Industrial Policy. Department of Industrial Policy and Promotion. (15 Hours)

Module III:

Privatisation and Disinvestment - Ways of Privatisation — Benefits of Privatisation – Arguments for and against Privatisation. (14 Hours)

Module IV:

Globalisation of Business – Meaning and Features of Globalisation – Foreign Market Entry Strategies – Implications and Impact of Globalisation – Globalisation of Indian Business – GATT and WTO – Functions of WTO. (16 Hours)

Module V:

Foreign Investment: Significance – Government Policy towards Foreign Investments in India – Multinational Corporations: Reasons for growth of MNCs– *Merits and Demerits of MNC's – Regulation of MNC's. (15 Hours)

Starred and Underlined Portions : Self Study

Books for Reference:

- Business Environment : Francis Cherunilam
Himalaya Publishing Co. Ltd Edition 2005
- Business Environment : C. B. Gupta
Sultan Chand and Sons
New Delhi. 3rd Edition 2009
- Economic Environment of Business : M. Adhikary
Sultan Chand and Sons, New Delhi, 2006
- Essentials of Business Environment : K. Aswathappa
Himalaya Publishing House, Mumbai, 2006
- Business Environment : Justin Paul
Text and Cases : Tata McGraw-Hill Publishing Company Limited
New Delhi 2nd Edition 2008

- Course Designed By : G. Suguna
Course Reviewed & Checked By : K. Punithavalli

**M.Com
Semester I**

**Core III – Financial Management 14MC03
(For students admitted from 2014 – 2015 onwards)**

Preamble : (75 Hours)

The objectives of this course are:

- To help students understand the conceptual framework of financial management.
- To acquaint them with the knowledge of corporate financial applications.

Module I:

Nature and Scope of Financial Management-Objectives-Traditional and Modern approach of Financial Management-Financial decisions-Relationship between risk and return-Role and functions of Financial Manager. (15 Hours)

Module II:

Cost of capital – Meaning and importance – cost of debt, preference, equity and retained earnings-Weighted average cost of capital – Marginal cost of capital. Financial leverage - measures – EBIT and EPS analysis – Operating leverage – Financial, business and operating risk. (15 Hours)

Module III:

Capital Budgeting - Meaning and importance – Techniques : Pay back method – Accounting Rate of return method and Discounted cash flow methods.

Capital structure – Theories of capital structure – Net Income approach - Net Operating Income approach – MM Hypothesis – Determinants of Capital structure. (15 Hours)

Module IV:

*Working Capital Management – Concepts - Need -Types of Working Capital – Management of Cash, Inventory and Accounts Receivables. (15 Hours)

Module V:

Dividend – Meaning – Theories of dividend – Walter’s Model – Gordon and MM’s Models –Dividend policy and forms of dividend - Determinants of Dividend policy. (15 Hours)

Note: Distribution of marks between theory and problems shall be 60% and 40% respectively.

Starred and Underlined Portions : Self Study

Books For Reference:

1. Financial Management : IM Pandey, Vikas Publishing House, New Delhi, Edition 2010.
2. Financial Management : Khan and Jain, Tata McGraw Hill Publishing, Co., Ltd., New Delhi, Edition 2006.
3. Financial Management : S.N.Maheswari, Sultan Chand and Sons, New Delhi, Edition 2008.
4. Financial Management : Van Horne, Prentice Hall of India, New Delhi , Edition 2003.
5. Financial Management : Prasanna Chandra, Tata Mc-Graw Hill Publishing Company Limited, New Delhi, Edition 2006.

Course Designed By : R. Parameswari

Course Reviewed By : G. Suguna

Checked By : K. Punithavalli

M.Com**Semester I****Elective I - Marketing Management****14MCEI****(For students admitted from 2014-2015 onwards)****Preamble:****(65 Hours)**

The objective of this course is to facilitate understanding of the conceptual framework of marketing and its applications in decision making under various environmental constraints.

Module I:

Marketing Concept-modern marketing concept - Marketing Mix. Marketing Environment - Macro and Micro Components – Environmental Analysis and its Impact on Marketing Decisions. (13 Hours)

Module II:

Market Segmentation – Buyer Behaviour — Consumer Decision Making Process. (13 Hours)

Module III:

Major Product Decisions – Product Life cycle – Strategic Implications and New Product Development and adoption process.

Pricing Decisions: *Factors affecting price determination – Pricing policies and strategies. (13 Hours)

Module IV:

Channels of Distribution: Nature – *Functions and Types of Distribution Channels - Channel Management Decisions.

Internet and Marketing: Effects of the internet on markets – marketing strategy and the internet – marketing channels and marketing research. (13 Hours)

Module V:

Promotion Decisions: Promotion Mix – Advertising- Advertising Budgets –Media selection – Personal selling -Sales Promotion – Methods. (13 Hours)

Starred and underlined portions: Self Study

Books for Reference:

- | | |
|-------------------------------------|---|
| Marketing Management Text and Cases | : SHH Kazmi
Excel Books, New Delhi, 1 st Edition, 2007 |
| Marketing Management | : Philip Kotler, Kevin Lane Keller,
Abraham Koshy, Mithileshwar Jha
Pearson Education
New Delhi, 3 rd Edition, 2009 |
| Marketing Management | : Rajan Saxena
Tata McGraw-Hill Publishing Company Ltd
New Delhi, 3 rd Edition 2007 |
| Marketing Management | : C. B. Gupta and N. Rajan Nair
Sultan Chand and Sons
New Delhi, 9 th Edition 2007 |
| Marketing Management | : S. A. Sherlekar
Himalaya Publishing House
Chennai, 13 th Edition 2007 |
| Course Designed By | : R. Parameswari |
| Course Reviewed & Checked By | : K. Punithavalli |

Diploma Paper I - Ms Office –Practicals
(For students admitted from 2014 – 2015 onwards)

List of Practicals:

Ms Word:

- Create an advertisement copy.
- Create a mail merge and draft a letter.
- Program sheet preparation.
- Invitation card.
- Resume preparation

Ms Power Point:

- Presentation of power point presentation.
 - Picture insertion
 - Chart creation
 - Animation
 - Hyperlink
- Preparation of meeting presentation

Ms-Access:

- Customer
- Supplier
- Employee
- Shareholder

(52 Hours)

M.Com

Semester II

Core V –Managerial Accounting

14MC05

(For students admitted from 2014-2015 onwards)

Preamble:

(75 Hours)

The objectives of this course are:

- To expose students to accounting techniques and practices
- To familiarize the students with innovations in accounting.

Module I:

Preparation and presentation of Company Final accounts. (15 Hours)

Module II:

Ratio Analysis: Analysis of Liquidity, Solvency and Profitability. Construction of Balance Sheet. (15 Hours)

Module III:

Cost Volume Profit Analysis – Marginal Costing – Break Even Analysis – Applications of Marginal Costing and Cost Volume Profit Analysis – Cost Analysis for Decision Making –

*Differential Cost – Practical Applications of Differential Costs.
(15 Hours)

Module IV:

Standard Costing – Analysis of Variances: Material Variance – Labour Variance – Overhead Variance – Sales Variance. (15 Hours)

Module V:

Cost Management –Strategic Cost Management – Activity Based Costing – Target Costing – Life Cycle Costing – Value Chain Analysis.

- *Cost Control and Cost Reduction – Productivity and Value Analysis. (15 Hours)

Note: Distribution of marks between theory 20% (only from V Module) and problems 80% respectively.

Self Study: Starred and Underlined Portions.

Books for Reference:

Advanced Cost Accounting : S.P. Jain and K.L. Narang
Kalyani Publishers, New Delhi.Edn.2007

Cost Management : Liming Guan, R Hansen, Maryanne. M. Mowen
Cengage Learning India Pvt Ltd, New Delhi 2009

Advanced Accountancy : S.P. Jain and K.L. Narang,
Kalyani Publishers, New Delhi, Edition 2009.

Accountancy : S.Kr. Paul, Vol – I and Vol - II
New Central Book Agency Pvt. Ltd., Calcutta,
Edition 2005.

Course Designed By : N. Lakshmi
Course Reviewed By : G. Suguna
Checked By : K. Punithavalli

**M.Com
Semester II**

**Core VI – Human Resource Management 14MC06
(For students admitted from 2014–2015 and onwards)**

Preamble: (75 Hours)

The objectives of this course are :

- To impart knowledge on various aspects of human resource management.
- To help students to understand the human resource management practices.

Module I :

Concept of Human Resource Management (HRM) – Functions– Qualities of HR Manager — Features of HRM – Environmental Influences on HRM- Human Resource Planning: Meaning – Importance – Process – Techniques for Forecasting Human Resource Needs – Barriers – HR Information System. (15 Hours)

Module II :

Job Analysis : Meaning – Uses – Process –Job description – Job specification – Recruitment : Meaning – Recruitment Policy – Factors affecting Recruitment Policy and Programme – Recruitment Process – Sources. (15 Hours)

Module III :

Selection : Meaning –Selection Process – Selection Tests – Selection Interview: Types-Steps. Orientation– Placement – Promotion – Transfer – Separation. (15 Hours)

Module IV :

Human Resource Development : Concept – Need for HRD–Human Reengineering-Learning Organisation – Knowledge Management. Training : Concept–Role of Training and Development– Methods. (15 Hours)

Module V :

Performance Appraisal : Objectives – Process – Methods – Barriers. Compensation Management : Objectives – * Job Evaluation : Process of Job Evaluation – Methods – Compensation Plan – Factors .HRM Audit. (15 Hours)

Self Study : Starred and Underlined Portions.

Books for Reference:

Human Resource Management : L.M.Prasad,
Sultan Chand and Sons,
New Delhi. Ed. 2010
Human Resource Management : Dr. C.B. Gupta
Sultan Chandand Sons
New Delhi, Ed. 2005.
Course Designed By : R. Parameswari
Course Reviewed By : N. Lakshmi
Checked By : K. Punithavalli

M.Com
Semester II
Institutional Training

(For students admitted from 2014– 2015 onwards)

Institutional Training

The student shall undergo the Institutional Training in any of the following institutions for two weeks

1. Commercial Banks
2. Insurance Companies
3. Joint Stock Companies
4. Logistic Companies
5. Co-operative Societies
6. Share Brokers, Firms of Investment Consultants
7. Professional Firms – like firms of Chartered Accountants / Cost Accounts / Company Secretaries
8. Travel Agencies and Courier Services

A Report submitted by the student on the completion of the training would be subject to Internal Evaluation with 50 marks for Report and viva voce 50 marks

M.Com
Semester II
Elective II - Retail Management **14MCE02**
(For students admitted from 2014-2015 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To understand the concepts in retail management
- To promote the practitioners of retail trade

Module I

Retailing- Characteristics - Drivers of retailing in India-Functional activities- Steps in Retail Management-Trends in retail Formats. (13 Hours)

Module II

Retail Location- Selecting the right location- steps: Regional Analysis- Trading area analysis - Actual Site Analysis- Features of the site – Retail location opportunities – Location and Retail strategy. (13 Hours)

Module III

Retail Pricing- Concept of pricing- Pricing strategies – factors affecting retail pricing strategies- Classification of potential Pricing objectives – Determining Pricing strategy and policies. (13 Hours)

Module IV

Retail Sales Promotion- Advertising – Types of Advertising – Selecting specific media vehicles- Sales Promotion- Objectives- Personal Selling – Process in Personal Selling. (13 Hours)

Module V

Retail Customer Service - Service objectives – Customer service process – Customer service activities – customer retention – Approaches – Customer Response Management – Implementing CRM programmes – GAPS model. (13 Hours)

Books for Reference:

1. Modern Retail Management, Principles and Techniques J.N.Jain P.P. Singh
Regal Publications ,New Delhi, 2012
2. Retail Management in New Dimension Kuldeep Singh
Global Vision Publishing House, 2011
3. Retailing Management, Text & Cases Swapna Pradhan
Tata Mc-Graw Hill Publishing Company
New Delhi, Edition 2010.

Diploma Paper II - HTML & DHTML

List of Programmes

- Design webpage with display text in physical & logical tags.
- Create a webpage with internal links.
- Construct a webpage and display a table using HTML.
- Construct a webpage and display various course offered by college using list tags in HTML.
- Create a webpage with two horizontal frames.
- Create a webpage with links between two vertical frames.
- Design a webpage for hospital.
- Design a webpage with list.
- Create a webpage using cascading style sheet.
- Create a student admission application form.
- Design a registration form for online exam.
- Design a login form.
- Create a simple webpage for a company.
- Design a website for a Bank. (52 Hours)

M.Com

Semester III

14MC08

Core VIII– Security Analysis and Portfolio Management (For students admitted from 2014-15 onwards)

Preamble:

(75 Hours)

The objectives of this course are:

- To acquaint students with the process of investment management.
- To enhance the employability of students in security analysis and portfolio management.

Module I :

Investment : importance of investment – factors favourable for investment - *investment media – features of investment programme – investment process –Security valuation - risk and return.

Indian Capital Market : constituents, instruments. (15 Hours)

Module II :

SEBI : functions and powers, regulatory role, investors protection.

New Issue Market: services – Intermediaries in the NIM - methods of marketing securities.

Book Building: Characteristics, process of book building, advantages of book building. (15 Hours)

Module III :

Secondary Market: Method of trading - online share trading – factors influencing security prices.

Depository System : process of dematerialization – depositories in India – *benefits of depositories. (15 Hours)

Module IV :

Fundamental Analysis :economic, industry and company analysis.

Technical Analysis : tools of technical analysis – Dow Theory. (15 Hours)

Module V :

Portfolio Management: phases of portfolio management-Portfolio Analysis —Portfolio selection – Portfolio Revision - Portfolio performance evaluation - Markowitz Theory - CAPM. (15 Hours)

Note: Theory only.

Self Study : Starred and Underlined Portions.

Books for Reference :

Investment Management: : Preeti Singh,
Security Analysis and Portfolio Management Himalaya Publishing House, Mumbai
XVII, Edition, 2009.

Security Analysis and :V.A.Avadhani,Himalaya Publishing
Portfolio Management House, Mumbai, III Ed, 2004

Capital Markets : Dr. S. Gurusamy,
Tata McGraw Hill Education Private
Ltd, New Delhi, 2nd Ed, 2010

Portfolio Management : S. Kevin Prentice-Hall of India(P)Ltd,
New Delhi. 2004

Investments : William F. Sharpe, Gordon J.
Alexander, Jeffery V. Bailey.
Prentice-Hall of India(p)Ltd, Delhi, 04

Course Designed By : N. Lakshmi

Course Reviewed & Checked By : K. Punithavalli

M.Com
Semester III
Core IX – Export Management
(For students admitted from 2014-15 onwards)

14MC09

Preamble:

(75 Hours)

The main objective of this paper is

- To provide a conceptual framework of export trade.
- To help students gain practical knowledge about the subject.

Module I

Exports-Methods of exporting: direct exporting and indirect exporting-Registration formalities- obtaining IEC Number- RCMC and Export license - Selection of export products- Selection of markets for exports - Selection of overseas buyers. Composition and Direction of India's exports. (15 hours)

Module II

Foreign Trade Policy 2009-2014-Background-General objectives-Highlights of Foreign Trade Policy 2009-2014 - Special focus initiatives - Export promotion measures in India. Institutional framework of foreign Trade. . (15 hours)

Module III

Export Documentation: Aligned Documentation System (ADS)-Commercial Documents-principal commercial documents and auxiliary commercial documents-Regulatory Documents – Export procedure-steps in export procedure-Pre-shipment procedure-Shipment procedure-Post-shipment procedure-export contract-elements of export contract. . (15 hours)

Module IV

Export pricing and methods of payment- Factors affecting determination of export price-importance of export pricing-export pricing strategies-components of export pricing-INCOTERMS-methods of payments-Letter of credit- Procedure for opening letter of credit-types of letter of credit-advantages of letter of credit. (15 hours)

Module V

Export finance-need-Terms of payment-Pre-shipment finance-features-types-Post-shipment finance-features –types-comparison of pre-shipment finance and post-shipment finance-Role of RBI and Commercial banks in export finance-Export and Import Bank of India-Export Credit Guarantee Corporation of India. (15 hours)

Self Study : Starred and Underlined Portions.

Books for Reference :

Export Import Procedures

and Documentation: : Khushpat S.Jain ,Himalaya Publishing House, 6th Ed. 2013, Mumbai

Export Management : T.A.S. Balagopal, Himalaya Publishing House, 20thEd, 2010, Mumbai

International Trade and Export : Francis Cherunilam, Management: Himalaya Publishing House, 16th Ed 2010, Mumbai

Export Management : D.C.Kapoor,

Vikas Publishing House, Edition 2007, New Delhi

Course Designed By : R.Vanamadevi
Course Reviewed By : G.Suguna
Checked By : K.Punithavalli

Diploma Paper III- Data Analysis using Ms Excel

- Presentation of Budget - Fixed, Flexible
- Presentation of Budget - Sales, Production & Cash
- Preparation of Employee Payroll
- Computation of Simple Interest, Compound Interest
- Computation of Present value, Annuity
- Calculation of Simple Correlation co-efficient
- Calculation of Linear Regression Analysis
- Analysis of Variance
- Chi-square test
- Drawing of Graphs and Charts (52 Hours)

M.Com

Semester IV

Core XI- Financial Services

14MC11

(For students admitted from 2014–2015 onwards)

Preamble: (75 Hours)

The objective of this course are :

- To familiarize students with the recent financial services.
- To enhance the employability of students in financial sector.

Module I :

Financial Services : functions – characteristics- constituents of financial services market – * problems of financial services sector – regulatory framework – forces influencing financial services – financial instruments. (15 Hours)

Module II :

Merchant Banking : functions - SEBI guidelines for merchant banking.
Securitization: features - need for securitization- benefits of securitization. (15 Hours)

Module III :

Leasing : characteristics – types – financial lease Vs operating lease - leasing process - benefits – limitations of lease financing.

Venture Capital: features, stages of venture capital financing – benefits of venture capital funds. (15 Hours)

Module IV :

Mutual Funds : features, categories of schemes, organization of a mutual fund in India - portfolio management process – evaluating mutual funds – SEBI regulations for mutual funds. (15 Hours)

Module V :

Credit Rating : features, advantages of credit rating, CRISIL, ICRA, CARE - factors determining credit rating – equity grading.

Factoring and forfaiting : characteristics, types – legal implications of factoring – advantages and disadvantages – functions of a factor – factoring Vs bills discounting. Forfaiting: modus operandi, advantages, factoring Vs forfaiting.

(15 Hours)

Self Study : Starred and Underlined Portions.

Books for Reference:

1. Financial Services and Markets : Dr.S. Gurusamy , Vijay Nicole
Imprints (p)Ltd, Chennai, 2004
2. Financial Services : M.Y.Khan, Tata Mc Graw-Hill publishing
Company Limited, New Delhi, 2007.
3. Financial Services : Dr. D. Joseph Anbarasu and Others,
4. Financial Services : E. Gordon and K.Natarajan,
Himalaya Publishing House, Delhi-Ed-2007.

Course Designed By : N. Lakshmi

Course Reviewed By : G. Suguna

Checked By : K. Punithavalli

M.Com

Semester IV

Elective IV – Logistics Management 14MCE4

Preamble:

(65 Hours)

The objective of this course are :

- To know the concepts relating to logistic management.
- To understand the role of logistic providers.
- To understand the importance of customer service in logistics management.

Module I

Supply Chain and Competitive performance- Marketing and Logistics Interface- work of logistics-Inventory Management policy-operating objectives of integrated logistics-barriers of internal integration.

(13 Hours)

Module II

Principles of Logistics Information – Principles of Designing –logistics information architecture- application of information technology. Forecasting: forecasting process - characteristics of forecast components-forecast approaches-inventory planning - type-inventory functionality-conceptual framework of inventory-inventory categorization-costs associated with an inventory - EOQ Model-ABC analysis and CVA analysis.

(13 Hours)

Module III

Inventory management policies-Inventory control procedures - inventory planning methods - conceptual design of a combined DRP/MRP system -transportation-transport functionally and principles-principles of transportation -participants in transportation decisions-modal characteristics – intermodal operators-transport economics.

(13 Hours)

Module IV

Materials handling and packaging-types of material handling system-packaging-containerization and material handling - warehousing-role of warehousing in logistical system-principles of warehouse design - types of warehouses-warehousing strategies-warehouse functions - logistics costing-concept of total logistics cost logistics performance evaluation - outsourcing considerations - issues of outsourcing decision.
(13 Hours)

Module V

Logistical organization-development of logistical organization - storehouse operations and control - objectives of stores functions-stores location and layout –storekeeping - stores accounting-integrated global logistics - basics of global logistics - global intermediaries - barriers to global logistics - cargo insurance and claims procedures-procedure and documentation.
(13 Hours)

Books for Reference

- Logistics Management : Satish C.Ailawadi
Rakesh P. Singh
PHI Learning Private Limited
Delhi 2nd edition 2013
- Logistic Management : D. Ilangoan &S. Soosai John Rosario
United publishers, Mangalore First Ed.2011
- Logistics Management : Sussna K. Miller
Random Exports New Delhi
- Logistics Management : V. V. Sople
Dorling Kindersley Pvt Ltd South Asia
- Logistics and supply chain : Dr. S. Rathore
Advance Learner Press New Delhi First Ed.2013.

Diploma Paper IV- Photoshop

List of programmes

- Create a ZIF transparency.
- Design a 3D text.
- Create a typographical style sheet.
- Use the heal brush and make change in an image.
- Build a glow effect with stroke path.
- Show/hide a layer.
- Merge two or more layers.
- Create different layer effect.
- Build lighting effects and difference clouds.
- Annotate files with text and audio.
- Create type masking.
- Build a filter based ZIF animation.
- Create an advertisement.
- Design a student ID card.
- Create a news letter.

(52 Hours)

Department of Commerce
B.Com. Syllabus – 2012-2013 Batch

Sem Est er	COURSE	Credi ts	Duratio n of Exam Hrs (ESE)	Marks		TOTAL
				CIA	ESE	
I	Part I – Tamil/Hindi/French/Malayalam Course - I	3	3	25	75	100
	Part II – English Course - I	3	3	25	75	100
	Part III Core Course I- Accountancy-I	4	3	25	75	100
	Core Course II- Business Organisation	4	3	25	75	100
	Allied Course I - Computer Applications in Business - I	5	3	25	75	100
	Part IV – Environmental Studies	2	-	50	-	50
II	Part I–Tamil/Hindi/French/Malayalam - Course II	3	3	25	75	100
	Part II – English - Course II	3	3	25	75	100
	Part III Core Course III –Accountancy - II	4	3	25	75	100
	Core Course IV - Marketing	4	3	25	75	100
	Allied Course II – Computer Applications in Business II - Practicals	5	3	40	60	100
	Part IV – Value Education	2	-	50	-	50
	Advanced Learners' Course –I					
	Advertisement Management	3*	3	-	100	100
	Internship I	-	-	-	-	-
III	Part III Core Course V– Principles of Management	4	3	25	75	100
	Core Course VI -Commercial Law	4	3	25	75	100
	Core Course VII-Accountancy-III	4	3	25	75	100
	Core Course VIII- Export Import Procedures and Documentation	3	3	25	75	100
	Allied Course III – Mathematics in Business	5	3	25	75	100
	Part IV – Non Major Elective Course I	2	-	75	-	75
	Skill based Course I – Entrepreneurial Development I	3	-	100	-	100
	Part III Core Course I-Business Communication	4	3	25	75	100

IV	Core Course X-Company Law	4	3	25	75	100
	Core Course XI-Accountancy IV	4	3	25	75	100
	Core Course XII- Auditing	3	3	25	75	100
	Allied IV-Statistics for Business	5	3	25	75	100
	Part IV - Non Major Elective Course II	2	-	75	-	75
	Skill based Course II– Entrepreneurial Development II	3	-	100	-	100
	Advanced Learners' Course-II					
	Principles of Insurance / Finance and Accounting for Business Process Services - I	3*	3	-	100	100
	Internship II	-	-	-	-	-
V	Part III – Core Course XIII- Cost Accounting	4	3	25	75	100
	Core Course XIV- Income Tax	4	3	25	75	100
	Core Course XV- Financial Management	4	3	25	75	100
	Core Course XVI – Subject Viva Voce	2	3	25	75	100
	Elective Course I – Basics of Banking	5	3	100	-	100
	Part IV Skill Based Course III – Entrepreneurial Development-Practicals	3	-	100	-	100
VI	PartIII CoreCourseXVII-Management Accounting	4	3	25	75	100
	Core Course XVIII – Accountancy –V	4	3	25	75	100
	Core Course XIX - Investment Management	4	3	25	75	100
	Elective Course II- Banking Operations	5	3	100	-	100
	Elective Course III-Computerised Accounting-Tally	5	3	40	60	100
	Part IV – Skill Based Course IV-Project Work	3	-	-	-	100
	Advanced Learners' Course – III					
	Working Capital Management/ Finance and Accounting for Business Process Services - II	3*	3	-	100	100
	Part V Extension Activities	1	-		50	50

B.Com
Semester - I
Part-III Core Course I - Accountancy I
(For students admitted from 2012-2013 and onwards)

Preamble:

The objectives of this course are:

- To provide an indepth knowledge of accounting concepts and conventions.
- To acquaint them with the methods of applying accounting principles.

Module I :

Accounting concepts and conventions – Preparation of final accounts of a Sole trader.
(15 Hours)

Module II :

Single entry system – meaning and features – statement of affairs method and conversion method.
(15 Hours)

Module III :

Bill of exchange including accommodation bill. (15 Hours)

Module IV:

Consignment and Joint Venture. (15 Hours)

Module V:

Accounts of Non - Trading Concerns: Receipts and Payments a/c – Income and Expenditure a/c- Balance Sheet. (15 Hours)

Note: Distribution of marks for Theory and Problem shall be 40% and 60% respectively.

Book For Study:

Advanced Accountancy : S.P.Jain and K.L.Narang,
Kalyani Publishers, New Delhi, Edition 2009.

Books For Reference:

Advanced Accountancy : R.L.Gupta and M.Radhaswamy,
Sultan Chand and Sons, New Delhi, Ed 2008.

Financial Accounting: T.S.Reddy and A.Murthy,
Margham Publishers, Chennai, Edition 2006

Advanced Accountancy : R.S.N.Pillai and Bagavathi,
Konark Publishers Pvt.Ltd. Delhi. Edition 2006

Course Designed By : C. Pushpalatha

Course Reviewed By : R. Parameswari

Checked By : K. Punithavalli

B.Com.
Semester – I
Part-III Core Course II – Business Organisation
(For students admitted from 2012-2013 and onwards)

Preamble:

The objectives of this course are:

- To enable the student to prepare herself to become a business women.
- To become a knowledgeable executives in the business.

Module I:

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk – business ethics. (15 Hours)

Module II:

*Forms of organization: Sole Proprietorship – Characteristics – Advantages – Disadvantages. Partnership: Characteristics – Kinds – Registration of Partnership – Partnership Deed – *Advantages – Disadvantages – Rights and Obligations of Partners – Dissolution of a partnership firm. (15 Hours)

Module III:

Joint Stock Company – Characteristics – Kinds – Merits – Demerits.

*Co-operatives: Characteristics – Types – Evaluation of Co-operatives. Public Enterprises and Utilities – Characteristics – Objectives – Forms — Problems of Public Enterprises – Privatisation – Rationale – Public Utilities: Characteristics and Forms. (15 Hours)

Module IV:

Location of a business unit - Theories of location –factors influencing Location – Localization vs delocalization-size of a unit and scale of operations-Sources of finance: shares, debentures and public deposits. (15 Hours)

Module V:

E - Commerce: meaning – definition – nature- features of e- commerce – need – objectives – levels of e - commerce – steps for building an e- commerce system – advantages and disadvantages. (15 hours)

Book for study:

Business Organization and Office Management : R.K.Sharma and Shashi, K.Gupta,
Kalyani Publishers, Ludhiana, 3rd Edition 2007.

Books for reference:

Fundamentals of Business : Y.K .Bhusan, Sultan Chand and Sons,
Organization and Management New Delhi, Edition IX, 2007
E- Commerce E- Business : Dr.C.S.Rayudu
Himalaya Publishing House,]New Delhi.

Modern Business Organization and Management : S.A Sherlekar,
Himalaya Publishing House, Edition XV

Starred and Underlined Portion : Self Study
Course Designed By : M. Kalavathi
Course Reviewed By : G. Suguna
Checked By : K. Punithavalli

B.Com.
Semester – II
Part-III Core Course III – Accountancy II
(For students admitted from 2012-2013 and onwards)

Preamble:

The objectives of this course are:

- To provide knowledge of accounting principles.
- To teach applications of accounting principles in different business transactions.

Module I:

Depreciation – meaning- methods-reserves and provisions. (15 Hours)

Module II:

Hire Purchase and Installment Purchase System- hire purchase trading account. (15 Hours)

Module III:

Branch Accounting (excluding foreign branches) - Departmental Accounts. (15 Hours)

Module IV:

Fire claims including loss of profit claims. (15 Hours)

Module V:

Investment Accounting – Farm Accounting – Social Accounting. (15 Hours)

Note: Distribution of marks for Theory and Problem shall be 40% and 60% respectively.

Book For Study:

Advanced Accountancy : S.P.Jain and K.L.Narang,
Kalyani Publishers, New Delhi, Edition 2009.

Books For Reference:

Financial Accounting : T.S.Reddy and A.Murthy,
Margham Publishers, Chennai, Edition 2006
Advanced Accountancy : R.S.N.Pillai and Bagavathi,
Konark Publishers Pvt.Ltd. Delhi, Edition 2006

Course Designed By : C. Pushpalatha
Course Reviewed By : M. Kalavathi
Checked By : K. Punithavalli

B.Com.
SEMESTER II
Part III – Core Course IV - Marketing
(For students admitted from 2012 – 2013 and onwards)

Preamble:

The Objectives of this course are

- To impart the knowledge on various aspects of marketing functions.
- To give a comprehensive understanding of the marketing concepts.

Module I:

Marketing: meaning – objectives – importance of modern marketing concept – Marketing mix – Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales.
(15 hours)

Module II:

Functions of physical supply – *Transportation – functions – Classification of transport – merits – choice of mode of transportation- storage – advantages – Warehouse – functions – kinds -standardization and grading – types - Marketing finance – kinds of business finance - Marketing risk – causes – methods of handling risk.
(15 hours)

Module III:

Product– Product Life Cycle — New product planning – steps in New Product Planning .
Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing.
(15 hours)

Module IV:

Promotion: Importance – objectives – forms of promotion. Sales promotion – objectives – advantages – kinds of sales promotion - Advertising – objectives – functions – objections .
(15 hours)

Module V:

Channels of distribution – importance – types – *Classification of middlemen – Agent middlemen- Wholesaler – Retailer – kinds – services rendered – elimination of middlemen.
(15 hours)

Book for Study :

Modern Marketing : R.S.N. Pillai and Bagavathi
Principles and practice S. Chand and company, New Delhi. Edition 2009.

Books for reference:

Marketing : Dr. N. Rajan Nair and Sanjith R. Nair
Sultan Chand and sons, New Delhi, Edition 2006

Starred and Underlined Portions: Self Study

Course Designed By : S. Bhuvaneshwari
Course Reviewed By : K. Umamageswari
Checked By : K. Punithavalli

**B.Com.
Semester II**

**Allied Course II – Computer Applications in Business – II Practicals
(For students admitted from 2012-2013 and onwards)**

List of Practicals

Ms Word:

11. Create a Document and perform the following
 - a. Insert Header and Footer
 - b. Find and Replace Text
 - c. Use Column Form
12. Formatting of a Text document
13. Preparation of a Time Table
14. Preparation of a Curriculum Vita
15. Design a Cheque Leaf for a Bank
16. Prepare an Invoice
17. Send an Invitation to various colleges for the workshop using Mail Merge
18. Advertisement Copy

Ms Excel:

19. Prepare a Payroll for an employee using MS-Excel
20. Design a Mark Sheet
21. Calculate Annuity, Simple Interest, Compound Interest, Depreciation and Average
22. Create a chart for Sales, Purchase for a period of ten years

Ms Access:

23. Prepare a Product Database
24. Prepare a Student Database
25. Create an Employee Database
26. Prepare a Customer Database
27. Ms PowerPoint:
 28. Prepare a Slide Show for organising a Seminar
 29. Design a Slide Show for College Day Event
 30. Prepare a Slide show for Paper Presentation
 31. Demonstrate a product using Custom Animation

(75 Hours)

B.Com.
Semester – III
Part III Core Course V - Principles of Management
(For Students admitted from 2012-2013 and onwards)

Preamble:

The Objectives of this course are:

- To acquaint the students with the fundamentals of business management as a body of knowledge.
- To help the students to understand the principles and practice of management.

Module I:

Definition of Management – Nature and Scope of Management – Functions of Management – Contribution of F.W. Taylor, Henry Fayol, Mary Parker Follet and McGregor.
(13 Hours)

Module II :

Planning – Meaning, Nature and Importance of planning – Advantages and Limitations – Steps in planning – Decision making – Decision making process.
(13 Hours)

Module III :

Organisation – Meaning, Nature and importance - *Principles of Organisation – Classification of Organisation – Span of Control – Types of Organisation: Line, functional and Line and staff.
(13 Hours)

Module IV :

Staffing: Meaning and definition – Functions – Recruitment - selection – promotion.
Directing: characteristics- techniques.
(13 Hours)

Module V :

Leadership – Meaning – Importance of Leadership – Functions of a Leader – Qualities of a Leader – Types of Leadership.
Co-ordination – Need and Techniques – Control – Steps in Control Process – Techniques of Control.
(13 Hours)

Book for Study:

Principles of Management : T. Ramasamy,
Himalaya Publishing House, New Delhi. 6th Ed 2009.

Books for Reference:

Principles of Management : Dinkar Pagare,
Sultan Chand and Sons, New Delhi. Edition. 2003.

Principles of Management : P.N. Reddy and P.C. Tripathi
Himalaya Publishing House, New Delhi. Ed. 2008.

Starred and Underlined Portions : Self Study

Course Designed By : R. Parameswari
Course Reviewed By : N. Lakshmi
Checked By : K. Punithavalli

B.Com**SEMESTER III****Part III – Core Course VI – Commercial Law**

(For students admitted from 2012-2013 and onwards).

Preamble :

The Objectives of this course are

- To impart the students with basic knowledge of important laws applicable to business, trade and industry.
- To help students to gain complete knowledge about different elements of a valid contract.

Module I :

Indian Contract Act 1872 – Contract – Definition – Nature of contract and classification – Essentials of valid Contract – Offer and acceptance. (13 Hours)

Module II :

Consideration – Capacity to Contract – Free consent. (13 Hours)

Module III :

Legality of Object. Performance of Contract – Quasi contracts – Contingent Contracts. (13 Hours)

Module IV:

Modes of discharge of contract – Remedies for Breach of Contract. (13 Hours)

Module V:

Sale of Goods Act 1930 – *Sale and agreement to sell – Rules regarding passing of property – Conditions and warranties – Rights of unpaid vendor. (13 Hours)

Book for Study:

Elements of Mercantile Law : N.D. Kapoor,
Sultan Chand and Sons, New Delhi. 28th Edition. 2007

Book for Reference:

Business Law : R.S.N. Pillai and Bagavathi,
S.Chand and Company Ltd., Edition 2005

Starred and Underlined Portions : Self Study

Course Designed By : K. Umamageswari
Course Reviewed By : M. Kalavathi
Checked By : K. Punithavalli

B.Com.
SEMESTER III
Part - III Core Course VIII – Export-Import Procedures and Documentation
(For Students admitted from 2012-2013 and onwards)

Preamble :

The objectives of this course are:

- To expose the students with export and import trade.
- To familiarize the students with procedures of export import trade.

Module I :

Export-Import Policy of India- Objectives – Highlights of EXIM Policy 2004-09 - Export Promotion measures in India.

Export procedure – Registration stage – pre-shipment stage – post-shipment stage–quality control and pre-shipment inspection. (11 hours)

Module II :

Procedure for Excise clearance – shipping and Customs formalities – procedure for realization of export proceeds – realization of export incentives.

(11 hours)

Module III:

Proforma invoice – Commercial invoice – Packing list – Mate's Receipt – Bill of Lading – Certificate of Origin – Shipping Bill – Consular invoice – Air way Bill – GR form. (10 hours)

Module IV:

Import procedure – liberalization of imports – categories of importers – special schemes for imports – pre-import procedure. (10 hours)

Module V:

Import procedure: legal dimensions of import procedure – retirement of import documents–customs clearance procedure for imported goods– Bill of Entry. (10hours)

Book for Study:

Export Import Procedures &: Acharya Jain

Documentation

Himalaya Publishing House, 2nd Edition, 2010, Mumbai

Book for REFERENCES:

Export Management

: T.A.S. Balagopal,

Himalaya Publishing House, 20th Edition, 2010, Mumbai

Export Management

: D.C.Kapoor,

Vikas Publishing House, Edition 2007, New Delhi

Course Designed By

: R.Vanamadevi

Course Reviewed By

: Dr.G.Suguna

Checked By

: Dr.K.Punithavalli

B.Com.
SEMESTER III
Skill based course I – Entrepreneurial Development I
(For Students admitted from 2012-2013 and onwards)

Preamble :

The Objectives of this course are:

- To give exposure to the students to entrepreneurial culture.
- To guide the students to setup and manage small units.

Module I:

Entrepreneur: Meaning– Characteristics – Functions - Types – Entrepreneurs and managers – Entrepreneur and Economic Development. (8 Hours)

Module II:

Entrepreneurship– Characteristics – Factors stimulating Entrepreneurship –Environment for Entrepreneurship-Factors affecting Entrepreneurship growth. (7 Hours)

Module III:

Entrepreneurial Development Programmes: Need – objectives – phases of EDP (7 Hours)

Module IV:

Women Entrepreneurs –types-problems-remedial measures. (7 Hours)

Module V:

Micro Small and Medium Enterprises(MSME) - Steps for starting Micro Small and Medium Enterprises (7 Hours)

Book for study:

Entrepreneurship development : E. Gordon and K. Natarajan
Himalayan Publishing House, Delhi, Edition, 2009.

Books for Reference:

Entrepreneurial development : C.B. Gupta and N.P. Srinivasan
Sultan Chand and Sons, Delhi. Edition, 2005.
Fundamentals of entrepreneurship: Renu arora and S.K. Sood
and small business Kalyani Publishers, New Delhi. Edition, 2004.
Course Designed By : R. Vanamadevi
Course Reviewed By : R. Parameswari
Checked By : K. Punithavalli

B.Com.
SEMESTER IV
Part – III Core Course IX– Business Communication
(For students admitted from 2012-2013 and onwards)

Preamble:

The objectives of this course are:

- To develop the communicative ability of the students.
- To train the student in drafting effective business letters on matters relevant to day to day business operations with special emphasis on quality of presentation.

Module I:

Communication - Meaning – objectives – Media – Types of Communication – Barriers of communication. Business Letters: Need and functions – Effective business Letter – Planning and layout. Application Letters. (13 Hours)

Module II:

Enquiries and Replies - Orders and their execution. (13 Hours)

Module III:

Credit and Status enquiries – Complaints and Adjustments (13 Hours)

Module IV:

Collection letters – Sales letters – Circulars. (13 Hours)

Module V:

Report – qualities of good report – types of report- Report by Individuals.
E business communication – e mail – fax – teleconferencing – video conferencing. (13 Hours)

Book for Study:

Essentials of Business Communication: Rajendra Paul and J.S.Korlahalli,
S Chand and Sons, New Delhi, Edition.2006

Books for Reference:

Business Communication and: Dr. C.B. Gupta,
Customer Relations Sultan Chand and Sons, New Delhi. Ed 2001.
Business Communication : M.S. Ramesh & C.C. Pattanshetti,
[Effective Business English R. Chand and Co Publishers, New Delhi, Ed 2004
Correspondence]

Starred and Underlined Portions : Self Study

Course Designed By : C. Pushpalatha
Course Reviewed By : G. Suguna
Checked By : K. Punithavalli

B.Com.**Semester – IV****Part III Core Course X - Company Law**

(For students admitted from 2012-2013 and onwards)

Preamble:

The objective of this course is:

- To impart the basic principles of Company Law and Management.
-

Module I:

Company – Definition and Features – *kinds of companies – Incorporation of company – Certificate of Incorporation – Promoters – Pre incorporation contracts – Certificate of Commencement. (11 Hours)

Module II:

Memorandum of Association: Contents, Alteration. Articles of Association - Contents - alteration - *Doctrine of Ultra Virus – Legal effect of Memorandum and Articles- Constructive notice of Memorandum and Articles - Doctrine of indoor Management. (15 Hours)

Module III:

Prospectus – Definition —Contents – Misstatement in prospectus – Issue of shares – Application and Allotment of shares, Share certificate, Share warrant – Transfer and Transmission of shares. (15 Hours)

Module IV:

Company Meetings – Statutory Meeting - Annual General Meeting –Extraordinary General Meetings and Board Meetings – Resolutions, Minutes, Quorum and Proxy. (11 Hours)

Module V:

Company Management – Board of Directors – Appointment, * Qualification, Powers, duties, liabilities, and position of directors, Managing Director and Manager. (13 Hours)

Book for Study:

Elements of Company Law : N.D. Kapoor,
Sultan Chand and Sons, New Delhi, 29th Ed 2008.

Book for Reference:

Business and Corporate Law: Bansal C.L.,
Excel Books. Ed.2006

Self Study : Starred and Underlined Portions.

Course Designed By : K. Umamageswari
Course Reviewed By : M. Kalavathi
Checked By : K. Punithavalli

B.Com.**Semester – IV****Part III Core Course XI – Accountancy IV**

(For students admitted from 2012-2013 and onwards)

Preamble:

The objectives of this course are:

- To expose the students to the basic concepts in corporate accounting.
- To provide knowledge and develop skills in the construction of accounts of companies.

Module I :

Issue of Shares and Debentures – Forfeiture and Re-issue of shares – Underwriting of Shares and Debentures. (14 Hours)

Module II:

Redemption of Preference Shares and Debentures

(13 Hours)

Module III:Profits prior to incorporation - Preparation and presentation of final accounts – *Legal requirements: Depreciation – Reserves and Provisions. Managerial Remuneration.

(14 Hours)

Module IV:Accounting for Amalgamation: in the nature of merger - in the nature of purchase.
(Excluding inter-company holdings).

(12 Hours)

Module V:

Reconstruction- Reduction and re-organization of Share capital .

(12 Hours)

Note: Distribution of marks between theory and problems shall be 40% and 60% respectively.**Book for Study:**Advanced Accountancy : S.P.Jain and K.L.Narang (Vol II)
Kalyani Publishers, New Delhi, Edition 2009.**Books for Reference:**Advanced Accountancy : R.S.N.Pillai and Bagavathi,
Konark Publishers Pvt.Ltd. Delhi, Edition 2006Corporate Accounting : T.S.Reddy and A.Murthy
Margham Publications, Chennai – 600 017 Ed 2007**Starred and Underlined Portions: Self Study**Course Designed By : R. Parameswari
Course Reviewed By : K. Umamageswari
Checked By : K. Punithavalli**B.Com.****Semester – IV****Part III – Core Course XII – Auditing****(For students admitted from 2012-2013 and onwards)****Preamble :**

The objectives of this course are:

- To impart knowledge about principles and methods of auditing.
- To familiarise students with the techniques of auditing and its applications.

Module I :

Definition – Objectives of Auditing – Advantages and limitations of auditing – Auditing and investigation – Qualities of an Auditor – Qualification of a Company Auditor .
(11 Hours)

Module II :

Types of audit: Continuous audit – Final audit – Interim audit – Balance Sheet audit – Auditor's responsibility to consider fraud and error in audit of financial statements.
(11 Hours)

Module III :

Audit procedure – Planning of audit – Audit programme – Audit Note book – Audit working papers – Internal control and internal check – Internal check as regards cash, wages, sales, etc.,.
(10 hours)

Module IV :

Vouching: Meaning – Vouchers – Vouching of cash transactions – Trading transactions – Impersonal ledgers.
(10 Hours)

Module V :

Verification and valuation of assets and liabilities – Auditor's position - *Auditor's duty regarding depreciation – Reserves and provisions. Auditing and assurance standards.
(10 Hours)

Book for Study :

A Hand book of Practical Auditing : B.N. Tandon, S.Sudharsanam &
S.Sundharabahu
S.Chand & Co Ltd., NewDelhi Ed 2006.

Books for Reference :

Principles and Practice of Auditing : R.G. Saxena
Himalaya Publishing House
Mumbai. Edition. 2002
Auditing : R. Sharma
Lakshmi Narain Agarwal
Educational Publishers
Agra. Edition .2000

Starred and Underlined Portions : Self Study

Course Designed By : R. Parameswari
Course Reviewed By : C. Pushpalatha
Checked By : K. Punithavalli

B.Com.
Semester – IV
Skill Based Course II –Entrepreneurial Development II
(For students admitted from 2012-2013 and onwards)

Preamble:

The Objectives of this course are:

- To familiarize the students with the preparation of feasibility report
- To give exposure to the students about financial support

Module I

Project Identification : Meaning – Definition- Project classification- Project life cycle- Steps in project identification (5 hours)

Module II

Project Report: Contents – Importance- Guidelines in preparing a project report- Reasons for the failure of a project report (5 hours)

Module III

Project Appraisal: Meaning – Definition – Kinds of analysis. (5 hours)

Module IV

Institutional Support to Entrepreneurs : SIDO- SISI-NSIC-NRDC-SIDC-TCO-DIC (6 hours)

Module V

Institutional Finance to Entrepreneurs: SFC-TIIC-SIDBI- Commercial banks. (5 hours)

Book for study:

Entrepreneurship development : E. Gordon and K. Natarajan
Himalayan Publishing House, Delhi Edition, 2009.

Books for Reference:

Entrepreneurial development : C.B. Gupta and N.P. Srinivasan
Sultan Chand and Sons, Delhi. Ed 2005.

Fundamentals of entrepreneurship Renu arora and S.K. Sood
and small business Kalyani Publishers, New Delhi. Ed 2004.

Course Designed By : R. Vanamadevi
Course Reviewed By : R. Parameswari

B.Com.
SEMESTER V
Part III – Core Course XIII – Cost Accounting
(For students admitted from 2012-2013 and onwards).

Preamble :

The objectives of this course are:

- To impart knowledge about various methods of costing.
- To keep the students conversant with the frontiers of cost accounting.

Module I:

Cost Accounting – Definition – Meaning and Scope – Concept and classification – costing an aid to Management – Elements of cost – Types and methods of cost – Preparation of cost sheet. (15 Hours)

Module II:

Material Control: Levels of material Control – Purchases and Stores Control: *Purchasing of Materials – Procedure and documentation involved in purchasing - Stores Control – Perpetual inventory - Economic Order Quantity – ABC analysis - Methods of valuing material issue: FIFO, LIFO, Simple Average, and Weighted Average. (15 Hours)

Module III:

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover.
Overhead – Classification of overhead – allocation and absorption of overhead.
Calculation of Machine Hour Rate. (15 Hours)

Module IV:

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production). (15 Hours)

Module V:

Operating Costing – Contract costing – Reconciliation of Cost and Financial accounts. (15 Hours)

Note: Distribution of marks between theory and problem shall be 40% and 60% respectively

Book for Study :

Cost Accounting : S.P. Jain and KL. Narang
Kalyani Publishers, New Delhi. Edition 2008

Book for Reference :

Cost Accounting : R.S.N. Pillai and V. Bagavathi
S. Chand and Company Ltd., New Delhi. Ed 2007

Starred and Underlined Portions : Self Study

Course Designed By : K. Umamageswari
Course Reviewed By : M. Kalavathi
Checked By : K. Punithavalli

B.Com.
Semester V
Part – III – Core Course XIV – Income Tax
(For Students admitted from 2012-2013 and Onwards)

Preamble :

The Objectives of this course are:

- To provide an in-depth knowledge of Income Tax Provisions.
- To impart practical knowledge about Income Tax calculation.

Module I:

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee –
Scope of Income – Residential Status – Exempted Income. (12 Hours)

Module II:

Income from Salaries. (16 Hours)

Module III:

Income from House Property – Income from Other Sources. (16 Hours)

Module IV:

Profit and Gains of Business or Profession. (16 Hours)

Module V:

Capital Gains – Deductions from Gross Total Income with respect to payments only.
(15 Hours)

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Book for Study :

Income Tax Law and Practice : V.P. Gaur and D.B. Narang,
Kalyani Publishers, Ludhiana.

Course Designed By : N. Lakshmi
Course Reviewed By : K. Umamageswari
Checked By : K. Punithavalli

B.Com.
SEMESTER V
Core Course XV – Financial Management
(For students admitted from 2012-2013 and onwards)

Preamble :

The Objective of this course is:

- To familiarize the students with the Techniques of financial management.

Module I:

Financial Management – Meaning – Objectives – Importance – Scope - Organisation of finance function.
(15 Hours)

Module II:

Cost of capital – Meaning – Importance – Computation of Cost of capital – Equity, Preference, Debt, Retained Earnings - Weighted Average Cost of Capital.

Leverages – Meaning – Types of Leverages – Significance of Operating and Financial Leverage.
(15 Hours)

Module III:

Capital Structure – Meaning – Patterns of Capital Structure - Factors Determining Capital Structure - Capital Structure Theories: NI, NOI, MM Hypothesis.

(15 Hours)

Module IV:

Capital budgeting – Concept – importance – Kinds - *Factors affecting capital investment decision – Capital Budgeting Appraisal Methods – Payback Period-Net Present Value – Internal Rate of Return – Accounting Rate of Return.
(15 Hours)

Module V:

Dividend Decision: Dividends – Meaning – Nature of Dividend Decisions –Walter's Approach – Factors Affecting Dividend Policy – Stability of Dividends – Forms of Dividends.

(15 Hours)

Note: Theory only.

Book for Study:

Financial Management : S.N. Maheswari
Principles and practice Sultan Chand and Sons, New Delhi, 10th Ed. 2006

Book for reference:

Financial Management : Shashi.K.Gupta and R.K.Sharma
Kalyani Publishers, New Delhi Edition 2005

Starred and Underlined Portions : Self Study

Course Designed By : R. Vanamadevi

Course Reviewed By : R. Parameswari

Checked By : K. Punithavalli

Semester – V

Part – III Elective Course I –Basics of Banking (6 hours per week)
(For students admitted from 2012-2013 and onwards)

Preamble :

The objectives of this course are :

- To expose the students to the basics of banking and banking operations.

Module I:

Evolution of Money-Evolution of Banking-Banking in India.

Module II:

Overview of Banking: Definition of Banking-Roles of Banks-Banking, a Business of Trust-Banking Services and Products-Banking Channels.

Module III:

Types of Customers: Introduction-Modes of Operation- Individuals-Proprietorship-Partnership-Joint stock Company-Trusts, Societies, Clubs-Government bodies-others.

Module IV:

Banker Customer relationship: Definition of a customer-Relationship between banker and customer-Rights and obligations of Banker.

Module V:

Types of Deposits: Demand and Term Deposits, Two in one accounts, Recurring deposits.

Courseware: e learning platform offered by ICICI Bank under the title Fundamentals of Banking.

Book for Reference:

Banking Principles & Operations : M.Gopinath,
Snow White Publishers, Mumbai, First Ed 2008.

B.Com.**Semester – V**

(3 hours per week)

Part – III Skill based Course III – Entrepreneurial Development Practicals

The course allows students to have experiential learning through hands-on-training to meet the real-world needs and simultaneously serve as a valuable adjunct to traditional instruction provided in Skill Based Course I & II. This helps the learners to develop skills which give scope for initial self employment upon graduation. The students will be provided with practical classes in some of the micro ventures. The performance in the program would be the basis for evaluation.

B.Com.**SEMESTER VI****Part III – Core Course – XVII– Management Accounting
(For Students admitted from 2012-2013 and onwards)****Preamble:**

The objectives of this course are:

- To develop an understanding of the conceptual framework of management accounting.
- To acquaint the students with the management accounting techniques that facilitates managerial decision making.

Module I :

Management Accounting – Meaning – Objectives and Scope – *Relationship between Management Accounting, Cost Accounting and Financial Accounting.

(12 hours)

Module II :

Ratio Analysis – Analysis of liquidity, solvency and profitability – Construction of Balance Sheet.

(14 Hours)

Module III :

Fund Flow Analysis and Cash Flow Analysis.

(14 Hours)

Module IV :

Marginal costing and Break Even Analysis – Managerial applications of marginal costing – Significance and limitations of marginal costing.

(13 Hours)

Module V :

Budgeting and Budgetary control – Definition – Importance, Essentials, Preparation of cash budget and flexible budget.

(12 Hours)

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Books for Study :

Management Accounting : Sharma and S.K.Gupta
Kalyani Publishers,
New Delhi. Edition: 2009.

Book for Reference :

Management Accounting : Dr. S.N. Maheswari,
Sultan Chand and Sons,
New Delhi. Edition : 2004.

Starred and Underlined Portions : Self Study

Course Designed By : K. Umamageswari
Course Reviewed By : M. Kalavathi
Checked By : K. Punithavalli

B.Com.

Semester – VI

Core Course XIX - Investment Management

(For students admitted from 2012-2013 and onwards)

Preamble :

The objective of this course is to acquaint students with the basics of Investment and Portfolio Management.

Module I:

Investment Management: Investment – Speculation – Gambling – Importance of Investment – Factors favourable for Investments – Features of an Investment Programme – Investment Process.

(13 hours)

Module II:

Risk: Classification of Risk – Return: Measurement of Return - Investor Classification.
 Investment Media: Equity Shares: Characteristics of Equity Shares – Advantages – Problems of Investing in Equity Shares – Types – Factors influencing share price.
 (13 Hours)

Module III:

Preference Shares: *Features of Preference Shares – Types of Preference Shares- Return on Preference stock. Mutual Funds: features – classification of schemes-benefits. (13 hours)

Module IV:

Bond: Definition – Features –Types of Bonds- Evaluation of Corporate bonds.
 Debentures: *Types of Debentures
 Company Deposits: Fixed Deposits - Merits – Demerits. (13 hours)

Module V:

Bank Deposits: Kinds of Deposits - Merits.
 Life Insurance: Objectives of Life Insurance - *Types of Life Insurance policies – Procedure for taking a life policy- Factors determining the size of life cover.
 Small Savings Schemes: Features – Post Office Saving Schemes / Certificates.
 Public Provident Fund. (13 hours)

Books for Study:

Investment Management – Security Analysis and Portfolio Management	:	Preeti Singh Himalaya Publishing House, Mumbai. 17 th Edition, 2009
Personal Investment and Tax Planning	:	N.J.Yasaswy, Vision Books Pvt Ltd., New Delhi. 7 th Edition 2010
Fundamentals of Investment Management	:	V.K.Bhalla Sultan Chand and Sons, New Delhi. First Edition, 2006

Starred and Underlined Portions : **Self Study**

Course Designed By : N. Lakshmi

Course Reviewed By : G. Suguna

Checked By : K. Punithavalli

B.Com.

SEMESTER: VI

Elective Course II- Computerized Accounting- Tally
(For Students admitted from 2012-2013 and onwards)

List of Practicals

1. Creation of Company in Tally
2. Enabling Accounting Features
3. Group Creation and Alteration (single and multiple)
4. Ledger Creation and Alteration (single and multiple)
5. Display of books, Trial Balance, Profit and Loss Account and Balance Sheet

6. Altering Inventory Features
7. Altering Statutory Features
8. Altering Taxation Features
9. Creation and alteration of measures of units
10. Stock Group creation and alteration
11. Stock Item creation and alteration
12. Display of Stock summary
13. Cost center creation and alteration
14. Creation of Tax Masters
15. Display of Ratios
16. Back up and Restoration

(75 Hours)

B.Com.

Semester – VI

Elective Course III- Banking operations

Preamble :

(6 Hours per week)

The objective of this course is :

- To expose the students to the banking operations.

Module I:

Account opening: KYC and AML guidelines, KYC Policy- KYC documents- Opening Accounts of Individuals- Opening accounts of firms, companies, societies, trusts- General precaution.

Module II:

Account Operations: Negotiable Instruments- Payment and collection of cheques- Special Requests- Special Situations- Anti Money Laundering.

Module III:

Cheque Collection Services: Clearing of local cheques- National Clearing- ECS.

Module IV:

Payment and Remittance Services: Payorders, Drafts- Features, issue, payment, cancellation, issue of duplicate, revalidation, legal aspects- Electronic Funds transfer.

Module V:

Finacle: Banking Software- Introduction- Menu options- Basic transactions- cash, remittances, inquiries and account modifications.

Courseware: e learning platform offered by ICICI Bank under the title Fundamentals of Banking.

Book for Reference:

Banking Principles & Operations: M. Gopinath,
Snow White Publishers, Mumbai, First Ed 2008.

B.Com.**SEMESTER: VI****Part IV - Skill Based Course IV- Project Work**

(3 hours per week)

(For students admitted from 2012-2013 and onwards)

A project report is to be submitted by each candidate covering any one of the entrepreneurial ventures or issues. The report carries 75 marks and viva voce carries 25 marks.

M.Com*Semester wise distribution with Scheme of Examination***(For students admitted from 2012– 2013 and onwards)**

Semester	COURSE	Duration of Exam Hrs (ESE)	Marks		Total	Credits
			CIA	ESE		
I	Core Course –I- Business Environment	3	25	75	100	5
	Core Course –II- Managerial Economics	3	25	75	100	5
	Core Course-III- Financial Management	3	25	75	100	5
	Elective Course I-- Marketing Management	3	25	75	100	4
	Diploma Course Paper I					
II	Core Course IV –Research Methodology	3	25	75	100	5
	Core Course V- Managerial Accounting	3	25	75	100	5
	Core Course VI- MS Office- Practicals	3	25	75	100	5
	Core Course VII Institutional Training	3	40	60	100	3
	Elective Course II- Organisational Behaviour	3	25	75	100	4
	Diploma Course Paper II					
	Advanced Learners' Course – I					
	Services Marketing	3*	—	100	100	4*
III	Core Course VIII – Statistical Methods	3	25	75	100	5
	Core Course –IX Security Analysis and Portfolio Management	3	25	75	100	5
	Core Course X- Export Management	3	25	75	100	5
	Core Course - XI Project Work	-	-	-	-	-
	Elective Course III- Human Resource Management	3	25	75	100	4
	Diploma Course Paper III					
IV	Core Course XII– Strategic Management	3	25	75	100	5
	Core Course XIII- Financial Services	3	25	75	100	5
	Core Course XIV –Project Work	-	100	100	200	6
	Elective Course IV Internet & e-Commerce	3	25	75	100	4
	Diploma Course Paper IV					
	Advanced Learners' Course: II					
	Direct Taxes	3*	-	100	100	4*

Total Credits 90 (Includes 10 credits for Diploma course)

M.Com
Semester – I
Core Course I - Business Environment
(For students admitted from 2012 – 2013 and onwards)

Preamble:

The objective of this course is to develop the ability to understand and scan the Business Environment.

Module I:

Business and Society: Changing Concept of Business – Objectives of Business — Factors Influencing the Choice of Objectives.

Business Environment – Concept – Nature and Significance of Business Environment – Types of Business Environment – Internal and External Environment – Elements of External Environment – Micro and Macro Environment – Impact of Environment on Business and Strategic Decisions. (15 Hours)

Module II:

Business Ethics and Values: Concept and Nature of Business Ethics – Elements of Business Ethics – Sources of Ethical Standards – Need for Ethics in Business. Industrial Policy up to 1991 – The New Industrial Policy. Department of Industrial Policy and Promotion. (15 Hours)

Module III:

Privatisation and Disinvestment - Ways of Privatisation — Benefits of Privatisation – Arguments for and against Privatisation. (14 Hours)

Module IV:

Globalisation of Business – Meaning and Features of Globalisation – Foreign Market Entry Strategies – Implications and Impact of Globalisation – Globalisation of Indian Business – GATT and WTO – Functions of WTO. (16 Hours)

Module V:

Foreign Investment: Significance – Government Policy towards Foreign Investments in India – Multinational Corporations: Reasons for growth of MNCs– *Merits and Demerits of MNC's – Regulation of MNC's. (15 Hours)

Starred and Underlined Portions : Self Study

Books for Reference:

- | | |
|------------------------------------|---|
| Business Environment | : Francis Cherunilam
Himalaya Publishing Co. Ltd Edition 2005 |
| Business Environment | : C. B. Gupta
Sultan Chand and Sons
New Delhi. 3 rd Edition 2009 |
| Economic Environment of Business | : M. Adhikary
Sultan Chand and Sons, New Delhi, 2006 |
| Essentials of Business Environment | : K. Aswathappa
Himalaya Publishing House, Mumbai, 2006 |

Business Environment : Justin Paul
Text and Cases Tata McGraw-Hill Publishing Company Limited
New Delhi 2nd Edition 2008

Course Designed By : G. Suguna
Course Reviewed & Checked By : K. Punithavalli

M.Com
Semester I
Core Course III – Financial Management
(For students admitted from 2012 – 2013 and onwards)

Preamble :

The objectives of this course are:

- To help students understand the conceptual framework of financial management.
- To acquaint them with the knowledge of corporate financial applications.

Module I:

Nature and Scope of Financial Management-Objectives-Traditional and Modern approach of Financial Management-Financial decisions-Relationship between risk and return-Role and functions of Financial Manager. (15 Hours)

Module II:

Cost of capital – Meaning and importance – cost of debt, preference, equity and retained earnings-Weighted average cost of capital – Marginal cost of capital. Financial leverage - measures – EBIT and EPS analysis – Operating leverage – Financial, business and operating risk. (15 Hours)

Module III:

Capital Budgeting - Meaning and importance – Techniques : Pay back method – Accounting Rate of return method and Discounted cash flow methods. Capital structure – Theories of capital structure – Net Income approach - Net Operating Income approach – MM Hypothesis – Determinants of Capital structure. (15 Hours)

Module IV:

*Working Capital Management – Concepts - Need -Types of Working Capital – Management of Cash, Inventory and Accounts Receivables. (15 Hours)

Module V:

Dividend – Meaning – Theories of dividend – Walter's Model – Gordon and MM's Models –Dividend policy and forms of dividend - Determinants of Dividend policy. (15 Hours)

Note: Distribution of marks between theory and problems shall be 60% and 40% respectively.

Starred and Underlined Portions : Self Study

Books For Reference:

1. Financial Management : IM Pandey, Vikas Publishing House, New Delhi, Edition 2010.
2. Financial Management : Khan and Jain, Tata McGraw Hill Publishing, Co., Ltd., New Delhi, Edition 2006.
3. Financial Management : S.N.Maheswari, Sultan Chand and Sons, New Delhi, Edition 2008.
4. Financial Management : Van Horne, Prentice Hall of India, New Delhi , Edition 2003.
5. Financial Management : Prasanna Chandra, Tata Mc-Graw Hill Publishing Company Limited, New Delhi, Edition 2006.

Course Designed By : R. Parameswari
Course Reviewed By : G. Suguna
Checked By : K. Punithavalli

M.Com
Semester – I
Elective Course I - Marketing Management
(For students admitted from 2012-2013 and onwards)

Preamble:

The objective of this course is to facilitate understanding of the conceptual framework of marketing and its applications in decision making under various environmental constraints.

Module I:

Marketing Concept-modern marketing concept- Marketing Mix. Marketing Environment - Macro and Micro Components – Environmental Analysis and its Impact on Marketing Decisions. (15 Hours)

Module II:

Market Segmentation – Buyer Behaviour — Consumer Decision Making Process. (15 Hours)

Module III:

Major Product Decisions – Product Life cycle – Strategic Implications and New Product Development and adoption process.

Pricing Decisions: *Factors affecting price determination – Pricing policies and strategies. (15 Hours)

Module IV:

Channels of Distribution: Nature – *Functions and Types of Distribution Channels — Channel Management Decisions.

Logistics Management: Logistics Management versus Supply Chain Management –
Logistics Decisions. (15 Hours)

Module V:

Promotion Decisions: Promotion Mix – Advertising- Advertising Budgets — Media
selection – Personal selling -Sales Promotion – Methods. (15 Hours)

Starred and underlined portions: Self Study

Books for Reference:

- | | |
|--|---|
| Marketing Management
Text and Cases | : SHH Kazmi
Excel Books, New Delhi, 1 st Edition, 2007 |
| Marketing Management | : Philip Kotler, Kevin Lane Keller,
Abraham Koshy, Mithileshwar Jha
Pearson Education
New Delhi, 3 rd Edition, 2009 |
| Marketing Management | : Rajan Saxena
Tata McGraw-Hill Publishing Company Limited
New Delhi, 3 rd Edition 2007 |
| Marketing Management | : C. B. Gupta and N. Rajan Nair
Sultan Chand and Sons
New Delhi, 9 th Edition 2007 |
| Marketing Management | : S. A. Sherlekar
Himalaya Publishing House
Chennai, 13 th Edition 2007 |
| Course Designed By | : R. Parameswari |
| Course Reviewed & Checked By | : K. Punithavalli |

M.Com

Semester – II

Core Course V –Managerial Accounting

(For students admitted from 2012-2013 and onwards)

Preamble:

The objectives of this course are:

- To expose students to accounting techniques and practices
- To familiarize the students with innovations in accounting.

Module I:

Preparation and presentation of Company Final accounts. (15 Hours)

Module II:

Ratio Analysis: Analysis of Liquidity, Solvency and Profitability. Construction of
Balance Sheet. (15 Hours)

Module III:

Cost Volume Profit Analysis – Marginal Costing – Break Even Analysis – Applications of Marginal Costing and Cost Volume Profit Analysis – Cost Analysis for Decision Making – *Differential Cost – Practical Applications of Differential Costs. (15 Hours)

Module IV:

Standard Costing – Analysis of Variances: Material Variance – Labour Variance – Overhead Variance – Sales Variance. (15 Hours)

Module V:

Cost Management – Strategic Cost Management – Activity Based Costing – Target Costing – Life Cycle Costing – Value Chain Analysis.
- *Cost Control and Cost Reduction – Productivity and Value Analysis. (15 Hours)

Note: Distribution of marks between theory 20% (only from V Module) and problems 80% respectively.

Self Study: Starred and Underlined Portions.**Books for Reference:**

Advanced Cost Accounting : S.P. Jain and K.L. Narang
Kalyani Publishers, New Delhi. Edn. 2007
Cost Management : Liming Guan, R Hansen, Maryanne. M. Mowen
Cengage Learning India Pvt Ltd, New Delhi 2009
Advanced Accountancy : S.P. Jain and K.L. Narang,
Kalyani Publishers, New Delhi, Edition 2009.
Accountancy : S.Kr. Paul, Vol – I and Vol - II
New Central Book Agency Pvt. Ltd., Calcutta,
Edition 2005.

Course Designed By : N. Lakshmi
Course Reviewed By : G. Suguna
Checked By : K. Punithavalli

M.Com**Semester – II****Core Course VI - MS Office –Practicals**

(For students admitted from 2012 – 2013 and onwards)

Preamble:

The objective of this paper is to provide practical skill for using Ms Office.

List of Practicals:**Ms Word:**

- Create an advertisement copy.
- Create a mail merge and draft a letter.
- Program sheet preparation.
- Invitation card.

- Resume preparation

Ms Excel:

- **Presentation of Budget.**
 - Fixed
 - Flexible
 - Sales
 - Production
 - Cash
- **Preparation of Chart**
- **Preparation of Employee Payroll**
- **Compute mathematics of Finance**
 - Simple Interest
 - Compound Interest
 - Present value
 - Annuity

Ms Power Point:

- **Presentation of power point presentation.**
 - Picture insertion
 - Chart creation
 - Animation
 - Hyperlink
- **Preparation of meeting presentation**
 - Ms-Access:
 - Customer
 - Supplier
 - Employee
 - Shareholder

(75 Hours)

M.Com

Semester –II

Core Course VII – Institutional Training

(For students admitted from 2012– 2013 and onwards)

Institutional Training**The student shall undergo the Institutional Training in any of the following institutions for two weeks

1. Commercial Banks
2. Insurance Companies
3. Joint Stock Companies
4. Logistic Companies
5. Co-operative Societies
6. Share Brokers, Firms of Investment Consultants
7. Professional Firms – like firms of Chartered Accountants / Cost Accounts / Company Secretaries
8. Travel Agencies and Courier Services

A Report submitted by the student on the completion of the training would be subject to Internal Evaluation with 50 marks for Report and viva voce 50 marks

M.Com
Semester III
Core Course IX– Security Analysis and Portfolio Management
(For students admitted from 2011- 2012 and onwards)

Preamble:

The objectives of this course are:

- To acquaint students with the process of investment management.
- To enhance the employability of students in security analysis and portfolio management.

Module I :

Investment : importance of investment – factors favourable for investment - *investment media – features of investment programme – investment process –Security valuation - risk and return.

Indian Capital Market : constituents, instruments. (15 Hours)

Module II :

SEBI : functions and powers, regulatory role, investors protection.

New Issue Market: services – Intermediaries in the NIM - methods of marketing securities.

Book Building: Characteristics, process of book building, advantages of book building. (15 Hours)

Module III :

Secondary Market: Method of trading - online share trading – factors influencing security prices.

Depository System : process of dematerialization – depositories in India – *benefits of depositories. (15 Hours)

Module IV :

Fundamental Analysis :economic, industry and company analysis.

Technical Analysis : tools of technical analysis – Dow Theory. (15 Hours)

Module V :

Portfolio Management: phases of portfolio management-Portfolio Analysis —Portfolio selection – Portfolio Revision - Portfolio performance evaluation - Markowitz Theory - CAPM. (15 Hours)

Note: Theory only.

Self Study : Starred and Underlined Portions.

Book for Reference :

Investment Management: : Preeti Singh,

Security Analysis and Portfolio Management	Himalaya Publishing House, Mumbai XVII, Edition, 2009.
Security Analysis and Portfolio Management	V.A. Avadhani Himalaya Publishing House, Mumbai, IIIEd, 2004
Capital Markets	: Dr. S. Gurusamy, Tata McGraw Hill Education Private Ltd, New Delhi, Second Edition, 2010
Portfolio Management	: S. Kevin Prentice - Hall of India(p)ltd, New Delhi 2004
Investments	: William F. Sharpe, Gordon J. Alexander, Jeffery V. Bailey. Prentice – Hall of India (p) Ltd, New Delhi, 2004
Course Designed By	: N. Lakshmi
Course Reviewed & Checked By	: K. Punithavalli New Delhi. 1 st Edition, 2007

M.Com

Semester – IV

Core Course X – EXPORT MANAGEMENT

(For students admitted from 2011– 2012 and onwards)

Preamble:

The main objective of this paper is

- To provide a conceptual framework of export trade.
- To help students gain practical knowledge about the subject.

Module – I

International Trade – Global Economy – Indian Economy – Interdependence of Countries.

India's Export Trade–trends - composition and direction of India's exports. (15Hours)

Module – II

Export policy – objectives— highlights of Export Import policy 2004-09 - promotional measures - EOU's and Special Economic Zone schemes. (15 Hours)

Module – III

Export Pricing and Costing – factors influencing pricing – export offer-pricing strategies- exchange rates –forward contract. (15 Hours)

Module – IV

Export finance –need-terms of payment-pre-shipment credit-post-shipment credits-
*ECGCand EXIM bank. (15 Hours)

Module – V

Export procedure and documentation: procedures in various phases of exports. (15 Hours)

REFERENCES:

- Export Management : T.A.S. Balagopal,
Himalaya Publishing House, 20thEd,2010 , Mumbai
- International Trade and Export Management: Francis Cherunilam,
Himalaya Publishing House, 16th Ed 2010, Mumbai
- Export Management : D.C.Kapoor,
Vikas Publishing House, Edition 2007, New Delhi
- Course Designed By : R.Vanamadevi
- Course Reviewed By : Dr.G.Suguna
- Checked By : Dr.K.Punithavall

M.Com**Semester – III****Elective Course III – Human Resource Management
(For students admitted from 2011 – 2012 and onwards)****Preamble :**

The objectives of this course are :

- To impart knowledge on various aspects of human resource management.
- To help students to understand the human resource management practices.

Module I :

Concept of Human Resource Management (HRM) – Functions– Qualities of HR Manager — Features of HRM – Environmental Influences on HRM- Human Resource Planning: Meaning – Importance – Process – Techniques for Forecasting Human Resource Needs – Barriers – HR Information System. (13 Hours)

Module II :

Job Analysis : Meaning – Uses – Process –Job description – Job specification – Recruitment : Meaning – Recruitment Policy – Factors affecting Recruitment Policy and Programme – Recruitment Process – Sources. (13 Hours)

Module III :

Selection : Meaning –Selection Process – Selection Tests – Selection Interview: Types- Steps. Orientation– Placement – Promotion – Transfer – Separation. (13 Hours)

Module IV :

Human Resource Development : Concept – Need for HRD–Human Reengineering- Learning Organisation – Knowledge Management. Training : Concept–Role of Training and Development– Methods. (13 Hours)

Module V :

Performance Appraisal : Objectives – Process – Methods – Barriers. Compensation Management : Objectives – * Job Evaluation : Process of Job Evaluation – Methods – Compensation Plan – Factors .HRM Audit. (13 Hours)

Self Study : Starred and Underlined Portions.**Books for Reference:**

Human Resource Management : L.M.Prasad,

	Sultan Chand and Sons, New Delhi. Ed. 2010
Human Resource Management	: Dr. C.B. Gupta Sultan Chand and Sons New Delhi, Ed. 2005.
Course Designed By	: R. Parameswari
Course Reviewed By	: N. Lakshmi
Checked By	: K. Punithavalli

Semester IV
Core Course XIII - Financial Services
(For students admitted from 2011-2012 and onwards)

Preamble:

The objective of this course are :

- To familiarize students with the recent financial services.
- To enhance the employability of students in financial sector.

Module I :

Financial Services : functions – characteristics- constituents of financial services market – * problems of financial services sector – regulatory framework – forces influencing financial services – financial instruments. (15 Hours)

Module II :

Merchant Banking : functions - code of conduct – SEBI guidelines for merchant banking.
 Securitization: features - need for securitization- benefits of securitization. (15 Hours)

Module III :

Leasing : characteristics – types – financial lease Vs operating lease - leasing process - benefits – limitations of lease financing.
 Venture Capital: features, stages of venture capital financing – benefits of venture capital funds - SEBI guidelines for venture capital funds. (15 Hours)

Module IV :

Mutual Funds : features, categories of schemes, structure of mutual funds in India - portfolio management process – evaluating mutual funds – SEBI regulations for mutual funds. (15 Hours)

Module V :

Credit Rating : features, advantages of credit rating, CRISIL, ICRA, CARE - Credit rating process – equity grading.
 Factoring and forfaiting : characteristics, types – legal implications of factoring – advantages and disadvantages – functions of a factor – factoring Vs bills discounting – RBI guidelines for factoring. Forfaiting: modus operandi, advantages, factoring Vs forfaiting. (15 Hours)

Self Study : Starred and Underlined Portions.

Books for Reference:

1. Financial Services and Markets : Dr.S. Gurusamy , Vijay Nicole
Imprints (p)Ltd, Chennai, 2004
 2. Financial Services : M.Y.Khan, Tata Mc Graw-Hill publishing
Company Limited, New Delhi, 2007.
 3. Financial Services : Dr. D. Joseph Anbarasu and Others,
 4. Financial Services : E. Gordon and K.Natarajan,
Himalaya Publishing House, New Delhi-Ed-2007.
- Course Designed By : N. Lakshmi
Course Reviewed By : G. Suguna
Checked By : K. Punithavalli

M.Com

Semester – IV

Elective Course IV – Internet and E-Commerce (For Students admitted from 2011 – 2012 and onwards)

Preamble:

The objectives of this course are:

- To Provide an overview of e-commerce techniques.
- To impart knowledge about applications of e-commerce in business.

Module I :

Introduction to e-commerce – Definition - *History - *Forces fueling e-commerce – e-commerce industry framework – Business Models of e-commerce.

(15 Hours)

Module II :

Internet and Access provider Industry – Internet Service Providers – Companies providing internet access – Internet Vs On-line service. World Wide Web applications – meaning – web and e-com - web and intra business commerce.

(15 Hours)

Module III :

Fire walls and transaction security – firewalls and network security – transaction security – encryption and transaction security – www and security.

(15 Hours)

Module IV : Electronic payment system – emergence of electronic payment technology - *Limitations and problems of traditional payment methods – e-cheques – on-line credit card based system – other emerging financial instruments.

(15 Hours)

Module V :

Electronic Commerce and Banking – Changing dynamics in the banking industry – Home banking – open Vs closed model – Management issues in on-line banking – Pricing issues in on-line banking – Marketing issues on-line banking.

(15 Hours)

Self study : Starred and Underlined Portions

Books For Reference:

Electronic Commerce - A : Ravi Kalakota and Andrew B. Whinston,
Manager's Guide Addison Wesley, Edition 2009.

Electronic Commerce : S.V. Murthy, Himalaya Publishing House,
New Delhi, Edition - 2002.

E-Commerce-A Managerial : P.T. Joseph, Prentice Hall Of India, New Delhi,
Perspective Edition-2002.

E-Commerce New Vistas : T.N. Chhabra, R.K. Suri and Sanjiv Verma,
For Business Dhanpat Rai and Co
Delhi Ed, 2005

Course Designed By : M. Kalavathi

Course Reviewed By : G. Suguna

Checked By : K. Punithavalli

Department of Commerce
B.Com. Syllabus – 2010-2011 Batch

Se me ste r	COURSE	Credit s	Duratio n of Exam Hrs (ESE)	Marks		TOTAL
				CIA	ESE	
I	Part I – Tamil / Hindi / French / Malayalam Course - I	3	3	25	75	100
	Part II – English Course - I	3	3	25	75	100
	Part III Core Course I- Accountancy-I	4	3	25	75	100
	Core Course II- Business Organisation	4	3	25	75	100
	Allied Course I – Computer Applications in Business - I	5	3	25	75	100
	Part IV – Environmental Studies	2	3	-	50	50
II	Part I – Tamil / Hindi / French / Malayalam - Course II	3	3	25	75	100
	Part II – English - Course II	3	3	25	75	100
	Part III Core Course III –Accountancy - II	4	3	25	75	100
	Core Course IV - Marketing	4	3	25	75	100
	Allied Course II – Computer Applications in Business II - Practicals	5	3	40	60	100
	Part IV – Value Education	2	3	-	50	50
	<u>Advanced Learners' Course –I</u> Advertisement Management	3*	3	-	100	100
III	Part III Core Course -V – Principles of Management	4	3	25	75	100
	Core Course VI -Commercial Law	4	3	25	75	100
	Core Course VII-Accountancy-III	4	3	25	75	100
	Core Course VIII- Export Import Procedures and Documentation	3	3	25	75	100
	Allied Course III – Mathematics in Business	5	3	25	75	100
	Part IV – Non Major Elective Course I	2	3	-	75	75
	Skill based Course I – Principles of Banking	3	3	25	75	100

IV	Part III Core Course IX- Business Communication	4	3	25	75	100
	Core Course X-Company Law	4	3	25	75	100
	Core Course XI-Accountancy IV	4	3	25	75	100
	Core Course XII- Entrepreneurial Development	3	3	25	75	100
	Allied IV-Statistics for Business	5	3	25	75	100
	Part IV - Non Major Elective Course II	2	3	-	75	75
	Skill based Course II – Basic Banking Operations	3	3	25	75	100
	<u>Advanced Learners' Course-II</u> Principles of Insurance	3*	3	-	100	100
V	Part III – Core Course XIII- Cost Accounting	4	3	25	75	100
	Core Course XIV- Income Tax	4	3		75	100
	Core Course XV- Computerised Accounting – Tally	4	3	25	60	100
	Core Course XVI – Entrepreneurial Development - Practicals	2	3		-	100
	Elective Course I – Financial Management	5	3	40	75	100
	Part IV Skill Based Course III – e Banking	3	3	25	75	100
				25		
VI	Part III- Core Course XVII- Management Accounting	4	3	25	75	100
	Core Course XVIII - Auditing	4	3	25	75	100
	Core Course XIX - Accountancy –V	4	3	25	75	100
	Elective Course II- Investment Management	5	3	25	75	100
	Elective Course III - Financial Services	5	3	25	75	100
	Part IV – Skill Based Course IV - On-line Banking Course	3	-	-	100	100
	<u>Advanced Learners' Course – III</u>	3*	3	-	100	100
	Working Capital Management	1	-	-	50	50
	Part V Extension Activities					

Total Credits

140

Starred Credits are treated as additional credits.

SEMESTER V

Part III – Core Course XIII – Cost Accounting (For students admitted from 2010 – 2011 and onwards).

Preamble :

The objectives of this course are:

- To impart knowledge about various methods of costing.
- To keep the students conversant with the frontiers of cost accounting.

Module I:

Cost Accounting – Definition – Meaning and Scope – Concept and classification – costing an aid to Management – Elements of cost – Types and methods of cost – Preparation of cost sheet. (12 Hours)

Module II:

Material Control: Levels of material Control – Purchases and Stores Control: *Purchasing of Materials – Procedure and documentation involved in purchasing - Stores Control – Perpetual inventory - Economic Order Quantity – ABC analysis - Methods of valuing material issue: FIFO, LIFO, Simple Average, and Weighted Average. (16 Hours)

Module III:

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover. Overhead – Classification of overhead – allocation and absorption of overhead. Calculation of Machine Hour Rate. (16 Hours)

Module IV:

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production). (16 Hours)

Module V:

Operating Costing – Contract costing – Reconciliation of Cost and Financial accounts. (12 Hours)

Note: Distribution of marks between theory and problem shall be 40% and 60% respectively

Book for Study :

Cost Accounting : S.P. Jain and KL. Narang
Kalyani Publishers,
New Delhi. Edition 2007

Book for Reference :

Cost Accounting : R.S.N. Pillai and V. Bagavathi
S. Chand and Company Ltd.,
New Delhi. Edition 2007

Starred and Underlined Portions : Self Study

Course Designed By : K. Umamageswari
Course Reviewed By : M. Kalavathi
Checked By : K. Punithavalli

B.Com.**Semester V****Part – III – Core Course XIV – Income Tax**

(For Students admitted from 2010 – 2011 and Onwards)

Preamble :

The Objectives of this course are:

- To provide an in-depth knowledge of Income Tax Provisions.
- To impart practical knowledge about Income Tax calculation.

Module I:

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Residential Status – Exempted Income. (16Hours)

Module II:

Income from Salaries. (16Hours)

Module III:

Income from House Property – Income from Other Sources. (16 Hours)

Module IV:

Profit and Gains of Business or Profession. (12 Hours)

Module V:

Capital Gains – Deductions from Gross Total Income with respect to payments. (12 Hours)

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Book for Study :

Income Tax Law and Practice : V.P. Gaur and D.B. Narang,
Kalyani Publishers, Ludhiana.

Business taxation : Dinkar Pagare
Sultan Chand & Sons, New Delhi

Course Designed By : N. Lakshmi

Course Reviewed By : K. Umamageswari

Checked By : K. Punithavalli

B.Com.**SEMESTER: V**

Part III –Core Course XV - Computerized Accounting- Tally
(For Students admitted from 2010 – 2011 and onwards)

List of Practicals

17. Creation of Company in Tally
18. Enabling Accounting Features
19. Group Creation and Alteration (single and multiple)
20. Ledger Creation and Alteration (single and multiple)
21. Display of books
22. Display of Trial Balance
23. Display of Profit and Loss Account
24. Display of Balance Sheet
25. Altering Inventory Features
26. Altering Statutory Features
27. Altering Taxation Features
28. Creation and alteration of measures of units
29. Stock Group creation and alteration
30. Stock Item creation and alteration
31. Display of Stock summary
32. Cost center creation and alteration
33. Creation of Tax Masters
34. Display of Ratios
35. Creation of Payroll Masters
36. Back up and Restoration (72 Hours)

B.Com.
SEMESTER V
Elective Course I – Financial Management
(For students admitted from 2010 – 2011 and onwards)

Preamble :

The Objective of this course is:

- To familiarize the students with the Techniques of financial management.

Module I:

Financial Management – Meaning – Objectives – Importance – Scope - Organisation of finance function – Role of Finance Manager. (16 Hours)

Module II:

Cost of capital – Meaning – Importance – Computation of Cost of capital – Equity, Preference, Debt, Retained Earnings - Weighted Average Cost of Capital.

Leverages – Meaning – Types of Leverages – Significance of Operating and Financial Leverage. (16 Hours)

Module III:

Capital Structure – Meaning – Patterns of Capital Structure - Factors Determining Capital Structure - Capital Structure Theories: NI, NOI, MM Hypothesis. (14 Hours)

Module IV:

Capital budgeting – Concept – importance – Kinds - *Factors affecting capital investment decision – Capital Budgeting Appraisal Methods – Payback Period-Net Present Value – Internal Rate of Return – Accounting Rate of Return. (14 Hours)

Module V:

Dividend Decision: Dividends – Meaning – Nature of Dividend Decisions – Walter's Approach – Factors Affecting Dividend Policy – Stability of Dividends – Forms of Dividends. (12 Hours)

Note: Theory only.

Book for Study:

Financial Management Principles and practice : S.N. Maheswari
Sultan Chand and Sons,
New Delhi, 9th Edition. 2004

Book for reference:

Financial Management : Shashi.K.Gupta and R.K.Sharma
Kalyani Publishers,
New Delhi Edition 2005

Starred and Underlined Portions : **Self Study**
Course Designed By : R. Vanamadevi
Course Reviewed By : R. Parameswari
Checked By : K. Punithavalli

B.Com. / B.Com(CA)/ B.Com(e Com). /B.B.M(CA)

Semester – V

Skill based course III – e-Banking

(For candidates admitted during the academic year 2010 – 2011 and onwards)

Preamble

To equip the students with the operational aspects of e-banking products and services.

Module I:

e-Banking – Meaning – Services of e-Banking - e-Banking and financial services – Benefits – Initiatives and Opportunities – Risk Management for e-Banking – Types of risks – Meaning risks. (8 Hours)

Module II:

Internet Banking Vs Traditional Banking – Mechanics of Internet Banking – Major issues of Internet Banking –Drawbacks – Indian scenario – Future Outlook. (7 Hours)

Module III:

Mobile Banking: Meaning – Definition – Features – Registration Services – Security issues. Telephone Banking: Meaning – Definition – Features – Mechanism – Banking facilities - Telephone Banking System – Drawbacks – Call centers. (7 Hours)

Module IV:

ATM –Concept – Features – ATM Types – Mechanism – ATM functions. (7 Hours)

Module V:

Electronic Fund Transfer System: Steps – Benefits. Electronic Payment System – Methods of payment.

INFINET – Factors responsible for launch – Benefits - Application of INFINET. (7 Hours)

Book for Study:

Banking Theory Law & Practice – Dr.S.Gurusamy

First Reprint – 2006

Vijay Nicole Imprints Private Ltd, Chennai.

Books for Reference:

1. Indian Banking - S.Natarajan & R.Parameswaran
S.Chand & Co Ltd, New Delhi
Reprint – 2007
2. Banking Principles and Operations- M.N.Gopinath
First Edition August 2008
Snow White Publication Private Ltd, Mumbai.

B.Com.

SEMESTER VI

Part III – Core Course – XVII– Management Accounting

(For Students admitted from 2010 – 2011 and onwards)

Preamble:

The objectives of this course are:

- To develop an understanding of the conceptual framework of management accounting.
- To acquaint the students, the management accounting techniques that facilitates managerial decision making.

Module I :

Management Accounting – Meaning – Objectives and Scope – *Relationship between Management Accounting, Cost Accounting and Financial Accounting. (12 hours)

Module II :

Ratio Analysis – Analysis of liquidity, solvency and profitability – Construction of Balance Sheet. (16 Hours)

Module III :

Fund Flow Analysis and Cash Flow Analysis. (16 Hours)

Module IV :

Marginal costing and Break Even Analysis – Managerial applications of marginal costing – Significance and limitations of marginal costing. (16 Hours)

Module V :

Budgeting and Budgetary control – Definition – Importance, Essentials, Preparation of cash budget and flexible budget. (12 Hours)

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Books for Study :

1. Management Accounting : Sharma and S.K.Gupta
Kalyani Publishers,
New Delhi. Edition: 2006.

Book for Reference :

1. Management Accounting : Dr. S.N. Maheswari,
Sultan Chand and Sons,
New Delhi. Edition : 2004.

Starred and Underlined Portions : Self Study

Course Designed By : K. Umamageswari

Course Reviewed By : M. Kalavathi

Checked By : K. Punithavalli

B.Com.

Semester – VI

Part III – Core Course XVIII – Auditing

(For students admitted from 2010– 2011 and onwards)

Preamble :

The objectives of this course are:

- To impart knowledge about principles and methods of auditing.
- To familiarise students with the techniques of auditing and its applications.

Module I :

Definition – Objectives of Auditing – Advantages and limitations of auditing – Auditing and investigation – Qualities of an Auditor – Qualification of a Company Auditor Detection of errors and frauds. (12 Hours)

Module II :

Types of audit: Continuous audit – Final audit – Interim audit – Balance Sheet audit – Auditor's responsibility to consider fraud and error in audit of financial statements (12 Hours)

Module III :

Audit procedure – Planning of audit – Audit programme – Audit Note book – Audit working papers – Internal control and internal check – Internal check as regards cash, wages, sales, etc.,. (12 Hours)

Module IV :

Vouching: Meaning – Vouchers – Vouching of cash transactions – Trading transactions – Impersonal ledgers. (12 Hours)

Module V :

Verification and valuation of assets and liabilities – Auditor's position - *Auditor's duty regarding depreciation – Reserves and provisions. (12 Hours)

Book for Study :

A Hand book of Practical Auditing : B.N. Tandon, S.Sudharsanam & S.Sundharabahu
S. Chand & Company Ltd., New Delhi.
Edition 2006.

Books for Reference :

- 1. Principles and Practice of Auditing** : R.G. Saxena
Himalaya Publishing House
Mumbai. Edition. 2002
- 2. Auditing** : R. Sharma
Lakshmi Narain Agarwal
Educational Publishers
Agra. Edition .2000

Starred and Underlined Portions : Self Study

Course Designed By : R. Parameswari
Course Reviewed By : C. Pushpalatha
Checked By : K. Punithavalli

B.Com.**Semester – VI****Elective Course II - Investment Management**

(For students admitted from 2010 – 2011 and onwards)

Preamble :

The objective of this course is to acquaint students with the basics of Investment and Portfolio Management.

Module I:

Investment Management: Investment – Speculation – Gambling – Importance of Investment – Factors Favourable for Investments – Features of an Investment Programme – Investment Process – Types of Risk. (12 hours)

Module II:

Investment Media: Bank Deposits: Merits – Kinds of Deposits
Small Savings Schemes: Features – Post Office Saving Schemes / Certificates.
Insurance: Objectives of Life Insurance – Factors Determining size of Life Cover – *Types of Life Insurance policies. (12 Hours)

Module III:

Company Deposits: Merits – Demerits.
Bond: Definition – Features – Types of Bonds.
Debentures: *Types of Debentures
Preference Shares: *Features of Preference Shares – Types of Preference Shares. (12 hours)

Module IV:

Equity Shares: Nature of Equity Shares – Advantages – Problems of Investing in Equity Shares – Types – Factors influencing share price.

Fundamental Analysis: Economic Analysis – Industry Analysis – Company Analysis.
(12 hours)

Module V:

Technical Analysis: Basic Assumptions – Dow Theory – Charting as a Technical Tool – Technical Indicators.

Portfolio Management: objectives – Phases of portfolio management. (12 hours)

Book for Study:

Fundamentals of Investment Management : V.K.Bhalla
Sultan Chand and Sons,
New Delhi. First Edition, 2006

Books for Reference :

Investment Management – Security
Analysis and Portfolio Management : Preeti Singh
Himalaya Publishing House,
Mumbai. 12th Edition, 2008

Personal Investment and Tax Planning : N.J.Yasaswy,
Vision Books Pvt Ltd.,
New Delhi. 7th Edition 2010

Financial Markets and Services : Gordon and Natarajan
Himalaya Publishing House,
Mumbai. 3rd Edition 2010

Starred and Underlined Portions : Self Study

Course Designed By : N. Lakshmi
Course Reviewed By : G. Suguna
Checked By : K. Punithavalli

B.Com.

Semester – VI

**Part III – Elective Course III – Financial Services
(For students admitted from 2010– 2011 and onwards)**

Preamble:

The objective of this course is to enhance the employability of students in financial service sector.

Module I:

Financial Services: Meaning – Classification – Scope – Players of Financial Services - Innovative Financial Instruments – Challenges Facing Financial Service Sector – Regulating Authorities of Financial Services.

Depository System: Definition - Objectives– Depository Process – Depository System in India – NSDL – CDSL - Benefits – Drawbacks. (12 hours)

Module II:

Merchant Banking: Definition – Merchant Banking in India – Merchant Banks and Commercial Banks – Services of Merchant Banks – Problems. (12 hours)

Module III:

Venture Capital: Meaning – Features – Scope of Venture Capital – Importance – Method of Venture Financing in India.

Insurance Services: Definition – Objectives of Insurance – Significance – Types of Insurance Schemes. *IRDA: Powers - Functions. (12 hours)

Module IV:

Mutual Funds: Meaning – Fund Unit Vs Share – Classification of Funds – Importance of Mutual Funds – Organization of Mutual Fund – Net Asset Value – Merits and demerits of investment in mutual fund. (12 hours)

Module V:

Factoring – Forfaiting – discounting. Credit Cards: Types of Credit Card – Procedure – Facilities offered to Card Holders – Benefits – Demerits. Debit Card: procedure - Types of Debit Card - merits and demerits. (12 hours)

Book for Study:

Financial Markets and Services : Gordon and Natarajan,
Himalaya Publishing House,
Mumbai. 3rd Edition 2006

Books for Reference:

Financial Services : Dr.S.Gurusamy,
Vijay Nicole Imprints Pvt Ltd, Chennai.

Financial Services and Markets : G.S.Batra
Deep and Deep Publications Pvt Ltd.,
New Delhi.

Financial Services : E.Dharmaraj
Sultan Chand and Sons,
New Delhi. 1st Edition 2008

Financial Services : D.Joseph Anbarasu, V.K.Boominathan,
P.Monaharan, G.Gnanaraj
Sultan Chand and Sons,
New Delhi. 2nd Edition 2004

Financial Markets, Institutions and Services : N. K. Gupta and Monika Chopra
Ane Books India, New Delhi. Edition 2008

Starred and Underlined Portions : Self Study

Course Designed By : N. Lakshmi

Course Reviewed By : G. Suguna

Checked By : K. Punithavalli

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Computer Science
 Scheme of Examination - CBCS Pattern
Programme: B.Sc Computer Science
 (For the students admitted from the academic year 2017 - 2018 onwards)

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
117BT1/ 117MY1/ 117HD1/ 117FR1 117EN1 117S01 117S02 117SP1 117AS1 117EVS	Semester I Part I - Language I	6	3	25	75	100	4
	Part II - English I	6	3	25	75	100	4
	Part III: Core I - C Programming	3	3	25	75	100	4
	Core II - Computer Fundamentals and Digital Logic	3	3	25	50	75	3
	Core Practical I- C Programming	4	3	40	60	100	4
	Allied I - Basic Mathematics and Statistics	6	3	25	75	100	4
	Part IV: Environmental Studies	2	2	50	-	50	2
217BT2/ 217MY2/ 217HD2/ 217FR2 217EN2 217S03 217S04 217SP2 217AS2 217VEC	Semester II Part I - Language II	6	3	25	75	100	4
	Part II - English II	6	3	25	75	100	4
	Part III: Core III - C++ Programming	3	3	25	75	100	4
	Core IV - Data Structures	3	3	25	50	75	3
	Core Practical II - C++ Programming	4	3	40	60	100	4
	Allied II -Discrete Mathematics	6	3	25	75	100	4
	Part IV: Value Education	2	2	50	-	50	2

	Semester III						
	Part III:						
317S05	Core V - Operating System	5	3	25	50	75	3
317S06	Core VI - Visual Programming	4	3	25	50	75	3
317S07	Core VII - Relational Database Management System	5	3	25	75	100	4
317SP3	Core Practical III - Visual Programming and RDBMS	5	3	40	60	100	4
317AS3	Allied III - Operations Research	6	3	25	75	100	4
	Part IV:						
317NDT	Non Major Elective - Desktop Publishing	2	2	50	-	50	2
317SS1	Skill Enhancement Course I: Web Technology - Web Development	3	3	75	-	75	3
	Semester IV						
	Part III:						
417S08	Core VIII - Java Programming	4	3	25	75	100	4
417S09	Core IX - Computer Graphics with Multimedia	5	3	25	50	75	3
417S10	Core X - Software Engineering	5	3	25	50	75	3
417SP4	Core Practical IV - Java Programming and Computer Graphics	5	3	40	60	100	4
417AS4	Allied IV - Principles of Accountancy	6	3	25	75	100	4
	Part IV:						
417NGA	General Awareness	-	1	50	-	50	2
417SS2	Skill Enhancement Course II: Web Technology - Web Graphics	3	3	75	-	75	3
417GIS	Information Security	2	2	50	-	Grade	Grade
417ALS	Advanced Learners Course I - Client Server Technologies	-	3	-	100	100	4*

	Semester V						
	Part III:						
517S11	Core XI - Computer Networks	6	3	25	75	100	4
517S12	Core XII - PHP with MySQL	5	3	25	50	75	3
517S13	Core XIII - Cloud Computing	5	3	25	50	75	3
517SP5	Core Practical V - PHP with MySQL	5	3	40	60	100	4
517KE1/	Elective I :Information Storage and Management/						
517GE1	Compiler Design	6	3	25	75	100	4
	Part IV:						
517SS3	Skill Enhancement Course III: Web Technology - Web Animation	3	3	75	-	75	3
	Semester VI						
	Part III:						
617S14	Core XIV - Data Mining	5	3	25	50	75	3
617S15	Core XV - Linux and Shell Programming	5	3	25	50	75	3
617SP6	Core Practical VI - Linux and Shell Programming	5	3	40	60	100	4
617KE2/	Elective II: Basics of IoT/						
617SE2	Mobile Computing	6	3	25	75	100	4
617SPV	Project & Viva Voce	6	3	25	75	100	4
	Part IV :						
617SS4	Skill Enhancement Course IV: Web Technology - JavaScript Programming	3	3	75	-	75	3
617EX1/	Part V: Extension Activity	-	-	50	-	50	2
617EX2/							
617EX3/							
617EX4/							
617EX5							
617ALS	Advanced Learners Course II - Web Services	-	3	-	100	100	4*
TOTAL						3500	140

➤ Single starred credits are treated as additional credits which are optional.

B.Sc Computer Science

Semester I

Part III - Core I - C Programming

117S01

(For the students admitted from the academic year 2017 - 2018 onwards)

Course objective:

38 Hrs

- To enlighten the fundamentals of C Programming, standard C libraries and Functions.
- To gain experience about Structured Programming.
- To understand various features like Pointers, Structures and Unions in C.

Unit I:

[8 Hrs]

Overview of C: History of C-Importance of C-Sample Program 1:Printing a Message. Constants, Variables and Data Types: Introduction-Character Set-C Tokens-Keywords and Identifiers-Constants-Variables-Data Types-Declaration of Variables-Declaration of Storage Class-Assigning Values to Variables-Defining Symbolic Constants-Declaring a Variable as Volatile.

Operators and Expressions: Introduction-Arithmetic Operators-Relational Operators-Logical Operators-Assignment Operators-Increment and Decrement Operators-Conditional Operator-Bitwise Operator-Special Operators-Arithmetic Expressions-Evaluation of Expressions- Precedence of Arithmetic Operators-Some Computational problems-Type Conversions in Expressions - Operator Precedence and Associativity.

Managing Input and Output Operations: Introduction-Reading a Character-Writing a Character-Formatted Input-Formatted Output.

[Chapters: 1,2,3,4]

Unit II:

[9 Hrs]

Decision Making and Branching: Introduction-Decision Making with If Statement-Simple If Statement-The If...Else Statement-Nesting of If...Else Statements-The Else If Ladder-The Switch Statement-The ?: Operator-The goto Statement.

Decision Making and Looping: Introduction-The While Statement-The do Statement-The for Statement-Jumps in Loops-Concise Test Expressions.

Array: Introduction-One-Dimensional Arrays-Declaration of One-dimensional Arrays-Initialization of One-dimensional Arrays-Two-dimensional Arrays-Initializing Two-dimensional Arrays-Multi-dimensional Arrays-Dynamic Arrays-More About Arrays.

[Chapters: 5,6,7]

Unit III:

[8 Hrs]

Character Arrays and Strings: Introduction-Declaring and Initializing String Variables-Reading Strings from Terminal-Writing Strings to Screen-Arithmetic Operations on Characters-Putting Strings Together- Comparison of Two Strings-String-Handling Functions-Table of Strings.

User-Defined Functions: Introduction-Need for User-Defined Functions-A Multi-Function Program-Elements of User-Defined Functions-Definition of Functions-Return Values and Their Types-Function Calls-Function Declaration-Category of Functions-No Arguments and No Return Values-Arguments but No Return Values-Arguments with Return Values-No Arguments but Returns a Value-Functions that Return Multiple Values-Nesting of Functions-Recursion-passing Arrays to Functions-Passing Strings to Functions-The Scope, Visibility and Lifetime of Variables-Multifile Programs.

[Chapters: 8,9]

Unit IV:

[7 Hrs]

Structures and Unions: Introduction-Defining a Structure-Declaring Structure Variables-Accessing Structure Members-Structure Initialization-Copying and Comparing Structure Variables-Operations on Individual Members-Arrays of Structures-Arrays within Structures-Structures within Structures-Structures and Functions-Unions-Size of Structures-Bit Fields.

Pointers: Introduction-Understanding Pointers-Accessing the Address of a Variable-Declaring Pointer Variables-Initialization of Pointer Variables-Accessing a Variable Through its

Pointer-Chain of Pointers-Pointer Expressions-Pointer Increments and Scale Factor-Pointers and Arrays-Pointers and Character Strings-Array of pointers-Pointers as Function Arguments-Functions Returning Pointers-Pointers to Functions-Pointers and Structures.

[Chapters: 10,11]

Unit V:

[6 Hrs]

File Management in C: Introduction-Defining and Opening a File-Closing a File-Input/output Operations on Files-Error Handling During I/O Operations-Random Access to Files-Command Line Arguments.

Dynamic memory allocation and Linked lists:Introduction-Dynamic Memory Allocation-Allocating a Block of Memory:malloc-Allocating Multiple Blocks of Memory:calloc-Releasing the Used Space:free-Altering the Size of a Block:realloc-Concepts of Linked Lists-Advantages of Linked Lists-Types of Linked Lists-Pointers Revisited-Creating a Linked List-Inserting an Item-Deleting an Item-Application of Linked Lists.

[Chapters: 12, 13]

Book for Study:

E.Balagurusamy, "Programming in AnsiC", Tata McGraw Hill Publishing, Seventh Edition, 2017.

Books for Reference:

1. Ashok N.Kamthane, Amit Ashok Kamthane, "Programming in C", Pearson India Education Services Pvt. Ltd, 2016.
2. Yashavant P.Kanetkar, "Let Us C", BPB Publications, New Delhi, 14th Edition, 2016.

Course Outcomes:

On successful completion of this course the students will

1. Understand the fundamentals of C programming.
2. Choose the loops and decision making statements to solve the problem.
3. Use functions and Operations on arrays to solve the given problem.
4. Understand pointers, structures and unions.
5. Implement file Operations in C programming for a given application.

B.Sc Computer Science

Semester I

Part III - Core Practical I - C Programming

117SP1

(For the students admitted from the academic year 2017 - 2018 onwards)

Course objective:

52Hrs

- To develop the programming skills using the fundamentals of C Language.
- To implement programs using the usage of arrays, structure, functions, pointers and file systems.

List of Programs:

1. Write a program to find out sum of n numbers.
2. Program to check whether the candidate is eligible to vote or not.
3. Program to find Biggest of three numbers.
4. Program to check whether the given number is Prime or Not.
5. Program to find the factorial of the given number.
6. Program to generate a Fibonacci series.
7. Program to check whether the given number is Armstrong.
8. Check whether given year is leap year or not.
9. Write a program to Construct Pyramid of digits.
10. Program to illustrate Swapping of two numbers.
- #11. Check whether the given string is Palindrome or not.

- #12. Program to perform String Operations.
- #13. Create a program for Employee details using structures.
- #14. Program to illustrate Pointers.
- #15. Program to receive a file name and the names of employees as command line argument and Write the text to the file.

[# Spoken Tutorial]

Course Outcomes:

On successful completion of this course the students will

1. Able to understand and trace the execution of programs written in C language.
2. Acquire knowledge about the loops and decision making statements to solve the problem.
3. Demonstrate the role of use functions and Operations on arrays to solve the given problem.
4. Apply pointers, structures and unions.
5. Implement file Operations.

B.Sc Computer Science

Semester II

Part III - Core III – C++ Programming

217S03

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

38 Hrs

- To provides in-depth coverage of object-oriented programming principles and techniques using C++.
- To Learn syntax features and the utilization of Standard Template Library.
- To Learn other features of the C++ language including templates, exceptions, forms of casting, conversions and covering all the features of this language.

Unit I:

[7 Hrs]

Principles of Object-Oriented Programming: Basic Concepts of Object Oriented-Programming - Benefits of OOP - Object-Oriented Languages - Applications of OOP. Beginning with C++: What is C++ - A simple C++ Program - Structure of C++ Program. Tokens, Expressions and Control Structures: Reference Variables - Scope Resolution Operator - Member Dereferencing Operators - Memory Management Operators - Type Cast Operator. Functions in C++.

[Chapters: 1,2,3,4]

Unit II:

[8 Hrs]

Classes and Objects: Introduction - Specifying a Class - Defining Member Functions - Making an outside Function Inline - Nesting Of Member Functions - Private Member Functions - Array within a Class - Memory Allocation for Objects - Static Data Members - Static Member Functions - Arrays Of Objects - Objects as Function Arguments - Friendly Functions. Constructors and Destructors: Introduction - Constructors - Parameterized Constructors - Multiple Constructors in a class - Constructors with Default Arguments - Dynamic Initialization of Objects - Destructors.

[Chapters: 5,6]

Unit III:

[7 Hrs]

Operator Overloading and Type Conversions: Introduction - Defining Operator Overloading - Overloading Binary Operators - Rules for Overloading Operators. Inheritance: Extending Classes: Introduction - Defining Derived Classes - Single Inheritance - Multilevel Inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance - Virtual base classes.

[Chapters: 7,8]

Unit IV:**[8 Hrs]**

Pointers, Virtual Functions and Polymorphism: Introduction - Pointers - Pointers to Objects - this Pointer - Pointers to Derived Classes - Virtual Functions. Templates: Introduction - Class Templates - Class Templates with Multiple Parameters - Function Templates - Function Templates with Multiple Parameters.

[Chapters:9,12]

Unit V:**[8 Hrs]**

Working with Files: Introduction - Classes for File Stream Operations - Opening and Closing a File - Detecting End-of-File - Error Handling during File operations. Exception Handling: Introduction - Basics of Exception Handling - Exception Handling Mechanism - Throwing Mechanism - Catching Mechanism - Rethrowing an Exception - Specifying Exceptions. Introduction to the Standard Template Library: Introduction - Components of STL - Containers - Algorithms - Iterators. Manipulating Strings: Introduction – Creating (String) Objects - Manipulating String Objects.

[Chapters: 11,13,14,15]

Book for Study:

E Balagurusamy, “Object Oriented Programming with C++”, McGraw Hill Education (India) Private Limited, New Delhi, Sixth Edition, Third Reprint 2014.

Book for Reference:

Bjarne Stroustrup, “The C++ Programming Language”, Addison-Wesley, Fourth Edition, 2013.

Course Outcomes:

On successful completion of this course the students will

1. Gain in-depth knowledge on Object Oriented concepts.
2. Have a generic programming foundation through the concept of templates
3. Work with group of related objects in uniform way.
4. Able to gain the knowledge for handling error through Exception handling concepts.
5. Gain the knowledge about storage mechanism by file concepts.

B.Sc Computer Science**Semester II****Part III - Core Practical II – C++ Programming****217SP2****(For the students admitted from the academic year 2017 - 2018 onwards)****Course Objective:****52 Hrs**

- To strengthen their problem solving ability by applying the characteristics of an object-oriented approach.
- To enhance the ability of logical thinking and implementing the concepts and techniques

List of Programs:

1. Program to read a set of numbers using arrays from the standard input device and to sort them in ascending order.
- #2. Program to perform overload Functions add(), sub() and multiply() that handle different data types.
- #3. Program to find the area of Circle, Rectangle and Square by using Inline Functions.
4. Program to implement Call by reference.
5. Program to demonstrate Employee details using classes and array of objects.
- #6. Program to display the student details using Constructor and Destructor.

7. Program using Single Inheritance.
8. Program for Payroll processing using Multiple Inheritance.
9. Program using virtual functions and pointers.
- #10. Program to illustrate the concept of Templates.
- #11. Program to illustrate the concept of Friend Function.
12. Program to implement Stack Operation.
13. Program to implement Queue Operations.
14. Program to implement Binary Search.
15. Program to implement Bubble Sort.

[# Spoken Tutorial]

Course Outcomes:

On successful completion of this course the students will

1. Able to work on Object Oriented concepts.
2. Implement reusability of classes and function through inheritance.
3. Apply a generic programming foundation through the concept of templates.
4. Able to gain the knowledge and operate on memory address through pointer.
5. Handle memory organizations using constructor and destructor.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Computer Science
 Scheme of Examination - CBCS Pattern
Programme: B.Sc Computer Science
 (For the students admitted from the academic year 2015 - 2016 onwards)

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
115BT1/ 115MY1/ 115HD1/ 115FR1 115EN1	Part I - Language I	6	3	25	75	100	4
115S01	Part II - English I Part III: Core I - Fundamentals of Computers and C Programming	6	3	25	75	100	4
115SP1	Core Practical I - Office Automation Tools and C Programming	5	3	25	75	100	4
115AS1	Allied I - Basic Mathematics	5	3	40	60	100	4
115EVS	Part IV: Environmental Studies	6	3	25	75	100	4
		2	2	50	-	50	2
	Semester II						
215BT2/ 215MY2/ 215HD2/ 215FR2 215EN2	Part I - Language II	6	3	25	75	100	4
215S02	Part II - English II Part III: Core II - Object Oriented Programming with C++	6	3	25	75	100	4
215SP2	Core Practical II- Object Oriented Programming with C++	5	3	25	75	100	4
215AS2	Core Practical II- Object Oriented Programming with C++	5	3	40	60	100	4
215VEC	Allied II - Discrete Mathematics	6	3	25	75	100	4
	Part IV: Value Education	2	2	50	-	50	2

	Semester III						
	Part III:						
315S03	Core III - Visual Basic	4	3	25	75	100	4
315S04	Core IV - Relational Database Management System	5	3	25	75	100	4
315S05	Core V - Data Structures	5	3	25	75	100	4
315SP3	Core Practical III - Visual Basic and RDBMS Programming	5	3	40	60	100	4
315AS3	Allied III - Operations Research	6	3	25	75	100	4
	Part IV:						
315SS1	Skill Based Course I - Web Designing	3	3	75	-	75	3
315NDT	Non Major Elective Course I - Desktop Publishing	2	2	50	-	50	2
	Semester IV						
	Part III:						
415S06	Core VI - Java Programming	4	3	25	75	100	4
415S07	Core VII - Computer Graphics	5	3	25	75	100	4
415S08	Core VIII - Operating Systems	5	3	25	75	100	4
415SP4	Core Practical IV - Java Programming and Computer Graphics	5	3	40	60	100	4
415AS4	Allied IV - Principles of Accountancy	6	3	25	75	100	4
	Part IV:						
415SS2	Skill Based Course II - Image Designing and Graphics Tools	3	3	75	-	75	3
415NGA	Non Major Elective Course II - General Awareness(Online)	-	1	50	-	50	2
415GIS	Information Security	2	2	50	-	Grade 100	Grade 4*
415ALS	Advanced Learners Course I - Grid Computing	-	-	-	100	100	

	Semester V						
	Part III:						
515S09	Core IX - .NET Technologies	5	3	25	75	100	4
515S10	Core X - Data Communication and Networks	6	3	25	75	100	4
515S11	Core XI - Software Engineering	5	3	25	50	75	3
515SP5	Core Practical V- .NET Technologies	6	3	25	75	100	4
515SE1	Elective I- Principles of Compiler Design	5	3	40	60	100	4
	Part IV:						
515SS3	Skill Based Course III - Image Editor	3	3	75	-	75	3
	Semester VI						
	Part III:						
615S12	Core XII - Microprocessor	5	3	25	75	100	4
615S13	Core XIII - Web Services	5	3	25	50	75	3
615S14	Core XIV - Network Security and Administration	5	3	25	75	100	4
615SE2	Elective II - Multimedia	6	3	25	75	100	4
615SPV	Project & Viva Voce	6	3	25	75	100	4
	Part IV :						
615SS4	Skill Based Course IV- Animation	3	3	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V: Extension	-	-	50	-	50	2
615ALS	Advanced Learners Course II - Mobile Computing	-	-	-	100	100	4*
TOTAL						3500	140

➤ Single starred credits are treated as additional credits which are optional.

**B .Sc Computer Science
Semester I**

**Part III - Core Practical I – Office Automation Tools and C Programming 115SP1
(For the students admitted from the academic year 2015-2016 onwards)**

List of Programs: **65 Hrs**

1. Prepare a class Timetable using Ms Word.
2. Prepare Bio-Data using Ms Word.
3. Publish student's results using mail merge.
4. Create a Newsletter using format options in MS word.
5. Create employee details using sort and filter option in Excel.
6. Prepare a slide in power point regarding sports day invitation(use hyper link)
7. Prepare a power point slide using animation effects.
8. Prepare a database maintaining stock in a shop with fields Serial .no (primary key),name of the product and product code, quantity and price.
9. Prepare a database for customer information and generate a report with customer name in ascending order.
10. i) Check whether given year is leap year or not.
ii)Program to find the Sum of N Numbers.
11. i) Program to find Biggest of three numbers.
ii)Program to check whether the given number is Prime or Not.
12. Program to check whether the candidate is eligible to vote or not.
13. Program to find the factorial of the given number.
14. Program to generate a Fibonacci series.
15. Program to find Simple Interest.
16. Program to check whether the given number is Armstrong.
17. Program to illustrate Swapping of two numbers.
18. Program to illustrate Pointers.
19. Program to receive a file name and the names of employees as command line argument and Write the text to the file.

**B .Sc Computer Science
Semester II**

**Part III - Core II - Object Oriented Programming with C++ 215S02
(For the students admitted from the academic year 2015 -2016 onwards)**

Preamble: **65 Hrs**

C++ is a general purpose programming language.The course is designed to

- To inculcate an in-depth programming knowledge in OOPS.
- To know about the imperative, object-oriented and generic programming features.
- To enhance the ability of logical thinking .

Unit I: **[13 Hrs]**

Principles of Object Oriented Programming - Beginning with C++: What is C++ - Applications of C++ - Structure of C++ program –Creating the source file - Compiling and linking.Tokens, Expressions and Control Structures - Functions in C++.
(Chapter - 1, 2, 3, 4)

Unit II:**[13 Hrs]**

Classes and objects: C Structures revisited-Specifying a class-Defining member functions-A C++ program with class-Making an outside function inline-Nesting of member functions-Private member functions-Arrays within a class-Memory allocation for classes-Static data members-Static member functions-Arrays of objects-Objects as function arguments-Friendly functions-Returning objects-const member functions-Pointers to members-Local classes.

Constructors and Destructors: Constructors- Parameterized Constructors-Multiple Constructors in class-Constructors with default arguments-Dynamic initialization of objects-Copy Constructor-Dynamic Constructors-Constructing two dimensional arrays-const objects-Destructors.

(Chapter - 5, 6)

Unit III:**[13 Hrs]**

Operator overloading and Type conversions: Defining Operator Overloading-Overloading Unary operators- Overloading Binary operators- Overloading Binary operators using Friends-Manipulation of Strings using Operators- Rules for overloading operators-Type conversion.

Inheritance: Extending classes: Defining derived classes-Single inheritance-Making a private member inheritable-Multi level Inheritance- Multiple Inheritance-Hierarchical Inheritance-Hybrid Inheritance-Virtual base classes- Abstract classes-Constructors in derived classes-Member classes: Nesting of classes.

(Chapter - 7, 8)

Unit IV:**[13 Hrs]**

Pointers, virtual functions and polymorphism: Pointers to objects-this Pointers-Pointers to derived classes-Virtual functions- Pure virtual functions.

Managing console I/O operations: C++ Streams –C++ Stream classes-Unformatted I/O operations-Formatted Console I/O operations-Managing output with manipulators.

Manipulating Strings: Creating (String) Objects-Manipulating string objects-Relational Operations-String characteristics-Accessing characters in strings-Comparing and swapping.

(Chapter - 9,10, 15)

Unit V:**[13 Hrs]**

Templates: Introduction –Class templates-Class templates with multiple parameters-Function templates-Function templates with multiple parameters-Overloading of template functions-Member function templates-Non-type template arguments.

Working with files: Classes for File stream operations-Opening and Closing a file-Detecting end -of - file- More about open(): File modes –File Pointers and their manipulations-Sequential Input and Output Operations-Updating a file: Random Access- Error handling during file operations-Command line arguments.

Exception handling: Basics of exception handling-Exception handling mechanism-Throwing mechanism-Catching mechanism-Rethrowing an Exception –Specifying Exceptions.

(Chapter - 11, 12, 13)

Book for Study:

E.Balagurusamy, “Object Oriented Programming with C++”, Tata McGraw Hill Publications, Fourth Edition, 6th Reprint 2009.

Part III - Core Practical II– Object Oriented Programming with C++ 215SP2
(For the students admitted from the academic year 2015 – 2016 onwards)

65 Hrs

- ## B.Sc Computer Science Semester III

315S03

52 Hrs

[10 Hrs]

Visual Basic: Background - VB Forms: Data Entry Screens - VB Toolbox In-depth-
Variables, Data types and User Defined Types.
(Chapter - 1, 2, 3, 4)

- Unit II:** [10 Hrs]
 Dialog Boxes, Conditional Statements and Loops- Modules, Arrays, Collections, Enums - Events: A Closer look - OLE.
 (Chapter - 5, 6, 8, 19)
- Unit III:** [11 Hrs]
 Menus, Control Arrays, Multiple Forms- Advanced Active-X Controls- Windows common Controls: Animation, Updown, Monthview, Dtpicker, Windows Common Controls: Slider, Imagelist, Image Combo, Tool Bar, Status Bar.
 (Chapter - 9, 10, 11, 12)
- Unit IV:** [11 Hrs]
 Database Creation, ODBC and DAO Programming: Database Creation Using Visdata- Tables Creation Using Visdata-ODBC Overview- DAO- DAO Based Advanced Controls - Code Based approach to DAO: Including DAO Library Reference in project-Working with database object-Working with recordset object – Windows QueryDef Object.
 (Chapter - 15)
- Unit V:** [10 Hrs]
 Database Programming: ADO and DED: ADO-OLE db Vs ODBC- DED- Adding the DED-ADO Data control- ADO Based Advanced Controls.
 Database Programming: Data Reports.
 (Chapter - 16, 17)
- Book for Study:**
 Sanjeev Sharma & Nandan Tripathi, “Visual Basic 6”- Excel Books-First Edition 2009.

B.Sc Computer Science Semester III

Part III - Core IV - Relational Database Management System 315S04 (For the students admitted from the academic year 2015 -2016 onwards)

- Preamble:** [65 Hrs]
 Database systems are designed to manage large bodies of information. This paper is designed to
- Provide knowledge in commercial applications development using oracle products.
 - To develop the Query knowledge.

- Unit I:** [13 Hrs]
 Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling –Dependency – Database Design – Normal forms – Dependency Diagrams -Denormalization – Another Example of Normalization.
 (Chapter:1,2)

- Unit II:** [13 Hrs]
 Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.
 (Chapter: 3,4)

- Unit III:** [13 Hrs]
 Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause –

Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

(Chapter: 5,6,7)

Unit IV:

[13 Hrs]

A Programming Language: History – Fundamentals – Block Structure –Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. control Structures and Embedded SQL: Control Structures – Nested Blocks –SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes –Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

(Chapter:10,11,12)

Unit V:

[13 Hrs]

PL/SQL Composite Data Types: Records – Tables –Varrays. Named Blocks: Procedures – Functions – Packages –Triggers –DataDictionary Views.

(Chapter:13,14)

Book for Study:

Nilesh Shah, “Database Systems Using Oracle”, 2nd Edition, PHI

**B.Sc. Computer Science
Semester III**

Part III - Core Practical III - Visual Basic and RDBMS Programming 315SP3
(For the students admitted from the academic year 2015 -2016 onwards)

List of Programs

Visual Basic:

38 Hrs

1. Write a Program to create a Window Using Event Handling.
2. Write a Program to design a Calculator with Various Arithmetic Operators.
3. Write a Program for Text Manipulations (Changing Foreground, Background & Alignment).
4. Create a program to develop an Application for loading a Picture using Drive, Directory & File List Box controls.
5. Design a form to display the List of Product by declaring Array.
6. Write a Program to create a student mark details using conditional statements.
7. Write a Program to develop an application for displaying Employee details using Database (Use ADO Control).
8. Prepare an application Program to enter the Customer Details using DAO control and generate the report.
9. Write a Program to develop an application using OLE Link Control.
10. Create a program using menu editor (New, Open, Save, Close, Color, Font & Font size)
11. Create a program using Windows Common Controls (Animation, Slider, Image list, Image Combo, Status bar)
12. Program to create Drawing Pad.
13. Write a program to create a Memory Game.

RDBMS Programming:

27 Hrs

I. Using DDL Commands:

1. Create a table for Voters ID Card using DDL commands.

II. Using DML Commands:

1. Create an employee database using DML commands and perform logical operations.
2. Perform the queries using transaction commands.
3. Write a program for inventory with constraints and perform the following clause.

- i) Select Clause
 - ii) Where Clause
 - iii) Order by clause
4. Write a program for student database and perform the following operations
 - i) Arithmetic Operation
 - ii) Group Function
5. Perform queries by using character and date functions.
6. Perform queries by using Sub Queries.
7. Perform a query for Joins.

III. Using PL/SQL:

1. Write a PL/SQL program for Employee Payroll.
2. Write a PL/SQL program for Student Database and Calculate Total, Average, Result.

B.Sc Computer Science

Semester III

Part IV - Skill Based Course I-Web Designing 315SS1 (For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

- Information plays a vital and dynamic role in HTML and DHTML
- DHTML is a new and emerging technology that has evolved to meet the increasing demand for eye catching and mind catching web sites.

List of programs:

38 Hrs

1. Design a web page which displays text in physical & logical styles.
2. Create a web page with external and internal links.
3. Design a timetable using HTML tags.
4. Design a web page for hospital.
5. Create a web page with links between two frames.
6. Write a HTML program using image and list tags.
7. Create a web page in DHTML using Cascading Style Sheets (use all attributes).
8. Design a web page in DHTML using class in external style sheets.
9. Design a web page for online recruitment.
10. Design a web page showing your bio-data.

II UG Course

Semester III

Part IV - Non Major Elective Course I – Desktop Publishing 315NDT (For the students admitted from the academic year 2015 -2016 onwards)

List of Programs:

26 Hrs

1. Design a 3D text in Photoshop.
2. Create different layer effects in Photoshop.
3. Build a filter based GIF animations.
4. Create an advertisement using Photoshop.
5. Design a student identity card using Photoshop.
6. Create a newsletter using Photoshop.
7. Create a program to work with layers using Page Maker.
8. Create a program to import images and align the images in Page Maker.
9. Create a program for Transformation of an object in Page Maker.

10. Create a program for masking a picture in Page maker.
11. Create a program using Drawing Tools in Corel Draw.
12. Create a logo using Corel Draw.

B.Sc Computer Science

Semester IV

Part III Core VI - Java Programming

415S06

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble: **52 Hrs**

- This course provides an introduction to object oriented programming (OOP) using the Java language.
- Understand fundamentals of Java, including defining classes, invoking methods, class libraries, etc.
- It enables students to create real world application.

Unit I: **[09 Hrs]**

Overview of JAVA Language - Constants, Variables and Data Types - Operators and Expressions - Decision Making and Branching - Decision Making and Looping.
(Book 1: Chapter: 3, 4, 5, 6, 7)

Unit II: **[10 Hrs]**

Classes, Objects and Methods - Arrays, Strings and Vectors - Interfaces : Multiple Inheritance - Packages : Putting Classes Together.
(Book 1: Chapter: 8, 9, 10, 11)

Unit III: **[10 Hrs]**

Multithreaded Programming - Managing Errors and Exceptions - Applet Programming - Graphics Programming.
(Book 1: Chapter: 12, 13, 14, 15)

Unit IV: **[12 Hrs]**

Managing Input /Output Files in JAVA - The Collection Framework : Introduction - Collection Framework - The Collection Class - Basic Utility Classes .
(Book 1: Chapter: 16) (Book 2: Chapter: 18, 19)

Unit V: **[11 Hrs]**

Working with AWT : Introduction to AWT - Structure of the AWT - AWT Controls - Networking in JAVA - Working with Images - Miscellaneous Topics : RMI.
(Book 2: Chapter :16,20,21, 22)

Books for study:

Book 1: E.Balagurusamy, “Programming with JAVA A Primer”, Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.

Book 2: Hari Mohan Pandey, “JAVA Programming”, Dorling Kindersley (India) Pvt. Ltd., Pearson Edition, New Delhi, 2012.

B.Sc Computer Science

Semester - IV

Part III - Core VIII - Operating Systems

415S08

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

65 Hrs

Operating Systems is an exciting software area because the design of an Operating System exerts a major influence on the overall function and performance of the entire computer.

- This paper is unique in presenting the students a comprehensive framework for the design, study and implementation of Operating System.
- It is essential for the system hardware and software implementations.

Unit I:

[13 Hrs]

Introduction: What Operating System Do? - Computer System Architecture - Operating System Structure - Operating System Operations - Process Management - Memory Management - Storage Management - Kernel Data Structure - Computing Environment. System Structures: Operating System Services - User and Operating System Interface - System Calls - Types of System Calls - System programs - Operating System Debugging - System Boot.

(Chapter: 1, 2)

Unit II:

[13 Hrs]

Process Concept: Process Concept - Process Scheduling - Interprocess Communication - Communication in Client - Server System. Multithreaded Programming: Overview - Multicore - Programming - Multithreading Models - Threading Issues. Process Scheduling: Basic Concepts - Scheduling Criteria - Scheduling Algorithm - Thread Scheduling.

(Chapter: 3, 4, 5)

Unit III:

[13 Hrs]

Deadlocks: System Model - Deadlock Characterization - Methods for Handling Deadlocks - Deadlock Prevention - Deadlock Avoidance - Deadlock Detection - Recovery from Deadlock. Memory Management Strategies: Contiguous Memory Allocation - Segmentation - Paging - Structure of the Page table. Virtual - Memory Management: Demand Paging - Page Replacement.

(Chapter: 7, 8, 9)

Unit IV:

[13 Hrs]

File System: File Concept - Access Methods - Directory and Disk structure - File system Mounting. Implementing File System: File System Structure - File System Implementation - Directory Implementation - Allocation Methods - Free Space Management. Mass Storage Structure: Overview of Mass Storage structure - Disk structure - Disk Attachment - Disk scheduling.

(Chapter: 10, 11, 12)

Unit V:

[13 Hrs]

System Protection: Goals of Protection - Principles of Protection - Domain of protection - Access Matrix - Implementation of the Access Matrix - Access Control - Revocation of Access rights. System Security: The Security Problem - Program Threats - System and Network threats - Cryptography as a Security Tool - User Authentication.

(Chapter: 14,15)

Book for Study:

Abraham Silberschatz, Peter B Galvin, Gerg Gagne, "Operating System Concepts", Wiley India Pvt.Ltd., 9th Edition, reprint - 2016.

B.Sc Computer Science

Semester - IV

Part III-Core Practical IV- Java Programming and Computer Graphics 415SP4 (For the students admitted from the academic year 2015 - 2016 Onwards)

Preamble: **65 Hrs**

- Java is one of the most popular programming languages among developer as well as being the most popular development platform.
- The students should be able to create Java programs that leverage the object - oriented features of the Java language, such as encapsulation, inheritance and polymorphism.
- Java programming language that enables students to create real world application.
- Understanding of the algorithm with practical knowledge.
- Implementing the concept of Graphics with points and lines.

List of Programs:

Java Programming

1. Program to find whether the candidate is eligible to vote or not.
2. Preparation of Mark list using Inheritance.
3. Program to implement Employee Payroll Processing using packages.
4. Program to implement interfaces.
5. Program using Multithreading.
6. Generating advertisements using Applets.
7. Count the number of words, characters, digits, alphabets, special characters and white spaces in a file.
8. Program for simple calculator using AWT.
9. Program for Networking.
10. Program to sort list of names using RMI.

Computer Graphics

1. Write a program to display a bar chart. The input to the program includes the data points and the labeling for the x and y-axes. The data points are to be scaled by the program to fit the screen area.
2. Write a program to draw line using DDA Algorithm.
3. Write a program to draw a circle using Bresenham Algorithm.
4. Write a program to implement composite transformations (Scaling, Rotation, and Translation) of a Two-Dimensional object.
5. Write a program to implement the Transformations reflection and shearing of a Two Dimensional objects.
6. Write a program to clip lines against a window using Cohen-Sutherland Algorithm.

B.Sc Computer Science

Semester IV

Part IV - Skill Based Course II - Image Designing and Graphics Tools 415SS2 (For the students admitted from the academic year 2015 - 2016 onwards)

Preamble: **38 Hrs**

- This paper enlighten the students with the knowledge of Imkscate and Scribes
- This software helps the students to work and edit along with the images and pictures.

List of Programs:

Graphics Tool:

1. Create a program using Drawing Tools
2. Create a logo using Corel Draw.
3. Create an invitation for college day.

Image Designing Tool:

4. Create a program to work with Layers.
5. Create a program using Drawing Tools
6. Create a program using Text tools.
7. Create a program to Import Images and align the images.
8. Create a program for Transformation of an object.
9. Create a program to work with Frames.
10. Design a pamphlet using 4 fold templates.

B.Sc Computer Science Semester V

Part III - Core IX - .NET Technologies

515S09

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

65 Hrs

- To enable the student to be familiar with visual programming concepts.
- On successful completion of the course the student should have understood the concepts in VB.NET, C#, ASP.NET & ADO.NET.
- It helps to create and manipulate programs graphically rather than by specifying them textually.
- It provides graphical or iconic elements which can be manipulated by users.

Unit I:

[13 Hrs]

Introduction to .NET: .Net defined - The .NET Framework. VB6 and VB.NET Differences: Data Type Changes - Arrays - The Value of True - Operators - User Defined Types - Null Values - Variable Scoping - Variable Initialization - ParmArray Variables - Language Issues - Procedures - Properties - Control Flow - Data Access - Debugging. Object- Oriented Programming and VB.NET: Encapsulation - Inheritance - Polymorphism. Visual Basic .NET IDE: The Start Page - Your First Visual Basic .NET Solution - Back to the IDE.
(Book 1: Chapter: 1, 2, 3, 17)

Unit II:

[15 Hrs]

Hello World: Creating a Windows Forms Application - Creating a Web Forms Application. Data Types, Variables and Operators: Data Types and Variables - Type Conversion - Operators. Conditional Logic: The If...Then...Else Statement - The Select...Case Statement - Do...Loop Statement - While...End While Statement - For...Next Statement - For Each...Next Statement - A Complete Example. Error Handling: Errors in Programming - Structured Exception Handling - On Error Statement - Custom Made Errors. Classes and Objects: Introduction to Classes - Creating a Class - The Class Block - Inside Classes - Overloading and Overriding - Constructors and Destructors.
(Book 1: Chapter: 4, 5, 7, 12, 14)

Unit III:

[11 Hrs]

Introducing C#: What is C#? - Why C#? - Characteristics of C# - Applications of C#. Overview of C#: Introduction - A Simple C# Program - Namespaces - Adding Comments - Main Returning a Value - Using Aliases for Namespace Class - Passing String Objects to WriteLine Method - Command Line Arguments - Main with a Class - Providing Interactive Input - Using Mathematical Functions - Multiple Main Methods - Compile Time Errors - Program Structure -

Program Coding Style. Literals, Variables and Data Types: Introduction - Literals - Variables - Data Types - Value Types - Reference Types - Declaration of Variables - Initialization of Variables - Default Values - Constant Variables - Scope of Variables - Boxing and Unboxing. Operators and Expressions. Delegates and Events: Introduction - Delegates - Delegate Declaration - Delegate Methods - Delegate Instantiation - Delegate Invocation - Using Delegates - Multicast Delegates - Events.

(Book 2: Chapter: 1, 3, 4, 5, 16)

Unit IV:

[13 Hrs]

Handling Arrays: Introduction - One-Dimensional Arrays - Creating an Array - Two-Dimensional Arrays - Variable-Size Arrays - The System.Array Class - ArrayList Class. Manipulating Strings: Introduction - Creating Strings - String Methods - Inserting Strings - Comparing Strings - Finding Substrings - Mutable Strings - Arrays of Strings - Regular Expressions. Structure and Enumerations: Introduction - Structures - Structs with Methods - Nested Structs - Differences between Classes and Structs - Enumerations - Enumerator Initialization - Enumerator Base Types - Enumerator Type Conversion. Multithreading in C#: Introduction - Understanding the System.Threading Namespace - Creating and Starting a Thread - Scheduling a Thread - Synchronizing Threads - Thread Pooling.

(Book 2: Chapter:9, 10, 11, 19)

Unit V:

[13 Hrs]

Introduction to Data Access in .NET: A History of Data Microsoft Data Access Technologies - Data Access Today - Overview of ADO.NET. ADO.NET: Accessing ADO.NET Features and Namespaces - Using ADO.NET. Introduction to ASP.NET: Why ASP.NET? ASP.NET Application: Creating a Web Application - Deleting an Application - global.asax.

(Book 1: Chapter: 21, 22, 32, 41)

Book for study:

Book 1: Bill Evjen, Jason Beres, et al., “Visual Basic .NET Programming Bible “Wiley Publishing Inc., USA, Reprint Edition 2014.

Book 2: E Balagurusamy “Programming in C# A Primer” Third Edition, Tata McGraw Hill Education Private Limited, Reprint 2012.

B.Sc. Computer Science

Semester - V

Part III - Core X - Data Communication and Networks

515S10

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

75 Hrs

Data Communication networks covers the different communication media and security measures for networks. This course helps to

- Understand the concepts of data communications.
- Study the functions of different layers.
 - Make the students to get familiarized with different protocols and network components.

Unit I:

[15 Hrs]

Introduction: Data communication-network-protocols and standards. Basic concepts: Line configuration-topology-Transmission mode-categories of network-inter networks. The OSI model: the model-functions of layer-TCP/IP protocol suite. Networking and internetworking devices: repeaters-bridges-routers-gateways.

(Chapter: 1,2,3,21)

Unit II:

[15 Hrs]

Transmission media: Guided media. Transmission of Digital data: Interfaces and modems: Digital data transmission-DTE-DCE-interface-Modems. Multiplexing: Many to One/One to Many-FDM-WDM-TDM-multiplexing application: the telephone system.

(Chapter: 6,7,8)

Unit III:

[15 Hrs]

Error detection and correction: Types of errors-detection-CRC-checksum-Error correction. Data link protocols: asynchronous protocols-synchronous protocols-Character oriented protocols. Local area networks: project – Ethernet. Frame relay: Congestion control-leaky bucket algorithm-Traffic control.

(Chapter: 9,11,12,18)

Unit IV:

[15 Hrs]

Switching: Circuit Switching – packet Switching – message Switching. Networking and internetworking devices: Routing algorithms- Distance vector routing-Link state routing.TCP/IP protocol suite: network layer-addressing-subnetting.

(Chapter: 14,21,24)

Unit V:

[15 Hrs]

Transport Layer: duties of Transport Layer-connection. TCP/IP protocol suite: Transport layer. Presentation layer.application layer: DNS.

(Chapter: 22,23)

Book for Study:

“Data Communication and Networking”, Behrouz A. Forouzan, Tata McGraw-Hill edition 2003, Second edition update.

**B.Sc Computer Science
Semester V**

Part III Core Practical V - .NET Technologies

515SP5

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

65 Hrs

- The course is designed to guide the beginning programmer in developing applications using Visual Basic.NET.
- Students will be introduced to object-oriented programming concepts along with VB.NET and C# syntax to implement them.
- Students will use the appropriate data types and procedural functions, handle errors, and deal with incorrect or unexpected input.
- Students get hands-on experience by completing labs, where they will build applications in VB.NET, C#ASP.NET and ADO.NET.

List of Programs:

1. Program for Inheritance in VB.NET
2. Program for Interfaces in VB.NET
3. Program for Overloading in VB.NET
4. Program for Constructors in VB.NET
5. Program using Delegates and Events in C#
6. Program using Arrays in C#
7. Program using String in C#
8. Program using Structures and Enumeration in C#
9. Develop a Windows Forms Application for Employee Payroll System using ADO.NET
10. Develop a Windows Forms Application for Student Database using ADO.NET
11. Create a Web Application for an Organization using ASP.NET
12. Create a Web Application Using ASP.NET with ADO.NET Connectivity

**B.Sc Computer Science
Semester V**

Part IV - Skill Based Course III - Image Editor

515SS3

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

38 Hrs

- Gimp is an important tool for graphic designers and professionals who have to work with images.
- The syllabus starts with the basics of Image Editing tool and subsequently studies every aspect in detail.
- The practical programs develop the skill to expert with Gimp, which is a basic tool for multimedia and animation.

List of programs:

1. Create a program using clone stamp tool.
2. Design a 3D text.
3. Use the heal brush and make changes in an image.
4. Build a glow effect with stroke path.
5. Show/ Hide a layer.
6. Merge two or more layers.
7. Create different layer effects.
8. Build lighting effects and difference clouds.
9. Create a program using Transform tools.
10. Create type masking.
11. Build a filter based GIF animations.
12. Create an advertisement.
13. Design a student identity card.
14. Create a newsletter.
15. Create an invitation.

**B.Sc. Computer Science
Semester VI**

Part III - Core XIII - Web Services

615S13

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

65 Hrs

- This course has a content to provide the web designing oriented information. It also provides the students with
- An opportunity to implement XML based interface solutions between loosely coupled services like DTD, XSL and SVG.
- A high level design experience that allows them to integrate the knowledge and skills they have developed during the program.

Unit I:

[13 Hrs]

Essentials of XML: XML in Context: The Beginnings of XML - The Promise of XML - Where is XML Heading? - The Fundamentals of XML: Introduction to XML Syntax - XML Document Structure - XML Content Models - Rules of XML Structure - Well-Formed and Valid Documents - Linking XML Documents Together - Namespaces in XML - Applying Style to XML - Basics of Reading and Processing XML - International Language Support in XML.
(Chapter: 1,2)

Unit II:

[13 Hrs]

Validating XML with Document Type Definition: Document Type Definitions - Some Simple DTD Examples - Structure of a Document Type Definition-Creating XML Schemas:

Declaring attributes - Declaring Elements -Declaring Complex Elements - Declaring Simple Types - Anonymous Type Declarations.

(Chapter: 3,4)

Unit III:

[13 Hrs]

Building XML-Based Applications: Parsing XML using Document Object Model: What is DOM? - DOM Levels - DOM Core: Parents, Children and Siblings - DOM Interfaces - Parsing XML Using SAX: What is SAX? - SAX Vs DOM - Disadvantages - SAX Versions - SAX Basics - Working with SAX - Transforming with XML with XSL: XSL Technologies - XSLT for Document Publishing.

(Chapter: 7,8,9)

Unit IV:

[13 Hrs]

Integrating XML with Databases: XML Database Solutions - Modeling Databases in XML - Formatting XML for the Web: A Brief history of DSSSL - A Brief history of CSS - XML Presentation using CSS - An Overview of XForms.

(Chapter: 10,11)

Unit V:

[13 Hrs]

Web Services Building Blocks: SOAP: Introduction to SOAP - Basic SOAP Syntax - Sending SOAP Messages - Web Services Building Blocks: WSDL and UDDI: Introduction to WSDL - Basic WSDL Syntax - SOAP Binding - Introduction to UDDI - The UDDI API - The Future of UDDI.

(Chapter: 15,16)

Book for Study:

Ron Schmelzer et al - “XML and Web Services” - Pearson Education, Eighth Impression, 2013.

B. Sc Computer Science

Semester VI

Part III - Core XIV - Network Security and Administration

615S14

(For the students admitted from the academic year 2015 - 2016

onwards)

Preamble:

65Hrs

This course presents an idea on provisions and policies adopted by a network administrator to prevent and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources. It enables to

- Get familiar with different kinds of security attacks.
- Understand the multiple solutions to protect from variety of threats.

Unit I:

[13 Hrs]

Introduction - Attacks, Services and Mechanisms - Security Attacks - Security Services - A Model for Internetwork Security - Conventional Encryption Principles - Conventional Encryption Algorithms - Cipher Block Modes of Operation - Location of Encryption devices - Key Distribution. Public Key Cryptography and Message Authentication: Approaches to Message Authentication - Secure Hash function and HMAC - Public key Cryptography Principles - Public key Cryptography algorithms - Digital Signatures.

(Book 1: Chapter: 1 ,2, 3)

Unit II:

[12 Hrs]

Authentication Applications: Kerberos - X.509 Directory Authentication Services. Electronic Mail Security: Pretty Good Privacy - S/MIME.

(Book 1: Chapter: 4, 5)

Unit III:

[14 Hrs]

IP Security: IP Security Overview - IP Security Architecture - Authentication header - Encapsulating Security payload - Combining Security Associations - Key Management -Web

Security: Web Security Requirements - Secure Socket Layer and Transport Layer Security - Secure Electronic Transaction. Network Management Security: Basic concepts of SNMP - SNMPv1 Community facility.

(Book 1: Chapter: 6, 7, 8)

Unit IV:

[12 Hrs]

Intruders and Viruses: Intruders - Viruses and Related threats - Firewall design Principles - Trusted Systems- Passwords.

(Book 1: Chapter: 9, 10) (Book 2: Chapter: 7)

Unit V:

[14 Hrs]

Case Studies on Cryptography in Java,.Net & Operating system - Cryptography and Security: Introduction - Cryptographic Solutions - Single Sign on (SSO) - Secure Inter Branch Payment Transactions - Denial of Service (DOS) Attacks - IP Spoofing Attacks - Cross site Scripting Vulnerability - Contract Signing - Secret Splitting - Virtual Elections.

(Book 2: Chapter: 8, 10)

Books for Study:

Book 1: William Stallings, "Network Security Essentials", Pearson Education Asia, Edition 2011.

Book 2: Atul Kahate, "Cryptography and Network Security", Tata McGraw Hill, Twelfth Reprint 2011.

B.Sc. Computer Science

Semester VI

Part III - Elective II - Multimedia

615SE2

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

75 Hrs

- Multimedia enhances the students to work with different content forms. It is a combination of text, audio, still images, animation, video, or interactivity.
- It demonstrates the use of animation, digitized sound, video control, and scanned images
- This will develop conceptual maps of content and process for interactive multimedia instructional programs

Unit I:

[15 Hrs]

Multimedia an Overview: Multimedia Presentation and Production-Characteristics of a Multimedia Presentation-Hardware and Software Requirements-Uses of Multimedia-Analog and Digital Representations-Digitization-Nyquist's Sampling Theorem. Text:-Introduction-Types of Text-Unicode Standard-Font-Insertion of Text-Text Compression-Text File Formats.

(Chapter: 1,2)

Unit II:

[15Hrs]

Image: Introduction-Image Data Representation- Image Acquisition-Image Processing-Binary Image Processing-Grayscale Image Processing-Color Image Processing-Image File Formats.

(Chapter: 3)

Unit III:

[15 Hrs]

Audio: Introduction-Acoustics-Sound Waves-Types and Properties of Sounds-Components of an Audio Systems-Musical Instrument Digital Interface (MIDI)-Sound Card-Audio Transmission-Audio File Formats-Audio Processing Software. Video: Analog Video Camera-Digital Video-Video Recording and Storage Formats-Video File Formats-Video Editing Concepts-Video Processing Software.

(Chapter:5,6)

Unit IV:

[15 Hrs]

Animation: Introduction-Uses of Animation-Traditional Animation-Principles of Animation-3D Animation-Rendering Algorithms-Animation File Formats-Animation Software.

Compression: Introduction-Basic Concepts - Lossless Compression Techniques - Lossy Compression Techniques-Image Compression-Audio Compression-Video Compression - Fractal Compression.

(Chapter: 7,8)

Unit V:

[15 Hrs]

Multimedia Architecture: Introduction-User Interfaces-OS Multimedia Support-Multimedia Extensions-Hardware Support-Distributed Multimedia Applications-Real Time Protocols-Playback Architectures-Synchronization. Multimedia Database: Introduction-What is Multimedia Database-Content Based Storage and Retrieval (CBSR)-Designing a Basic Multimedia Database.

(Chapter:10,11)

Book for Study:

Ranjan Parekh,"Principles of Multimedia", Second Edition, Tata McGraw Hill Education Private Limited, Reprint 2013.

B.Sc Computer Science

Semester VI

Part IV - Skill Based Course IV - Animation

615SS4

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

38 Hrs

- This paper gives introductory knowledge about Vectorian Giotto and its application areas.
- The students are capable of doing Animation.
- Publishing a Vectorian Giotto Movie is also given.
- Vectorian Giotto Component technology helps the user to create forms to bind data and to stream video easily using predefined components.

List of Programs:

1. Draw a Butterfly using Oval tool, Circle tool and Pencil tool.
2. Create a shape with Pencil tool (Using Straight smooth and free form lines).
3. Draw a Pentagon using Vector Graphics Method.
4. Create a Drop Shadow effect with depth.
5. i) Create a text and apply different text effects.
ii) Draw a 3D Ring.
6. Create a 3D Tunnel.
7. Create a program using morphing.
8. Create an animated button with a gradient in the upstate and a text over it.
9. Create folders in the library with names, eyes, heads, mouth and nose. Create symbols with different types of eyes, head etc., and store in the corresponding folders. Using those symbols assemble different types of Faces.
10. Using multiple motion tweening effect, draw a pendulum.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Computer Science
 Scheme of Examination - CBCS Pattern
Programme: B.Sc Computer Science
 (For the students admitted during the academic year 2014 - 2015 only)

Semester	Courses	Duration of Exams (ESE)	Marks		Total	Credits
			CIA	ESE		
I	Part I - Language I	3	25	75	3	100
	Part II - English I	3	25	75	3	100
	Part III: Core I - Fundamentals of Computers and C Programming	3	25	75	4	100
	Core Practical I - Office Automation Tools and C Programming	3	40	60	2	100
	Allied I - Basic Mathematics	3	25	75	5	100
	Part IV: Environmental Studies	3	50	-	2	50
II	Part I - Language II	3	25	75	3	100
	Part II - English II	3	25	75	3	100
	Part III: Core II - Object Oriented Programming with C++	3	25	75	4	100
	Core Practical II- Object Oriented Programming with C++	3	40	60	3	100
	Allied II - Discrete Mathematics	3	25	75	5	100
	Part IV: Value Education	3	50	-	2	50
	Advanced Learner's Course I - Management Information Systems	3	-	100	3*	100
III	Part III: Core III - Visual Basic	3	25	75	4	100
	Core IV - Relational Database Management Systems	3	25	75	4	100
	Core V - Data Structures	3	25	75	4	100
	Core Practical III - Visual Basic and RDBMS Programming	3	40	60	3	100
	Allied III - Operations Research	3	25	75	5	100
	Part IV: Skill Based Course I - HTML, DHTML & Dreamweaver	3	100	-	3	100
	Non Major Elective	3	75	-	2	75

IV	Part III:					
	Core VI - Java Programming	3	25	75	4	100
	Core VII - Computer Graphics	3	25	75	4	100
	Core VIII - Operating Systems	3	25	75	5	100
	Core Practical IV - Java Programming & Computer Graphics	3	40	60	3	100
	Allied IV - Principles of Accountancy	3	25	75	5	100
	Part IV:					
	Skill Based Course II - PageMaker and CorelDraw	3	100	-	3	100
	General Awareness	3	75	-	2	75
	Part V: Extension	-	50	-	1	50
	Advanced Learner's Course II - Grid Computing	3	-	100	3*	100
V	Part III:					
	Core IX - .NET Technologies	3	25	75	4	100
	Core X - Data Communication and Networks	3	25	75	5	100
	Core XI - Software Engineering	3	25	75	4	100
	Core Practical V- .NET Technologies	3	40	60	3	100
	Elective I- Principles of Compiler Design	3	25	75	5	100
	Part IV:					
	Skill Based Course III - Image Editor	3	100	-	3	100
VI	Part III:					
	Core XII - Microprocessor	3	25	75	4	100
	Core XIII - Web Services	3	25	75	4	100
	Core XIV- Network Security and Administration	3	25	75	4	100
	Elective II - Multimedia	3	25	75	5	100
	Project & Viva Voce	3	25	75	5	100
	Part IV :					
	Skill Based Course IV - Animation	3	100	-	3	100
	Advanced Learner's Course III - Mobile Computing	3	-	100	3*	100
	TOTAL				140	3700

➤ Single starred credits are treated as additional credits which are optional.

B .Sc Computer Science

Semester I

Part III – Core Practical I – Office Automation Tools and C Programming 114SP1
(For the Candidates admitted during the academic year 2014-2015 & onwards) 65 Hrs

List of Programs:

1. Prepare a class Timetable using Ms Word.
2. Prepare Bio-Data using Ms Word.
3. Publish student's results using mail merge.
4. Create a Newsletter using format options in MS word.
5. Prepare a Payroll in Excel using format options.
6. Create employee details using sort and filter option in Excel.
7. Prepare a slide in power point regarding sports day invitation(use hyper link)
8. Prepare a power point slide using animation effects.
9. Prepare a database maintaining stock in a shop with fields Serial .no (primary key), name of the product and product code, quantity and price.
10. Prepare a database for customer information and generate a report with customer name in ascending order.
11. i) Check whether given year is leap year or not.
ii) Program to find the Sum of N Numbers.
12. i) Program to find Biggest of three numbers.
ii) Program to check whether the given number is Prime or Not.
13. Program to check whether the candidate is eligible to vote or not.
14. Program to find the factorial of the given number.
15. Program to generate a Fibonacci series.
16. Program to find Simple Interest.
17. Program to check whether the given number is Armstrong.
18. Program to Swap two numbers with or without using temporary variables.
19. Program to illustrate Pointers.
20. Program to receive a file name and the names of employees as command line argument and Write the text to the file.

B .Sc Computer Science

Semester II

Part III - Core II - Object Oriented Programming with C++ 214S02
(For the Candidates admitted during the academic year 2014 -2015 & onwards) 52 Hrs

Preamble:

- C++ has emerged as the language of choice for most applications due to the speed portability and compactness of code.
- To inculcate an in-depth programming knowledge in OOPS.

Module I:

[11 Hrs]

Principles of Object Oriented Programming - Beginning with C++: What is C++ - Applications of C++ - Structure of C++ program –Creating the source file - Compiling and linking. Tokens, Expressions and Control Structures - Functions in C++

Module II:

[11 Hrs]

Classes and objects: C Structures revisited-Specifying a class-Defining member functions-A C++ program with class-Making an outside function inline-Nesting of member functions-Private member functions-Arrays within a class-Memory allocation for classes-Static

data members-Static member functions-Arrays of objects-Objects as function arguments-Friendly functions-Returning objects-const member functions-Pointers to members-Local classes.

Constructors and Destructors: Constructors- Parameterized Constructors-Multiple Constructors in class-Constructors with default arguments-Dynamic initialization of objects-Copy Constructor-Dynamic Constructors-Constructing two dimensional arrays-const objects-Destructors

Module III:

[10 Hrs]

Operator overloading and Type conversions: Defining Operator Overloading-Overloading Unary operators- Overloading Binary operators- Overloading Binary operators using Friends-Manipulation of Strings using Operators- Rules for overloading operators-Type conversion.

Inheritance: Extending classes: Defining derived classes-Single inheritance-Making a private member inheritable-Multi level Inheritance- Multiple Inheritance-Hierarchical Inheritance-Hybrid Inheritance-Virtual base classes- Abstract classes-Constructors in derived classes-Member classes: Nesting of classes.

Module IV:

[10 Hrs]

Pointers, virtual functions and polymorphism: Pointers to objects-this Pointers-Pointers to derived classes-Virtual functions- Pure virtual functions.

Managing console I/O operations: C++ Streams –C++ Stream classes-Unformatted I/O operations-Formatted Console I/O operations-Managing output with manipulators.

Manipulating Strings: Creating (String) Objects-Manipulating string objects-Relational Operations-String characteristics-Accessing characters in strings-Comparing and swapping.

Module V:

[10 Hrs]

Templates: Introduction –Class templates-Class templates with multiple parameters-Function templates-Function templates with multiple parameters-Overloading of template functions-Member function templates-Non-type template arguments.

Working with files: Classes for File stream operations-Opening and Closing a file-Detecting end -of - file- More about open(): File modes –File Pointers and their manipulations-Sequential Input and Output Operations-Updating a file: Random Access- Error handling during file operations-Command line arguments.

Exception handling: Basics of exception handling-Exception handling mechanism-Throwing mechanism-Catching mechanism-Rethrowing an Exception –Specifying Exceptions.

Book for Study:

E.Balagurusamy , “Object Oriented Programming with C++”, Tata McGraw Hill Publications, Fourth Edition, 6th Reprint 2009.

B.Sc Computer Science

Semester II

Part III Core Practical II– Object Oriented Programming with C++ 214SP2
(For the Candidates admitted during the academic year 2014 -2015 & Onwards) 52 Hrs

List of Programs :

1. Program to read a set of numbers using arrays from the standard input device and to sort them in ascending order.
2. Program to perform overload Functions add(), sub() and multiply() that handle different data types.
3. Program to find the area of Circle, Rectangle and Square by using Inline Functions.
4. Program to implement Call by reference

5. Program to demonstrate Employee details using classes and array of objects.
6. Program to display the student details using Constructor and Destructor.
7. Program using single inheritance.
8. Program for Payroll processing using Multiple Inheritance.
9. Program for student details using multilevel inheritance.
10. Program using virtual functions and pointers.
11. Program to implement Stack Operation.
12. Program to implement Bubble Sort.
13. Program for reading and writing to the text file.
14. Program to illustrate the concept of Templates.
15. Program to implement Queue Operations.
16. Program to implement Binary Search.
17. Program to illustrate the concept of Friend Function.
18. Program to implement Operator Overloading.
19. Program to implement Quick Sort.
20. Program using singly linked list.

**B.Sc Computer Science
Semester III**

Part III Core III – Visual Basic

314S03

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 52 Hrs

Preamble:

- Visual Basic is one of the popular programming languages for GUI.
- The students can develop their programming skills in windows applications through this paper.

Module I:

[10 Hrs]

Visual Basic: Background - VB Forms: Data Entry Screens - VB Toolbox In-depth- Variables, Data types and User Defined Types.

Module II:

[10 Hrs]

Dialog Boxes, Conditional Statements and Loops- Modules, Arrays, Collections, Enums - Events: A Closer look - OLE.

Module III:

[11 Hrs]

Menus, Control Arrays, Multiple Forms- Advanced Active-X Controls- Windows common Controls: Animation, Updown, Monthview, Dtpicker, Windows Common Controls: Slider, Imagelist, Image Combo, Tool Bar, Status Bar.

Module IV:

[11 Hrs]

Database Creation, ODBC and DAO Programming: Database Creation Using Visdata- Tables Creation Using Visdata-ODBC Overview- DAO- DAO Based Advanced Controls - Code Based approach to DAO: Including DAO Library Reference in project-Working with database object-Working with recordset object – Windows QueryDef Object.

Module V:

[10 Hrs]

Database Programming: ADO and DED: ADO-OLE db Vs ODBC- DED-Adding the DED-ADO Data control- ADO Based Advanced Controls.

Database Programming : Data Reports.

Books for Study:

1. Sanjeev Sharma & Nandan Tripathi, “Visual Basic6”- Excel Books-First Edition 2009.

B.Sc Computer Science

Semester III

Part III Core IV – Relational Database Management Systems

314S04

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs

Preamble:

- It is used in various sectors. Such Banking, Airlines, Tele communication.
- Database systems are designed to manage large bodies of information.
- This paper provides commercial applications development using oracle products.

Module I:

[13 Hrs]

Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages.Database Design: Data Modeling **and Normalization**: Data Modeling –Dependency – Database Design – Normal forms – Dependency Diagrams -Denormalization – Another Example of Normalization.

Module II:

[13 Hrs]

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Module III:

[13 Hrs]

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

Module IV:

[13 Hrs]

A Programming Language: History – Fundamentals – Block Structure –Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. control Structures and Embedded SQL: Control Structures – Nested Blocks –SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes –Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

Module V:

[13 Hrs]

PL/SQL Composite Data Types: Records – Tables –Varrays. Named Blocks: Procedures – Functions – Packages –Triggers –DataDictionary Views.

Books for Study:

1. Nilesh Shah, “Database Systems Using Oracle”, 2nd edition, PHI

B.Sc. Computer Science

Semester III

Part III-Core Practical III - Visual Basic and RDBMS Programming

314SP3

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs

Visual Basic:

2. Write a Program to create a Window Using Event Handling.

3. Write a Program to design a Calculator with Various Arithmetic Operators.
4. Write a Program for Text Manipulations (Changing Foreground, Background & Alignment).
5. Create a program to develop an Application for loading a Picture using Drive, Directory & File List Box controls.
6. Design a form to display the List of Product by declaring Array.
7. Write a Program to create a student mark details using conditional statements.
8. Write a Program to develop an application for displaying Employee details using Database (Use ADO Control).
9. Prepare an application Program to enter the Customer Details using DAO control and generate the report.
10. Write a Program to develop an application using OLE Link Control.
11. Create a program using menu editor (New, Open, Save, Close, Color, Font & Font size)
12. Create a program using Windows Common Controls (Animation, Slider, Image list, Image Combo, Status bar)
13. Program to create Drawing Pad.
14. Write a program to create a Memory Game.

RDBMS Programming:

I. Using DDL Commands:

1. Create a table for Voters ID Card using DDL commands.

II. Using DML Commands:

8. Create an employee database using DML commands and perform logical operations.
9. Perform the queries using transaction commands.
10. Write a program for inventory with constraints and perform the following clause.
 - i) Select Clause
 - ii) Where Clause
 - iii) Order by clause
11. Write a program for student database and perform the following operations
 - i) Arithmetic Operation
 - ii) Group Function
12. Perform queries by using character and date functions.
13. Perform queries by using Sub Queries.
14. Perform a query for Joins.

III. Using PL/SQL:

3. Write a PL/SQL program for Employee Payroll.
4. Write a PL/SQL program for Student Database and Calculate Total, Average Result.

B.Sc Computer Science

Semester III

Part IV Skill Based Course I-HTML, DHTML & Dream weaver

314SS1

(For the Candidates admitted during the academic year 2014-2015 & Onwards) 38 Hrs

Preamble:

- Information plays a vital and dynamic role in HTML and DHTML
- DHTML is a new and emerging technology that has evolved to meet the increasing demand for eye catching and mind catching web sites.

- Dream weaver is a web development application allows users to preview websites in locally installed web browsers.

Module I: [10 Hrs]

Introduction to Html-Hypertext markup language (HTML)-commonly used HTML commands-Titles & footers-Text formatting-Emphasizing material in a web page-Text styles-Other text effects.

Module II: [7 Hrs]

Lists: Type of lists, Adding graphics to HTML Documents.

Module III: [7 Hrs]

Tables-linking documents-frames

Module IV: [7 Hrs]

Dynamic HTML-Cascading style sheets –Class-Using the ... - External style sheets-Using the <DIV>... </DIV>

Module V: [7 Hrs]

Get Started with DreamWeaver>Create a Page with Text-Add Images and Hyperlinks to your Web Page

Books for study

1. Ivan Bayross, “HTML, DHTML, Java Script, perl, CGI”,BPB Publications, New Delhi, Reprinted 2011.
2. Michael Meadhra,”DreamWeaver 8 A Beginner’s Guide”,Dream Tech Press, Edition 2006.

List of programs:

- 1.Design a web page which displays text in physical & logical styles.
- 2.Create a web page with external and internal links.
- 3.Design a timetable using HTML tags.
- 4 Design a web page for hospital.
- 5 Create a web page with links between two frames.
- 6.Write a HTML program using image and list tags.
- 7.Create a web page in DHTML using Cascading Style Sheets (use all attributes).
- 8.Design a web page in DHTML using class in external style sheets.
- 9.Design a web page for online recruitment process using dreamweaver.
- 10.Design a web page showing your bio-data using dreamweaver.

BA / B.Sc / B.COM Degree

Semester III

Part IV – Non Major Elective – Desktop Publishing 314NDT

(For the Candidates admitted during the academic year 2014-2015 & onwards) 26 Hrs

Preamble:

- It concentrates also on PageMaker, which helps in desktop publishing systems.
- It provides simple and easy techniques to create attractive looking documents.
- This Paper enlightens the students with the knowledge of CorelDraw and Photoshop.
- This software’s helped the students to work and edit along with the images and pictures.

Module I: [6 Hrs]

The Basics: Toolbox – The Menus – The Palettes – How to use the Palettes – Create a custom the work space – Delete any color(or) all custom work shape - Layer Palette – Character Palette – tool preset Palette .Select – composting – Layers.

Module II: [5 Hrs]

Adjustments – Choosing colors – paint – Gradient – Masks – Filters.

Module III: [5 Hrs]

PageMaker Basics – Working with Publications – Drawing tools – Importing Graphics

– Transformations.

Module IV:

[5 Hrs]

Master Pages – Utilities - Working with Text - Working with Frames – Working with Layers.

Module V:

[5 Hrs]

What's new in CorelDraw 12? - Getting Started with CorelDraw12: Measuring and Drawing Helpers - Zooming and Viewing - Working with object tools: Creating Basic Shapes – Drawing with Line Tools.

Book for Study:

1. Elaine Weinmann, Peter Lourekas, "Photoshop 7 for Windows" Tech Medi Publications.
- Satish Jain, "Training Guide – PageMaker 7", BPB, Publications.
- Steve Bain with Nick Wilkinson, "CorelDraw 12" DreamTech Publications.

List of Programs:

1. Design a 3D text in Photoshop.
2. Create different layer effects in Photoshop.
3. Build a filter based GIF animations.
4. Create an advertisement using Photoshop.
5. Design a student identity card using Photoshop.
6. Create a newsletter using Photoshop.
7. Create a program to work with layers using Page Maker.
8. Create a program to import images and align the images in Page Maker.
9. Create a program for Transformation of an object in Page Maker.
10. Create a program for masking a picture in Page maker.
11. Create a program using Drawing Tools in Corel Draw.
12. Create a logo using Corel Draw.

B.Sc Computer Science

Semester-IV

Part III - Core VI – JAVA Programming

414S06

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 52 Hrs

Preamble:

- The students can develop their programming skills in GUI applications.
- Java is one of the popular programming languages for developing consumer electronic devices.
- It is an object-oriented language that enables students to create real world applications.

Module I:

[10Hrs]

Overview of JAVA Language-Constants, Variables and Data Types-Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Module II:

[10 Hrs]

Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Collection:-Introduction-Collection Framework-Collection Classes-.Working with Maps and Map classes.

Module III:

[11 Hrs]

Basic utility classes- Packages: Putting Classes Together - Multithreaded Programming – Applet and Graphics Programming.

Module IV: [11 Hrs]

Managing Errors and Exceptions- AWT - GUI and Event –Driven Programming.

Module V: [10 Hrs]

Managing Input/Output files in JAVA – Networking in java- Working with images – Understanding RMI.

Books for study:

Book 1: "Programming with JAVA A Primer", E. Balagurusamy, Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.

Book 2: "JAVA PROGRAMMING", Hari Mohan Pandey, Pearson Edition, New Delhi, 2012.

Book 3: "An Introduction to Object-Oriented Programming with JAVA", C Thomas WU, Tata McGraw Hill Companies, Fourth Edition.

B.Sc Computer Science

Semester IV

Part III Core VIII - Operating Systems

414S08

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs

Preamble:

- This paper is unique in presenting the students a comprehensive framework for the design, study and implementation of Operating Systems.
- Operating Systems is an exciting software area because the design of an Operating System exerts a major influence on the overall function and performance of the entire computer.

Module I: [13 Hrs]

Introduction to operating Systems: What is an operating system - 2000 and beyond – Application bases-Operating system components and goals - Operating System environments- Operating System architectures. Process Concepts: process states-process management.

Module II: [12 Hrs]

Thread Concepts: Definition of thread - Thread States: Life cycle of thread - Thread operations - Threading models.

Asynchronous concurrent execution: Mutual exclusion - Implementing mutual exclusion primitives - Semaphores. Deadlock and Indefinite postponement.

Module III: [14 Hrs]

Processor Scheduling: Scheduling levels-Preemptive versus non-preemptive scheduling- Priorities-Scheduling objectives- Scheduling criteria- [Scheduling algorithms-Multilevel feedback queues-Fair share scheduling]-Deadline Scheduling.

Real Memory organization and management: Memory Organization-Memory management - Memory Hierarchy - Memory management strategies - Contiguous Vs Non-Contiguous Memory allocation - Single user contiguous memory allocation - Fixed partition multi programming-Variable partition multi programming-Multi programming with memory swapping.

Module IV: [12 Hrs]

Virtual Memory Organization: Virtual memory: Basic concepts Paging Segmentation. Virtual Memory Management: Locality-Demand paging-Anticipatory paging-Page replacement-Page replacement strategies - Page release-Page size - Global Vs Local page replacement.

Module V: [14 Hrs]

Disk Performance Optimization: Evolution of secondary storage-Characteristics of Moving-Head disk storage-Why disk scheduling is necessary-Disk Scheduling strategies - Caching and Buffering. File and Database Systems: Files-File organization-File allocation-Case

Study: Windows XP: Introduction - History - Design Goals - System architecture - System management mechanisms.

Book for Study:

1. H.M.Deitel, P.J.Deitel, D.R.Choffnes – “Operating System”, 3rd Edition, Pearson Education Incorporation, 4th Impression 2009.

**B.Sc Computer Science
Semester-IV**

Core Practical IV – Java Programming and Computer Graphics 414SP4

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 75 Hrs

List of Programs:

Java Programming

1. Program to find whether the given year is leap year or not.
2. Program to find Armstrong number.
3. Program to implement the concept of Decision making and Branching.
4. Program using Multithreading.
5. Preparation of Mark list using Inheritance.
6. Program to implement Employee Payroll Processing using packages.
7. Generating advertisements using Applets.
8. Program for simple calculator using AWT.
9. Count the number of words, characters, digits, alphabets, special characters and white spaces in a file.
10. Program to implement interfaces.
11. Program to display personal information using Swings.
12. Program to sort list of names using RMI.

Computer Graphics

1. Write a program to display a bar chart. The input to the program includes the data points and the labeling for the x and y-axes. The data points are to be scaled by the program to fit the screen area.
2. Write a program to draw line using DDA Algorithm.
3. Write a program to draw a circle using Bresenham Algorithm.
4. Write a program to draw a line using Bresenham Algorithm.
5. Write a program to implement composite transformations (Scaling, Rotation, and Translation) of a Two-Dimensional object.
6. Write a program to implement the Transformations reflection and shearing of a Two Dimensional objects.
7. Write a program to clip lines against a window using Cohen-Sutherland Algorithm.

**B.Sc Computer Science
Semester IV**

Part IV Skill Based Course II - PageMaker and CorelDraw 414SS2

(For the Candidates admitted during the academic year 2014-2015 & onwards) 38 Hrs

Preamble:

- This Paper enlighten the students with the knowledge of CorelDraw And PageMaker
- This software helps the students to work and edit along with the images and pictures.

Module I: [10 Hrs]

What's new in CorelDraw 12? – Interfacing with CorelDraw. Getting Started with CorelDraw12: Measuring and Drawing Helpers - Zooming and Viewing – Essential Objects Commands.

Module II: [7 Hrs]

Working with object tools: Creating Basic Shapes – Drawing with Line Tools – Cutting, Shaping and Reshaping objects – Arranging and organizing objects.

Module III: [7Hrs]

PageMaker Basics – Working with Publications – Drawing tools – Text tools.

Module IV: [7 Hrs]

Importing Graphics – Transformations - Master Pages – Utilities

Module V: [7 Hrs]

Working with Text – The Story Editor -Working with Frames – Working with Layers.

Book for Study:

1. SteveBain with Nick Wilkinson,"CorelDraw 12"DreamTech Publications.
2. Satish jain , "Trainning Guid – PageMaker 7", BPB, Publications

List of Programs:

Corel Draw:

1. Create a program using Drawing Tools
2. Create a logo using Corel Draw.
3. Create an invitation for college day.

PageMaker:

4. Create a program to work with Layers.
5. Create a program using Drawing Tools
6. Create a program using Text tools.
7. Create a program to Import Images and align the images.
8. Create a program for Transformation of an object.
9. Create a program to work with Frames.
10. Create a program for masking a picture.

**B.Sc Computer Science
Semester V**

Part III - Core IX - .NET Technologies

514S09

(For the students admitted during the academic year 2014 - 2015 only)

Preamble:

65 Hrs

- To enable the student to be familiar with visual programming concepts.
- On successful completion of the course the student should have understood the concepts in VB.NET, C#, ASP.NET & ADO.NET.
- It helps to create and manipulate programs graphically rather than by specifying them textually.
- It provides graphical or iconic elements which can be manipulated by users.

Unit I: [13 Hrs]

Introduction to .NET: .Net defined - The .NET Framework. VB6 and VB.NET Differences: Data Type Changes - Arrays - The Value of True - Operators - User Defined Types - Null Values - Variable Scoping - Variable Initialization - ParmArray Variables - Language Issues - Procedures - Properties - Control Flow - Data Access - Debugging. Object- Oriented Programming and VB.NET: Encapsulation - Inheritance - Polymorphism. Visual Basic .NET IDE: The Start Page - Your First Visual Basic .NET Solution - Back to the IDE.

(Book 1: Chapter: 1, 2, 3, 17)

Unit II:**[15 Hrs]**

Hello World: Creating a Windows Forms Application - Creating a Web Forms Application. Data Types, Variables and Operators: Data Types and Variables - Type Conversion - Operators. Conditional Logic: The If...Then...Else Statement - The Select...Case Statement - Do...Loop Statement - While...End While Statement - For...Next Statement - For Each...Next Statement - A Complete Example. Error Handling: Errors in Programming - Structured Exception Handling - On Error Statement - Custom Made Errors. Classes and Objects: Introduction to Classes - Creating a Class - The Class Block - Inside Classes - Overloading and Overriding - Constructors and Destructors.

(Book 1: Chapter:4, 5, 7, 12, 14)

Unit III:**[11 Hrs]**

Introducing C#: What is C#? - Why C#? - Characteristics of C# - Applications of C#. Overview of C#: Introduction - A Simple C# Program - Namespaces - Adding Comments - Main Returning a Value - Using Aliases for Namespace Class - Passing String Objects to WriteLine Method - Command Line Arguments - Main with a Class - Providing Interactive Input - Using Mathematical Functions - Multiple Main Methods - Compile Time Errors - Program Structure - Program Coding Style. Literals, Variables and Data Types: Introduction - Literals - Variables - Data Types - Value Types - Reference Types - Declaration of Variables - Initialization of Variables - Default Values - Constant Variables - Scope of Variables - Boxing and Unboxing. Operators and Expressions. Delegates and Events: Introduction - Delegates - Delegate Declaration - Delegate Methods - Delegate Instantiation - Delegate Invocation - Using Delegates - Multicast Delegates - Events.

(Book 2: Chapter:1, 3, 4, 5, 16)

Unit IV:**[13 Hrs]**

Handling Arrays: Introduction - One-Dimensional Arrays - Creating an Array - Two-Dimensional Arrays - Variable-Size Arrays - The System.Array Class - ArrayList Class. Manipulating Strings: Introduction - Creating Strings - String Methods - Inserting Strings - Comparing Strings - Finding Substrings - Mutable Strings - Arrays of Strings - Regular Expressions. Structure and Enumerations: Introduction - Structures - Structs with Methods - Nested Structs - Differences between Classes and Structs - Enumerations - Enumerator Initialization - Enumerator Base Types - Enumerator Type Conversion. Multithreading in C#: Introduction - Understanding the System.Threading Namespace - Creating and Starting a Thread - Scheduling a Thread - Synchronizing Threads - Thread Pooling.

(Book 2: Chapter:9, 10, 11, 19)

Unit V:**[13 Hrs]**

Introduction to Data Access in .NET: A History of Data Microsoft Data Access Technologies - Data Access Today - Overview of ADO.NET. ADO.NET: Accessing ADO.NET Features and Namespaces - Using ADO.NET. Introduction to ASP.NET: Why ASP.NET? ASP.NET Application: Creating a Web Application - Deleting an Application - global.asax.

(Book 1: Chapter: 21, 22, 32, 41)

Book for study:

Book 1: Bill Evjen, Jason Beres, et al., “Visual Basic .NET Programming Bible “Wiley Publishing Inc., USA, Reprint Edition 2014.

Book 2: E Balagurusamy “Programming in C# A Primer” Third Edition, Tata McGraw Hill Education Private Limited, Reprint 2012.

B.Sc. Computer Science
Semester - V
Part III Core X - Data Communication and Networks **514S10**
(For the Candidates admitted during the academic year 2014 -2015 & onwards) 75 Hrs

Preamble:

- To understand the concepts of data communications.
- To study the functions of different layers.
 - To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks.

Module I: **[15 hrs]**

Introduction: Data communication-network-protocols and standards. Basic concepts: Line configuration-topology-Transmission mode-categories of network-inter networks. The OSI model: the model-functions of layer-TCP/IP protocol suite. Networking and internetworking devices: repeaters-bridges-routers-gateways.

Module II: **[15 hrs]**

Transmission media: Guided media. Transmission of Digital data: Interfaces and modems: Digital data transmission-DTE-DCE-interface-Modems. Multiplexing: Many to One/One to Many-FDM-WDM-TDM-multiplexing application: the telephone system.

Module III: **[15 hrs]**

Error detection and correction: Types of errors-detection-CRC-checksum-Error correction. Data link protocols: asynchronous protocols-synchronous protocols-Character oriented protocols. Local area networks: project – Ethernet. Frame relay: Congestion control-leaky bucket algorithm-Traffic control.

Module IV: **[15 hrs]**

Switching: Circuit Switching – packet Switching – message Switching. Networking and internetworking devices: Routing algorithms- Distance vector routing-Link state routing.TCP/IP protocol suite: network layer-addressing-subnetting .

Module V: **[15 hrs]**

Transport Layer: duties of Transport Layer-connection. TCP/IP protocol suite: Transport layer. Presentation layer. application layer: DNS. N/W security: digital signature. access authorization..

Book for Study:

1. “Data Communication and Networking”, Behrouz A. Forouzan, Tata McGraw-Hill edition 2003, Second edition update.

B.Sc Computer Science
Semester V
Part III Core Practical V - .NET Technologies **514SP5**
(For the students admitted during the academic year 2014 - 2015 only)

Preamble: **65 Hrs**

- The course is designed to guide the beginning programmer in developing applications using Visual Basic.NET.
- Students will be introduced to object-oriented programming concepts along with VB.NET and C# syntax to implement them.
- Students will use the appropriate data types and procedural functions, handle errors, and deal with incorrect or unexpected input.

- Students get hands-on experience by completing labs, where they will build applications in VB.NET, C#ASP.NET and ADO.NET.

List of Programs:

1. Program for Inheritance in VB.NET
2. Program for Interfaces in VB.NET
3. Program for Overloading in VB.NET
4. Program for Constructors in VB.NET
5. Program using Delegates and Events in C#
6. Program using Arrays in C#
7. Program using String in C#
8. Program using Structures and Enumeration in C#
9. Develop a Windows Forms Application for Employee Payroll System using ADO.NET
10. Develop a Windows Forms Application for Student Database using ADO.NET
11. Create a Web Application for an Organization using ASP.NET
12. Create a Web Application Using ASP.NET with ADO.NET Connectivity

**B.Sc Computer Science
Semester V**

Part IV - Skill Based Course III - Image Editor

514SS3

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

38 Hrs

- Gimp is an important tool for graphic designers and professionals who have to work with images.
- The syllabus starts with the basics of Image Editing tool and subsequently studies every aspect in detail.
- The practical programs develop the skill to expert with Gimp, which is a basic tool for multimedia and animation.

List of programs:

1. Create a program using clone stamp tool.
2. Design a 3D text.
3. Use the heal brush and make changes in an image.
4. Build a glow effect with stroke path.
5. Show/ Hide a layer.
6. Merge two or more layers.
7. Create different layer effects.
8. Build lighting effects and difference clouds.
9. Create a program using Transform tools.
10. Create type masking.
11. Build a filter based GIF animations.
12. Create an advertisement.
13. Design a student identity card.
14. Create a newsletter.
15. Create an invitation.

B.Sc. Computer Science

Semester VI

Part III - Core XIII - Web Services

614S13

(For the students admitted during the academic year 2014 - 2015 only)

Preamble:

65 Hrs

- This course has a content to provide the web designing oriented information. It also provides the students with
- An opportunity to implement XML based interface solutions between loosely coupled services like DTD, XSL and SVG.
- A high level design experience that allows them to integrate the knowledge and skills they have developed during the program.

Unit I:

[13 Hrs]

Essentials of XML: XML in Context: The Beginnings of XML - The Promise of XML - Where is XML Heading? - The Fundamentals of XML: Introduction to XML Syntax - XML Document Structure - XML Content Models - Rules of XML Structure - Well-Formed and Valid Documents - Linking XML Documents Together - Namespaces in XML - Applying Style to XML - Basics of Reading and Processing XML - International Language Support in XML.

(Chapter: 1,2)

Unit II:

[13 Hrs]

Validating XML with Document Type Definition: Document Type Definitions - Some Simple DTD Examples - Structure of a Document Type Definition-Creating XML Schemas: Declaring attributes - Declaring Elements -Declaring Complex Elements - Declaring Simple Types - Anonymous Type Declarations.

(Chapter: 3,4)

Unit III:

[13 Hrs]

Building XML-Based Applications: Parsing XML using Document Object Model: What is DOM? - DOM Levels - DOM Core: Parents, Children and Siblings - DOM Interfaces - Parsing XML Using SAX: What is SAX? - SAX Vs DOM - Disadvantages - SAX Versions - SAX Basics - Working with SAX - Transforming with XML with XSL: XSL Technologies - XSLT for Document Publishing.

(Chapter: 7,8,9)

Unit IV:

[13 Hrs]

Integrating XML with Databases: XML Database Solutions - Modeling Databases in XML - Formatting XML for the Web: A Brief history of DSSSL - A Brief history of CSS - XML Presentation using CSS - An Overview of XForms.

(Chapter: 10,11)

Unit V:

[13 Hrs]

Web Services Building Blocks: SOAP: Introduction to SOAP - Basic SOAP Syntax - Sending SOAP Messages - Web Services Building Blocks: WSDL and UDDI: Introduction to WSDL - Basic WSDL Syntax - SOAP Binding - Introduction to UDDI - The UDDI API - The Future of UDDI.

(Chapter: 15,16)

Book for Study:

Ron Schmelzer et al - “XML and Web Services” - Pearson Education, Eighth Impression, 2013.

B. Sc Computer Science

Semester VI

Part III - Core XIV - Network Security and Administration 614S14 **(For the students admitted during the academic year 2014 - 2015 only)**

Preamble:

65Hrs

This course presents an idea on provisions and policies adopted by a network administrator to prevent and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources. It enables to

- Get familiar with different kinds of security attacks.
- Understand the multiple solutions to protect from variety of threats.

Unit I:

[13 Hrs]

Introduction - Attacks, Services and Mechanisms - Security Attacks - Security Services - A Model for Internetwork Security - Conventional Encryption Principles - Conventional Encryption Algorithms - Cipher Block Modes of Operation - Location of Encryption devices - Key Distribution. Public Key Cryptography and Message Authentication: Approaches to Message Authentication - Secure Hash function and HMAC - Public key Cryptography Principles - Public key Cryptography algorithms - Digital Signatures.

(Book 1: Chapter: 1 ,2, 3)

Unit II:

[12 Hrs]

Authentication Applications: Kerberos - X.509 Directory Authentication Services. Electronic Mail Security: Pretty Good Privacy - S/MIME.

(Book 1: Chapter: 4, 5)

Unit III:

[14 Hrs]

IP Security: IP Security Overview - IP Security Architecture - Authentication header - Encapsulating Security payload - Combining Security Associations - Key Management -Web Security: Web Security Requirements - Secure Socket Layer and Transport Layer Security - Secure Electronic Transaction. Network Management Security: Basic concepts of SNMP - SNMPv1 Community facility.

(Book 1: Chapter: 6, 7, 8)

Unit IV:

[12 Hrs]

Intruders and Viruses: Intruders - Viruses and Related threats - Firewall design Principles - Trusted Systems- Passwords.

(Book 1: Chapter: 9, 10) (Book 2: Chapter: 7)

Unit V:

[14 Hrs]

Case Studies on Cryptography in Java,.Net & Operating system - Cryptography and Security: Introduction - Cryptographic Solutions - Single Sign on (SSO) - Secure Inter Branch Payment Transactions - Denial of Service (DOS) Attacks - IP Spoofing Attacks - Cross site Scripting Vulnerability - Contract Signing - Secret Splitting - Virtual Elections.

(Book 2: Chapter: 8, 10)

Books for Study:

Book 1: William Stallings, "Network Security Essentials", Pearson Education Asia, Edition 2011.

Book 2: Atul Kahate, "Cryptography and Network Security", Tata McGraw Hill, Twelfth Reprint 2011.

B.Sc. Computer Science
Semester VI
Part III - Elective II - Multimedia **614SE2**
(For the students admitted during the academic year 2014 - 2015 only)

Preamble: **75 Hrs**

- Multimedia enhances the students to work with different content forms. It is a combination of text, audio, still images, animation, video, or interactivity.
- It demonstrates the use of animation, digitized sound, video control, and scanned images
- This will develop conceptual maps of content and process for interactive multimedia instructional programs

Unit I: **[15 Hrs]**

Multimedia an Overview: Multimedia Presentation and Production-Characteristics of a Multimedia Presentation-Hardware and Software Requirements-Uses of Multimedia-Analog and Digital Representations-Digitization-Nyquist's Sampling Theorem. Text:-Introduction-Types of Text-Unicode Standard-Font-Insertion of Text-Text Compression-Text File Formats.

(Chapter: 1,2)

Unit II: **[15Hrs]**

Image: Introduction-Image Data Representation- Image Acquisition-Image Processing-Binary Image Processing-Grayscale Image Processing-Color Image Processing-Image File Formats.

(Chapter: 3)

Unit III: **[15 Hrs]**

Audio: Introduction-Acoustics-Sound Waves-Types and Properties of Sounds-Components of an Audio Systems-Musical Instrument Digital Interface (MIDI)-Sound Card-Audio Transmission-Audio File Formats-Audio Processing Software. Video: Analog Video Camera-Digital Video-Video Recording and Storage Formats-Video File Formats-Video Editing Concepts-Video Processing Software.

(Chapter:5,6)

Unit IV: **[15 Hrs]**

Animation: Introduction-Uses of Animation-Traditional Animation-Principles of Animation-3D Animation-Rendering Algorithms-Animation File Formats-Animation Software. Compression: Introduction-Basic Concepts - Lossless Compression Techniques - Lossy Compression Techniques-Image Compression-Audio Compression-Video Compression - Fractal Compression.

(Chapter: 7,8)

Unit V: **[15 Hrs]**

Multimedia Architecture: Introduction-User Interfaces-OS Multimedia Support-Multimedia Extensions-Hardware Support-Distributed Multimedia Applications-Real Time Protocols-Playback Architectures-Synchronization. Multimedia Database: Introduction-What is Multimedia Database-Content Based Storage and Retrieval (CBSR)-Designing a Basic Multimedia Database.

(Chapter:10,11)

Book for Study:

Ranjan Parekh,"Principles of Multimedia", Second Edition, Tata McGraw Hill Education Private Limited, Reprint 2013.

B.Sc Computer Science
Semester VI
Part IV - Skill Based Course IV - Animation **614SS4**
(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

38 Hrs

- This paper gives introductory knowledge about Vectorian Giotto and its application areas.
- The students are capable of doing Animation.
- Publishing a Vectorian Giotto Movie is also given.
- Vectorian Giotto Component technology helps the user to create forms to bind data and to stream video easily using predefined components.

List of Programs:

1. Draw a Butterfly using Oval tool, Circle tool and Pencil tool.
2. Create a shape with Pencil tool (Using Straight smooth and free form lines).
3. Draw a Pentagon using Vector Graphics Method.
4. Create a Drop Shadow effect with depth.
5. i) Create a text and apply different text effects.
ii) Draw a 3D Ring.
6. Create a 3D Tunnel.
7. Create a program using morphing.
8. Create an animated button with a gradient in the upstate and a text over it.
9. Create folders in the library with names, eyes, heads, mouth and nose. Create symbols with different types of eyes, head etc., and store in the corresponding folders. Using those symbols assemble different types of Faces.
10. Using multiple motion tweening effect, draw a pendulum.

B.Sc. Computer Science
Semester wise Distribution with Scheme of Examination
(For the Candidates admitted during the academic year 2012-2013 & Onwards)

Semester	Courses	Credits	Duration of Exams (ESE)	Marks		Total
				CIA	ESE	
I	Part I - Language I	3	3	25	75	100
	Part II – English I	3	3	25	75	100
	Part III: Core I-Digital Fundamentals and Computer Architecture	4	3	25	75	100
	Core Practical I: PC Software	2	3	40	60	100
	Allied I – Basic Mathematics	5	3	25	75	100
	Part IV: Environmental Studies	2	-	50	-	50
II	Part I – Language II	3	3	25	75	100
	Part II – English II	3	3	25	75	100
	Part III : Core II – C Programming	4	3	25	75	100
	Core Practical II – C Programming	3	3	40	60	100
	Allied II: Discrete Mathematics	5	3	25	75	100
	Part IV: Value Education	2	-	50	-	50
	Advanced Learner's Course I – UNIX	3*	3	-	100	100
III	Part III: Core III – Object Oriented Programming with C++	4	3	25	75	100
	Core IV- Data Structures and Algorithms	5	3	25	75	100
	Core V – Operating Systems	4	3	25	75	100
	Core Practical III - Object Oriented Programming with C++	2	3	40	60	100
	Allied III – Operations Research	5	3	25	75	100
	Part IV: Skill Based Course I: HTML, DHTML & Dream weaver.	3	-	100	-	100
	Part IV: Non Major Elective	2	-	75	-	75

Semester	Courses	Credits	Duration of Exams (ESE)	Marks		Total
				CIA	ESE	
IV	Part III : Core VI– Visual Basic programming	4	3	25	75	100
	Core VII– Relational Database Management System	5	3	25	75	100
	Core VIII – Software Engineering	4	3	25	75	100
	Core Practical IV – Visual Basic and RDBMS Programming	3	3	40	60	100
	Allied IV – Principles of Accountancy	5	3	25	75	100
	Part IV: Skill Based Course II - PageMaker and CorelDraw	3	-	100	-	100
	Part IV: General Awareness	2	-	75	-	75
	Advanced Learner's Course II - Grid Computing	3*	3	-	100	100
	Part V: Extension	1	-	50	-	50
V	Part III : Core IX - Java Programming	4	3	25	75	100
	Core X – Data Communication and Networks	5	3	25	75	100
	Core XI – Computer Graphics	4	3	25	75	100
	Elective I - Data Mining	5	3	25	75	100
	Core Practical V– Java Programming and Computer Graphics	3	3	40	60	100
	Part IV: Skill Based Course III – Photoshop	3	-	100	-	100
VI	Part III : Core XII – Web Technology	4	3	25	75	100
	Core XIII – Software Testing	4	3	25	75	100
	Core XIV – XML & Scripting languages	4	3	25	75	100
	Elective II- Client/Server Technology	5	3	25	75	100
	Project & Viva voce	5	3	25	75	100
	Part IV: Skill Based Course IV - Flash	3	-	100	-	100
	Advanced Learner's Course III – Cryptography	3*	3	-	100	100
Total Credits		140				

*starred credits are treated as additional credits which are optional.

Non-Major Elective is offered by the department – Desktop Publishing.

30% of the syllabus in each subject should be taught using OHP, LCD & Seminar.

Note: Underlined Portion is for self-study.

**B .Sc Computer Science
Semester I**

**Part III – Core Practical I – PC Software Packages S.C:112SP1
(For the Candidates admitted during the academic year 2012-2013 Batch) 65 Hrs**

List of Programs:

1. Prepare a class Timetable using Ms Word.
2. Prepare Bio-Data using Ms Word.
3. Publish student's results using mail merge.
4. Design an advertisement copy in Ms Word.
5. Create a tool bar using MS Word.
6. Prepare a document and add Bookmarks.
7. Create a Newsletter using MS word.
8. Prepare a document and align it.
9. Create a document using format options
10. Prepare a Payroll in Excel using format options.
11. Create employee details using sort and filter option in Excel.
12. Drawing Graphs and charts in Excel.
13. Calculation of Mean, Median, Mode.
14. Calculation of Linear Regression Analysis.
15. One way analysis of Variance.
16. Prepare a mark list of two subjects and consolidate it.
17. Create a database using the formulas: sum, average, max, min, count.
18. Prepare a sheet using date fill option.
19. Prepare a sheet and add Header & Footer option.
20. Create an excel sheet using format cells option.
21. Calculation of Simple correlation coefficient
22. Prepare a slide in power point regarding sports day invitation(use hyper link)
23. Prepare a power point slide using animation effects.
24. Prepare a database maintaining stock in a shop with fields Serial .no (primary key), name of the product and product code, quantity and price.
25. Prepare a database for customer information and generate a report with customer name in ascending order.
26. Prepare a power point slide using custom animation effects.
27. Prepare slide show for News report.
28. Prepare slide show with different slide transitions effects.
29. Design slide show with sound effects.
30. Prepare a document using frames options.

**B .Sc Computer Science
Semester II**

**Part III – Core Practical II – C Programming S.C:212SP2
(For the Candidates admitted during the academic year 2012-2013 Batch) 65 Hrs**

List of Programs

1. Check whether given year is leap year or not.
2. Program to find Biggest of three numbers.
3. Program to check whether the given number is Prime or Not.
4. Program to check whether the candidate is eligible to vote or not.

5. Program to reverse the order of a given integer number.
6. Program to find the Sum of Digits of a given integer number.
7. Program to find the Sum of N Numbers.
8. Program to find the factorial of the given number.
9. Program to generate a Fibonacci series.
10. Solve a quadratic equation for all types of roots.
11. Finding the standard deviation and variance.
12. Finding the number of Vowels, Consonants and white spaces in a string
13. Program to find Simple Interest.
14. Program to check whether the given number is Armstrong.
15. Program to perform matrix manipulation.
16. Program to Construct a Pyramid of digits and Reverse the Pyramids
17. Program to convert decimal to binary.
18. Program to check for a palindrome.
19. Program to perform String Operations.
20. Program to Swap two numbers with or without using temporary variables.
21. Write a C program using Functions with arguments and return values
22. Program to illustrate Structure.
23. Program to illustrate Union.
24. Program to illustrate Pointers.
25. Program to receive a file name and the names of employees as command line argument and Write the text to the file.

B .Sc Computer Science Semester III

Part III - Core III - Object Oriented Programming with C++ S.C: 312S03 (For the Candidates admitted during the academic year 2011 -2012 Onwards) 52 Hrs

Preamble:

- C++ has emerged as the language of choice for most applications due to the speed portability and compactness of code.
- To inculcate an in-depth programming knowledge in OOPS.

Module I: [11 Hrs]

Principles of Object Oriented Programming - Beginning with C++: What is C++ - Applications of C++ - Structure of C++ program –Creating the source file - Compiling and linking. Tokens, Expressions and Control Structures - Functions in C++

Module II: [11 Hrs]

Classes and objects: C Structures revisited-Specifying a class-Defining member functions-A C++ program with class-Making an outside function inline-Nesting of member functions-Private member functions-Arrays within a class-Memory allocation for classes-Static data members-Static member functions-Arrays of objects-Objects as function arguments-Friendly functions-Returning objects-const member functions-Pointers to members-Local classes.

Constructors and Destructors: Constructors- Parameterized Constructors-Multiple Constructors in class-Constructors with default arguments-Dynamic initialization of objects-Copy Constructor-Dynamic Constructors-Constructing two dimensional arrays-const objects-Destructors

Module III: [10 Hrs]

Operator overloading and Type conversions: Defining Operator Overloading-Overloading Unary operators- Overloading Binary operators- Overloading Binary operators

using Friends-Manipulation of Strings using Operators- Rules for overloading operators-Type conversion.

Inheritance: Extending classes: Defining derived classes-Single inheritance-Making a private member inheritable-Multi level Inheritance- Multiple Inheritance-Hierarchical Inheritance-Hybrid Inheritance-Virtual base classes- Abstract classes-Constructors in derived classes-Member classes: Nesting of classes.

Module IV:

[10 Hrs]

Pointers, virtual functions and polymorphism: Pointers to objects-this Pointers-Pointers to derived classes-Virtual functions- Pure virtual functions.

Managing console I/O operations: C++ Streams –C++ Stream classes-Unformatted I/O operations-Formatted Console I/O operations-Managing output with manipulators.

Manipulating Strings: Creating (String) Objects-Manipulating string objects-Relational Operations-String characteristics-Accessing characters in strings-Comparing and swapping.

Module V:

[10 Hrs]

Templates: Introduction –Class templates-Class templates with multiple parameters-Function templates-Function templates with multiple parameters-Overloading of template functions-Member function templates-Non-type template arguments.

Working with files: Classes for File stream operations-Opening and Closing a file-Detecting end -of - file- More about open(): File modes –File Pointers and their manipulations-Sequential Input and Output Operations-Updating a file: Random Access- Error handling during file operations-Command line arguments.

Exception handling: Basics of exception handling-Exception handling mechanism-Throwing mechanism-Catching mechanism-Rethrowing an Exception –Specifying Exceptions.

Book for Study:

E.Balagurusamy , “Object Oriented Programming with C++”, Tata McGraw Hill Publications, Fourth Edition, 6th Reprint 2009.

B.Sc Computer Science

Semester III

**Part III Core Practical III– Object Oriented Programming with C++ S.C :312SP3
(For the Candidates admitted during the academic year 2011 -2012 Onwards) 52 Hrs**

List of Programs :

1. Program to read a set of numbers using arrays from the standard input device and to sort them in ascending order.
2. Program to perform overload Functions add(), sub() and multiply() that handle different data types.
3. Program to find the area of Circle, Rectangle and Square by using Inline Functions.
4. Program to implement Call by reference
5. Program to demonstrate Employee details using classes and array of objects.
6. Program to display the student details using Constructor and Destructor.
7. Program using single inheritance.
8. Program for Payroll processing using Multiple Inheritance.
9. Program for student details using multilevel inheritance.
10. Program using virtual functions and pointers.
11. Program to implement Stack Operation.
12. Program to implement Bubble Sort.
13. Program for reading and writing to the text file.

14. Program to illustrate the concept of Templates.
15. Program to implement Queue Operations.
16. Program to implement Binary Search.
17. Program to illustrate the concept of Friend Function.
18. Program to implement Operator Overloading.
19. Program to implement Quick Sort.
20. Program using singly linked list.

B.Sc Computer Science
(For B.Sc Computer Science / Information Technology / Computer Applications)
Semester III

Part IV Skill Based Course I-HTML, DHTML & Dream weaver S.C:312SS1
(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- Information plays a vital and dynamic role in HTML and DHTML
- DHTML is a new and emerging technology that has evolved to meet the increasing demand for eye catching and mind catching web sites.
- Dream weaver is a web development application allows users to preview websites in locally installed web browsers.

Module I: **[10 Hrs]**

Introduction to Html-Hypertext markup language (HTML)-commonly used HTML commands-Titles & footers-Text formatting-Emphasizing material in a web page-Text styles-Other text effects.

Module II: **[7 Hrs]**

Lists: Type of lists, Adding graphics to HTML Documents.

Module III: **[7 Hrs]**

Tables-linking documents-frames

Module IV: **[7 Hrs]**

Dynamic HTML-Cascading style sheets –Class-Using the ... - External style sheets-Using the <DIV>... </DIV>

Module V: **[7 Hrs]**

Get Started with DreamWeaver-Create a Page with Text-Add Images and Hyperlinks to your Web Page

Books for study

1. Ivan Bayross, “HTML, DHTML, Java Script, perl, CGI”,BPB Publications, New Delhi, Reprinted 2011.
2. Michael Meadhra,”DreamWeaver 8 A Beginner’s Guide”,Dream Tech Press, Edition 2006.

List of programs:

- 1.Design a web page which displays text in physical & logical styles.
- 2.Create a web page with external and internal links.
- 3.Design a timetable using HTML tags.
- 4 Design a web page for hospital.
- 5 Create a web page with links between two frames.
- 6.Write a HTML program using image and list tags.
- 7.Create a web page in DHTML using Cascading Style Sheets (use all attributes).
- 8.Design a web page in DHTML using class in external style sheets.
- 9.Design a web page for online recruitment process using dreamweaver.
- 10.Design a web page showing your bio-data using dreamweaver.

B.Sc Computer Science

Semester IV

Part III Core VI – Visual Basic programming S.C :412S06

(For the Candidates admitted during the academic year 2011 -2012 Onwards) 52 Hrs

Preamble:

- Visual Basic is one of the popular programming languages for GUI.
- The students can develop their programming skills in windows applications through this paper.

Module I:

[10 Hrs]

Visual Basic: Background - VB Forms: Data Entry Screens - VB Toolbox In-depth- Variables, Data types and User Defined Types.

Module II:

[10 Hrs]

Dialog Boxes, Conditional Statements and Loops- Modules, Arrays, Collections, Enums - Events: A Closer look - OLE.

Module III:

[11 Hrs]

Menus, Control Arrays, Multiple Forms- Advanced Active-X Controls- Windows common Controls: Animation, Updown, Monthview, Dtpicker, Windows Common Controls: Slider, Imagelist, Image Combo, Tool Bar, Status Bar.

Module IV:

[11 Hrs]

Database Creation, ODBC and DAO Programming: Database Creation Using Visdata- Tables Creation Using Visdata-ODBC Overview- DAO- Code Based approach to DAO: Including DAO Library Reference in project-Working with database object-Working with recordset object.

Module V:

[10 Hrs]

Database Programming: ADO and DED: ADO-OLE db Vs ODBC- DED-Adding the DED-ADO Data control- ADO Based Advanced Controls.

Database Programming : Data Reports.

Books for Study:

1. Sanjeev Sharma & Nandan Tripathi, “Visual Basic6”- Excel Books-First Edition 2009.

B.Sc Computer Science

Semester IV

Part III Core VII – Relational Database Management System S.C: 412S07

(For the Candidates admitted during the academic year 2011 -2012 Onwards) 65 Hrs

Preamble:

- It is used in various sectors. Such Banking, Airlines, Tele communication.
- Database systems are designed to manage large bodies of information.
- This paper provides commercial applications development using oracle products.

Module I:

[13 Hrs]

Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages.Database Design: Data Modeling **and Normalization:** Data Modeling –Dependency – Database Design – Normal forms – Dependency Diagrams -Denormalization – Another Example of Normalization.

Module II:

[13 Hrs]

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating

Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Module III:

[13 Hrs]

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

Module IV:

[13 Hrs]

A Programming Language: History – Fundamentals – Block Structure –Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. control Structures and Embedded SQL: Control Structures – Nested Blocks –SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes –Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

Module V:

[13 Hrs]

PL/SQL Composite Data Types: Records – Tables –Varrays. Named Blocks: Procedures – Functions – Packages –Triggers –DataDictionary Views.

Books for Study:

15. Nilesh Shah, “Database Systems Using Oracle”, 2nd edition, PHI

**B.Sc. Computer Science
Semester IV**

**Part III-Core Practical IV Visual Basic and RDBMS Programming S.C:412SP4
(For the Candidates admitted during the academic year 2011 -2012 Onwards) 65 Hrs**

Visual Basic:

1. Write a Program to create a Window Using Event Handling.
2. Write a Program to design a Calculator with Various Arithmetic Operators.
3. Write a Program for Text Manipulations (Changing Foreground, Background & Alignment).
4. Create a program to develop an Application for loading a Picture using Drive, Directory & File List Box controls.
5. Design a form to display the List of Product by declaring Array.
6. Write a Program to create a student mark details using conditional statements.
7. Write a Program to develop an application for displaying Employee details using Database(Use ADO Control).
8. Prepare an application Program to enter the Customer Details using DAO control and generate the report.
9. Write a Program to develop an application using OLE Link Control.
10. Create a program using menu editor (New, Open, Save, Close, Color, Font & Font size)
11. Create a program using Windows Common Controls (Animation, Slider, Image list, Image Combo, Status bar)
12. Program for printing all combinations of 1,2,3,4,5,6.
13. Program for drawing various shapes and fill color to that shapes using Scroll bar.

RDBMS Programming:

I. Using DDL Commands:

1. To create a table
2. To alter a table
3. To drop a table
4. To create a view
5. To drop a view

II. Using DML Commands:

1. To insert, delete and update rows into a table
2. To write a simple queries using SELECT
3. To write queries using SELECT and WHERE clause
4. To write queries using Logical operators
5. To write queries using NULL
6. To write queries using order by clause
7. To write queries using Distinct clause
8. To write queries using Arithmetic Expressions
9. To write queries using Arithmetic Function
10. To write queries using Group Function
11. To write queries using Group by Clause
12. To write queries using Character Function
13. To write queries using Date Function
14. To write queries using Sub queries
15. To write queries using Joins

III. Using PL/SQL:

1. Write a PL/SQL program for employee payroll
2. Write a PL/SQL program for student database and calculate the Total, Average and Result

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester IV

Part IV Skill Based Course II - PageMaker and CorelDraw S.C: 412SS2

(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- This Paper enlighten the students with the knowledge of CorelDraw And PageMaker
- This software helps the students to work and edit along with the images and pictures.

Module I: [10 Hrs]

What's new in CorelDraw 12? – Interfacing with CorelDraw. Getting Started with CorelDraw12: Measuring and Drawing Helpers - Zooming and Viewing – Essential Objects Commands.

Module II: [7 Hrs]

Working with object tools: Creating Basic Shapes – Drawing with Line Tools – Cutting, Shaping and Reshaping objects – Arranging and organizing objects.

Module III: [7Hrs]

PageMaker Basics – Working with Publications – Drawing tools – Text tools.

Module IV: [7 Hrs]

Importing Graphics – Transformations - Master Pages – Utilities

Module V: [7 Hrs]

Working with Text – The Story Editor -Working with Frames – Working with Layers.

Book for Study:

3. SteveBain with Nick Wilkinson,"CorelDraw 12"DreamTech Publications.
4. Satish jain , "Trainning Guid – PageMaker 7", BPB, Publications

List of Programs:**Corel Draw:**

1. Create a program using Drawing Tools
2. Create a logo using Corel Draw.
3. Create an invitation for college day.

PageMaker:

1. Create a program to work with Layers.
2. Create a program using Drawing Tools
3. Create a program using Text tools.
4. Create a program to Import Images and align the images.
5. Create a program for Transformation of an object.
6. Create a program to work with Frames.
7. Create a program for masking a picture.

B.Sc Computer Science**Semester-V****Part III - Core IX – JAVA Programming****S.C:512S09****(For the Candidates admitted during the academic year 2010-2011 Onwards) 52 Hrs****Preamble:**

- The students can develop their programming skills in GUI applications.
- Java is one of the popular programming languages for developing consumer electronic devices.
- It is an object-oriented language that enables students to create real world applications.

Module I:**[10Hrs]**

Overview of JAVA Language-Constants, Variables and Data Types-Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Module II:**[11 Hrs]**

Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes Together - Multithreaded Programming

Module III:**[10 Hrs]**

Managing Errors and Exceptions – Applet Programming – Graphics Programming.

Module IV:**[10 Hrs]**

AWT - Text Fields, Buttons, Checkboxes, Radio Buttons and Layouts.AWT - Lists, Choices, Text Areas, Scrollbars and Scroll Panes –AWT - Windows, Menus and Dialog Boxes.

Module V:**[11 Hrs]**

Managing Input/Output files in JAVA - Swing: Combo Boxes, Progress Bars, Tool tips, Separators and Choosers – Understanding RMI.

Books for study:

Book 1:"Programming with JAVA A Primer", E. Balagurusamy, Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.

Book 2:"JAVA 6 Programming Black Book", KOGENT Solutions Inc., DreamTech Press, New Delhi, 2009.

B.Sc. Computer Science
Semester - V
Part III Core X - Data Communication and Networks S.C: 510S10
(For the Candidates admitted during the academic year 2010-2011 Onwards) 75 Hrs

Preamble:

- To understand the concepts of data communications.
- To study the functions of different layers.
- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks.

Module I: [15 hrs]

Introduction: Data communication-network-protocols and standards. Basic concepts: Line configuration-topology-Transmission mode-categories of network-inter networks. The OSI model: the model-functions of layer-TCP/IP protocol suite. Networking and internetworking devices: repeaters-bridges-routers-gateways.

Module II: [15 hrs]

Transmission media: Guided media. Transmission of Digital data: Interfaces and modems: Digital data transmission-DTE-DCE-interface-Modems. Multiplexing: Many to One/One to Many-FDM-WDM-TDM-multiplexing application: the telephone system.

Module III: [15 hrs]

Error detection and correction: Types of errors-detection-CRC-checksum-Error correction. Data link protocols: asynchronous protocols-synchronous protocols-Character oriented protocols. Local area networks: project – Ethernet. Frame relay: Congestion control-leaky bucket algorithm-Traffic control.

Module IV: [15 hrs]

Switching: Circuit Switching – packet Switching – message Switching. Networking and internetworking devices: Routing algorithms- Distance vector routing-Link state routing.TCP/IP protocol suite: network layer-addressing-subnetting .

Module V: [15 hrs]

Transport Layer: duties of Transport Layer-connection. TCP/IP protocol suite: Transport layer. Presentation layer. application layer: DNS. N/W security: digital signature. access authorization..

Book for Study:

1. “Data Communication and Networking”, Behrouz A. Forouzan, Tata McGraw-Hill edition 2003, Second edition update.

B.Sc Computer Science
Semester-V
Part- III Elective I – Data Mining S.C: 512SE1
(For the Candidates admitted during the academic year 2010-2011 Onwards) 75 Hrs

Preamble

- Data mining is the analysis of data for relationships that have not previously been discovered.
- It automatically analyzes and extracts knowledge from data.
- It develops highly detailed model of some large data set.
- A type of database application that looks for hidden patterns in large groups of data.

Module I: [15 Hrs]

Introduction: An expanding universe of data – Information as a production factor – Computer systems that can learn – Data mining – Data mining versus query tools – Data mining in marketing – Practical applications of data mining. What is learning? – Data mining and the data warehouse.

Module II: [15 Hrs]

The knowledge discovery process – Setting up a KDD Environment.

Module III: [15 Hrs]

Classification and Prediction: What is Classification? What is Prediction? – Issues regarding classification and prediction – Classification by decision tree Induction – Bayesian Classification – Rule Based Classification – Other classification methods – Prediction – Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Ensemble Methods – Model Selection.

Module IV: [15Hrs]

Cluster Analysis: What is cluster analysis? – Types of Data in Cluster analysis – A Categorization of major clustering methods – Partitioning methods – hierarchical methods – Density Based Methods – Model based clustering methods – Clustering high dimensional data – Constraint based cluster analysis.

Module V: [15 Hrs]

Graph Mining, Social network Analysis and Multirelational data mining: Graph mining – Social network analysis – Multirelational Data mining. Application and trends in Data mining: Datamining Applications – Additional themes of Data mining – Social impacts of data mining – Trends in data mining.

Book for Study:

Book 1:“Data Mining”, Pieter Adriaans, Dolf Zantinge, Pearson Education, 1998.

Book 2:“Data Mining Concepts and Techniques”, Jiawei Han and Micheline Kamber, Morgan Kaufmann Publishers, Second Edition, 2006.

**B.Sc Computer Science
Semester-V**

Core Practical V – Java Programming and Computer Graphics S.C : 510SP5

(For the Candidates admitted during the academic year 2010-2011 Onwards) 75 Hrs

List of Programs:

Java Programming

1. Program to find whether the given year is leap year or not.
2. Program to find Armstrong number.
3. Program to implement the concept of Decision making and Branching.
4. Program using Multithreading.
5. Preparation of Mark list using Inheritance.
6. Program to implement Employee Payroll Processing using packages.
7. Generating advertisements using Applets.
8. Program for simple calculator using AWT.
9. Count the number of words, characters, digits, alphabets, special characters and white spaces in a file.
10. Program to implement interfaces.
11. Program to display personal information using Swings.
12. Program to sort list of names using RMI.

Computer Graphics

1. Write a program to display a bar chart. The input to the program includes the data points and the labeling for the x and y-axes. The data points are to be scaled by the program to fit the screen area.

2. Write a program to draw line using DDA Algorithm.
3. Write a program to draw a circle using Bresenham Algorithm.
4. Write a program to draw a line using Bresenham Algorithm.
5. Write a program to implement composite transformations (Scaling, Rotation, and Translation) of a Two-Dimensional object.
6. Write a program to implement the Transformations reflection and shearing of a Two Dimensional objects.
7. Write a program to clip lines against a window using Cohen-Sutherland Algorithm.

B.Sc Computer Science
(For B.Sc Computer Science / Information Technology / Computer Applications)
Semester V

Part IV Skill Based Course III – Photoshop S.C :512SS3
(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- Photoshop is an important tool for graphic designers and professionals who have to work with images.
- The syllabus starts with the basics of Photoshop and subsequently studies every aspect in detail.
- Different kinds of image effects can be developed with the Photoshop.
- The practical programs develop the skill to expert with Photoshop, which is a basic tool for multimedia and animation.

Module I: [10 Hrs]

Starting Photoshop CS2: Getting started with Photoshop CS2– Opening an existing file- The Photoshop program window- Guidelines for working with toolbox- Screen modes- Creating a new file- Saving files.

Working with images: Vector and bitmap images- Opening recently used files- Image size- Editing images- Opening files created in illustrator or freehand- Color modes- Setting a current foreground and background colors- File formats.

Module II: [7 Hrs]

Making selections: Making selection-The selection tools- The magnetic lasso tool- The grow and similar commands- Moving a portion of an image- Editing selections- Copying a selection into another image- Filling a selection – Transforming selections.

Module III: [7 Hrs]

Painting, drawing and retouching tools: The painting tools- The drawing tools- The retouching tools.

Module IV: [7 Hrs]

Layers: Layers palette- Working with layers- New layer via cut- New layer via copy- Hiding/showing layers- Repositioning layers- Flattening images-Working with adjustment layers- Layer effects.

Type: Creating type- Type tool- Converting point type to paragraph type- Converting type layers to standard layers- Type masking.

Module V: [7 Hrs]

Filters: The filter menu- Filter gallery- Extract filter- Vanishing point filter- Artistic filters- Blur filters- Distort filters- Noise filters- Pixelate filters- Lighting effects.

Book for study:

“Photoshop CS2 in simple steps”, Shalini Gupta, Adity Gupta, Published by Dream tech press, 2006.

List of programs:

1. Create a GIF transparency.
2. Design a 3D text.
3. Use the heal brush and make changes in an image.
4. Build a glow effect with stroke path.
5. Show/ Hide a layer.
6. Merge two or more layers.
7. Create different layer effects.
8. Build lighting effects and difference clouds.
9. Annotate files with text and audio.
10. Create type masking.
11. Build a filter based GIF animations.
12. Create an advertisement.
13. Design a student identity card.
14. Create a newsletter.
15. Create an invitation.

B.Sc. Computer Science**Semester - VI****Part III Core XIII – Software Testing S.C: 612S13**

(For the Candidates admitted during the academic year 2010-2011 Onwards) 65 Hrs

Preamble:

- To explain the basics of software testing
- To highlight the strategies for software testing
- To stress the need and conduct of testing levels
- To identify the issues in testing management
- To bring out the ways and means of controlling and monitoring testing activity

Module I: [13 Hrs]

Introduction: The Purpose of Testing. Some Dichotomies: Testing Vs Debugging. - A Model for Testing the Taxonomy of Bugs.

Module II: [13 Hrs]

Flow/Graphs and Path Testing: Path Testing Basics: Path Testing – Loops - Predicate, Paths Predicates and Achievable paths . – Path Instrumentation – Implement and Application of path Testing – Transaction Flow Testing Techniques – Data Flow Testing Strategies.

Module III: [13 Hrs]

Domain Testing: Domains and Paths – Domains and Interface Testing. Metrics and Complexity: Linguistic Metrics – Structural Metric. - Path Products and Path Expressions.

Module IV: [13 Hrs]

Syntax Testing: A Grammar for Formats – Test Case Generation. Logic Based Testing: Decision Tables. States, State Graphs and Transition Testing: State Graphs - State Testing.

Module V: [13 Hrs]

Software Testing Process: Verification and Validation - Levels of Testing – Testing Approaches – Types of Testing – Test Plan. Software Testing Tools: WinRunner – QTP.

Book for Study

1. B. Beizer , 2009, Software Testing Techniques, II Edn., DreamTech India, New Delhi.
2. K.V.KK. Prasad , 2008, Software Testing Tools, DreamTech. India, New Delhi.

B.Sc Computer Science

Semester-VI

Part III Core XIV – XML & Scripting Languages S.C: 612S14

(For the Candidates admitted during the academic year 2010-2011 Onwards) 65 Hrs

Preamble:

- This is a prototype-based scripting language.
- This is a dynamic, general purpose programming language.
- Scripting language is a light weighted programming language.
- It is used in applications outside the web pages.

Module I:

[13 Hrs]

Extensive markup language: Introduction-Features of XML-XML support and usage-compatibility of XML with Others-Structure of the XML Document-common errors.

Module II:

[13 Hrs]

Structures in XML-Creating document type declarations-Flow objects-Length-Working with text and font-Colour and background properties.

Module III:

[13 Hrs]

VB Script: Introduction-Adding VB Script Code to HTML-Adding a script to your documents-Data types of Visual Basic-Getting the Message Across.

Module IV:

[13 Hrs]

JAVA Script: Introduction to Java Script-Operators and Expressions in Java Script-Java Script Programming Constructs-Conditional Checking-Super Controlled Endless Loops.

Module V:

[13 Hrs]

Functions in Java Script-User Defined Functions-Placing Text in a Browser-Dialog Boxes.

Java Script Document Object Model: Introduction-JSSS DOM-Understanding Objects in HTML-Browser Objects-The Web Page HTML Object Hierarchy-Handling Events Using Java Script.

Book for Study:

1. Ramesh Bangia,"Web Technology(Including HTML,CSS,XML,ASP,Java Script,VB Script)",Firewall Media Publications, Edition 2008 .
2. Ivan Bayross,"HTML,Java Script,DHTML and PHP", BPB Publications, Fourth Edition

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester VI

Part IV Skill Based IV –Flash S.C:612SS4

(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- This paper gives introductory knowledge about Flash and its application areas.
- The students are capable of doing Animation.
- Publishing a Flash Movie is also given.
- Flash Component technology helps the user to create forms to bind data and to stream video easily using predefined components.

Module I:

[10Hrs]

Introduction: Hierarchy of Flash movie-The work space-Toolbars-Toolbox-Timeline-Panels: Menus.

Module II:

[7 Hrs]

Panels: Design panels-Development panels-Other panels-Project Panels. Graphic Tools in Flash: Drawing tool-Object Selection Tools-Color Selection Tools-Viewing Tools.

Module III:**[7 Hrs]**

Advanced Editing Techniques: Reshaping the Objects-Optimizing the Curves-Expand and insert the file-Softening the edges-Converting the lines to fills-Editing the gradient fill and the bitmap fill-Transformation-Arranging the elements-Aligning objects-Handling text-3D Graphics in Flash. Frames, Layers and Scenes: Frames-Layers-Scenes-Documents Properties.

Module IV:**[7 Hrs]**

Symbols: Movies clip-Buttons-Graphic-Methods of creating symbols-Editing the symbol-Changing the behavior of the symbol-Instances-Animated symbol-Symbol from other Movie files-Library-Importing Pictures-Importing video clips-Component definition-Shared Library. Animation: Frame-by-Frame animation-Motion tweening –Shape tweening-Hybrid tweening-Text animation-3D Animation.

Module V:**[7 Hrs]**

Adding sound to animation: Characteristics of digital sound's-Importing sound files-Exporting sound files-Sound effect settings-Editing the sound envelop-Synchronizing the sound with animation-Exporting the sound with animation. Publishing flash movie: Testing flash movies-File formats for publishing-Publish Preview command-Publish Command.

Book for Study:

“Flash MX 2004” V.V.Thiyagarjan and B.Anubumani, Tata McGraw-Hill Publishing Company Limited-New Delhi.

List of Programs:

1. Draw a Butterfly using Oval tool, Circle tool and Pencil tool.
2. Create a shape with Pencil tool (Using Straight smooth and free form lines).
3. Draw a Pentagon using Vector Graphics Method.
4. Create a Drop Shadow effect with depth.
 - i) Create a text along a curved path.
 - ii) Draw a 3D Ring.
5. Create a 3D Tunnel.
6. Draw a picture in multiple frame use Onion Skin Effect.
7. Create an animated button with a gradient in the upstate and a text over it.
8. Create folders in the library with names, eyes, heads, mouth and nose. Create symbols with different types of eyes, head etc., and store in the corresponding folders. Using those symbols assemble different types of Faces.
9. Using multiple motion tweening effect, draw a pendulum.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Computer Science
 Scheme of Examination - CBCS Pattern
Programme: M.Sc Computer Science
 (For the students admitted from the academic year 2017 - 2018 onwards)

Course Code	Course	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
17MS01	Core I - Advanced Java Programming	5	3	25	75	100	4
17MS02	Core II - Object Oriented Analysis and Design with UML	5	3	25	75	100	4
17MS03	Core III - Data Mining and Warehousing	5	3	25	75	100	4
17MS04	Core IV - Software Project Management	5	3	25	75	100	4
17MSP1	Core Practical I - Advanced Java Programming	4	3	40	60	100	4
17MSE1/ 17MSE2	Elective I- Enterprise Resource Planning/ Parallel Processing	6	3	25	75	100	4
	Semester II						
17MS05	Core V - Python Programming	4	3	25	75	100	4
17MS06	Core VI - Software Testing	4	3	25	75	100	4
17MS07	Core VII- Internet of Things	5	3	25	75	100	4
17MS08	Core VIII - Design and Analysis of Algorithms	4	3	25	75	100	4
17MSP2	Core Practical II - Python Programming	3	3	40	60	100	4
17MSP3	Core Practical III - Software Testing	2	3	40	60	100	4
17MSE3/ 17MSE4	Elective II Embedded Systems/ Network Security and Cryptography	6	3	25	75	100	4
17MGCS	Cyber Security	2	2	50	-	Grade	Grade
17MSA1	Advanced Learners Course I - Nano Computing	-	3	-	100	100	4*

	Semester III						
17MS09	Core IX -Wireless Communication	5	3	25	75	100	4
17MS10	Core X - Digital Image Processing	5	3	25	75	100	4
17MS11	Core XI - Android Programming	4	3	25	75	100	4
17MS12	Core XII - Big Data Analytics	5	3	25	75	100	4
17MSP4	Core Practical IV - Digital Image Processing	3	3	40	60	100	4
17MSP5	Core Practical V - Android Programming	2	3	40	60	100	4
17MSE5/ 17MSE6	Elective III Soft Computing/ Data Compression	6	3	25	75	100	4
	Semester IV						
17MSPV	Project and Viva - Voce	-	-	100	150	250	10
17MSA2	Advanced Learners Course II - Wireless Sensor Networks	-	3	-	100	100	4*
Total Credits						2250	90

- Single Starred Credits are treated as additional credits which are optional

M.Sc Computer Science

Semester I

Core III - Data Mining and Warehousing 17MS03

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

65 Hrs

- To be familiar with the concepts of data mining and data warehousing.
- To categorize and carefully differentiate between situations for applying different data mining techniques, mining frequent pattern, classification, and cluster analysis.

Unit I:

[13 Hrs]

Introduction: What is Data Mining? What Kinds of Data Can Be Mined? What Kinds of Patterns Can Be Mined? Which Technologies Are Used? Which Kinds of Applications Are Targeted? - Major Issues in Data Mining. Data Preprocessing: Data Preprocessing: An Overview - Data Cleaning - Data Integration - Data Reduction - Data Transformation and Data Discretization.

[Book 1: Chapters: 1,3]

Unit II:

[13 Hrs]

Mining Frequent Patterns, Associations and Correlations: Basic Concepts and Methods: Basic Concepts- Frequent Itemset Mining Methods. Advanced Pattern Mining: Pattern Mining: A Road Map- Pattern Mining in Multilevel, Multidimensional Space - Constraint - Based Frequent Pattern Mining- Mining High-Dimensional Data and Colossal Pattern-Mining Compressed or approximate Patterns- Pattern Exploration and Application.

[Book 1: Chapters: 6,7]

Unit III:

[13 Hrs]

Classification: Basic Concepts - Basic Concepts - Decision Tree Induction - Bayes Classification Methods - Rule-Based Classification. Classification: Advanced Methods: Classification by Backpropagation - Support Vector Machines- Other Classification Methods.

[Book 1: Chapters: 8,9]

Unit IV:

[13 Hrs]

Cluster Analysis: Basic Concepts and Methods: Cluster Analysis - Partitioning Methods - Hierarchical Methods- Density Based Methods- Grid -Based Methods.

Outlier Detection: Outliers and Outlier Analysis - Outlier Detection Methods - Clustering - Based Approaches - Classification-Based Approach.

[Book 1: Chapters: 10,12]

***Unit V:**

[13 Hrs]

Data Warehousing : An Introduction - Characteristics of a Data Warehouse - Data Marts- Other Aspects of Data Mart. Online Analytical Processing : Introduction - OLTP & OLAP systems - Data Modelling - Star Schema for Multidimensional View - Data Modeling - Multifact Star Schema or Snow Flake Schema-OLAP Tools.

Developing a Data Warehouse - Applications of Data Warehousing and Data Mining in Government : Introduction - National data warehouses - Other Areas for Data Warehousing and Data Mining-Case Studies : Case Study 1: Data Warehousing in the Tamil Nadu Government.

[Book 2: Chapters: 1,2,4,5]

***Starred unit is a self study unit.**

Books for study:

1. Jiawei Han, Micheline Kamber and Jian Pei , “ Data Mining concepts and Techniques” Third Edition, 2012, by Elsevier Inc.
2. C.S.R. Prabhu, “Data Warehousing concepts, techniques products and applications”, PHI Third Edition, 2009.

Books for Reference:

1. Margaret H.Dunham, “Data Mining Introductory and Advanced Topics”, 2006, Pearson Education.

2. Wiley, “Data warehousing: Fundamentals for IT Professionals”, 2 Edition, 2012.

M.Sc Computer Science

Semester - I

Core IV - Software Project Management 17MS04

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

65 Hrs

- To highlight different techniques for software cost estimation and activity planning.
- Define the scope of software project management.
- Distinguish software and other types of project development.
- Various stage of a software project and role management.
- Problems and concerns of software project management.

Unit I:

[13 Hrs]

Why is Software project management Important - Activities covered by software project management - Plans, methods and methodologies - some ways of Categorizing Software Projects - stakeholders - Setting objectives -What is Management? - Management Control - Project Portfolio Management - Cost benefit evaluation techniques - Risk evaluation - Managing the allocation of resources - Strategic programme management - Creating a programme - Aids to programme management - Benefit management - Stepwise Project Planning.

[Chapters: 1,2,3]

Unit II:

[13 Hrs]

Selection of an appropriate project approach - Software Effort estimation: The Basics for Software estimating - Software Effort estimation techniques - Bottom-up estimating - The top down Approach and Parametric models - COSMIC Full function points - COCOMO II A Parametric Productivity Model -Cost Estimation - Staffing Pattern. Activity Planning: The objectives of Activity planning - When to plan - Project Schedules - Project and Activities - The Forward Pass - The Backward Pass - Identifying the critical path.

[Chapters: 4,5,6]

Unit III:

[11 Hrs]

Risk Management: Introduction - Categories of Risk - Risk Identification - Risk Assessment - Risk Planning - Risk Management - Evaluating Risks to the Schedule - Applying the PERT Technique - Monte Carlo Simulation - Critical Chain concepts. Resource allocation: The Nature of Resources - Scheduling resources - creating critical paths - counting the cost - cost schedules.

[Chapters: 7,8]

***Unit IV:**

[15 Hrs]

Monitoring and control - Managing contracts: Introduction - Type of contract - Stages in contract placement - Contract Management. Managing people in software environments: Understanding behavior - Instruction in the best methods - Motivation - The Oldham -hachman job characteristic model.

[Chapters: 9,10,11]

Unit V:

[13 Hrs]

Working in Team: Introduction - Becoming a team - Decision making - Organization and team structures - Coordination dependencies - dispersed and virtual teams - Communication Genres - communication plans - Leadership- Software Quality .57 pages

[Chapters:12,13]

***Starred unit is a self study unit.**

Book for Study:

Bob Hughes, Mike Cottrell and Rajib Mall, “Software Project Management” - Fifth Edition, Tata McGraw Hill, New Delhi, 2015.

Books for Reference:

1. Robert K. Wysocki “Effective Software Project Management” - Wiley Publication, 2011.
2. Gopalaswamy Ramesh, “Managing Global Software Projects” - McGraw Hill Education (India), Fourteenth Reprint 2013.

M.Sc Computer Science

Semester - I

Core Practical I - Advanced Java Programming 17MSP1

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

52 Hrs

- Learn the basic concepts of Object Orientation and how to handle in Java.
- An overview of database access and details for managing information using the JDBC.
- Addresses how to use Remote Method Invocation.
- A presentation of Enterprise JavaBeans and how to use it.

List of Programs:

1. Program to implement RPC under Client-Server environment.
2. Create a program to add a class into a Package.
3. Program to display a text message using RMI.
4. Program to perform File handling operations.
5. Create a program to filter the list using Streams.
6. Program to create Employee Database and prepare Employee Payroll using JDBC.
7. Program to Asynchronous and Synchronous Communication.
8. Program to find out the creation time and the last-accessed time for a session using Session Tracking.
9. Design an Online Application program using Swing.
10. Program to Check the User Name and Password using Swing.
11. Program for displaying product list along with their prices and then allow user to buy any one from them with required quantity.
12. Create a list of vegetables if you click on one of the items of the list items would be displayed in text box.
13. Program to implement JTable.
14. Create a simple program using JavaBean.

M.Sc Computer Science

Semester - II

Core VI - Software Testing

17MS06

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

52 Hrs

- To make students understand the principles of software testing.
- To identify the issues in testing management.
- To bring out the ways and means of controlling and monitoring testing activity.

Unit I:

[10 Hrs]

Overview of the Software Testing Process: Advantages of Following a Process - The Cost of Computer Testing - The Seven-Step Software Testing Process - Workbench Skills. Developing the Test Plan: Objective - Concerns - Do Procedures - Check Procedures.

[Book 1: Chapters: 6,8]

Unit II:

[10 Hrs]

Software Development Life Cycle Models: Phases of Software Project - Quality Assurance and Quality Control - Testing, Verification and Validation - Process Model to

Represent Different Phases - Life Cycle Models. White Box Testing: What is White Box Testing? - Static Testing - Structural Testing - Challenges in White Box Testing. Black Box Testing: What is Black Box Testing? - Why Black Box Testing? - When to do Black Box Testing? - How to do Black Box Testing?.

[Book 2: Chapters: 2,3,4]

Unit III:

[10 Hrs]

Integration Testing: What is Integration Testing? - Integration Testing as a Type of Testing - Integration Testing as a Phase of Testing - Scenario Testing - Defect bash. System and Acceptance Testing: System Testing Overview - Why is System Testing done? - Functional Versus Non-Functional Testing - Functional System Testing - Non-Functional Testing - Acceptance Testing - Summary of Testing Phases.

[Book 2: Chapters: 5,6]

Unit IV:

[12 Hrs]

Performance Testing: Introduction - Factors Governing Performance Testing - Methodology for Performance Testing - Tools for Performance Testing - Process for Performance Testing. Regression Testing: What is Regression Testing? - Types of Regression Testing - When to do Regression Testing? - How to do Regression Testing?. Test Planning, Management, Execution and Reporting: Introduction - Test Planning - Test Management - Test Process - Test Reporting.

[Book 2: Chapters: 7,8,15]

***Unit V:**

[10 Hrs]

Software Test Automation: What is Test Automation? - Terms Used in Automation - Skills Needed for Automation - What to Automate, Scope of Automation - Design and Architecture for Automation - Generic Requirements for Test Tool/Framework - Process Model for Automation - Selecting a Test Tool - Challenges in automation. Test Metrics and Measurements: What are Metrics and Measurements? - Types of Metrics - Project Metrics - Progress Metrics - Productivity Metrics.

[Book 2: Chapters: 16,17]

***Starred unit is a self study unit.**

Books for Study:

1. William E.Perry, "Effective Methods for Software Testing", Third Edition, John Wiley & sons, Inc, 2012.
2. Srinivasan Desikan, Gopalswamy Ramesh, "Software Testing - Principles and Practices", Pearson Education, Seventh Impression, 2009.

Book for Reference:

Hema Khurana, "Software Testing", Pearson Education India, First Impression, 2016.

M.Sc Computer Science

Semester - II

Core VII - Internet of Things

17MS07

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

65 Hrs

- To introduce the current vision of the Internet of Things and its impact on the real world.
- To understand the challenges that must be overcome before IoT can be deployed.
- To provide an appreciation for the standardization of IoT protocols that is necessary for IoT to become reality.

Unit I:

[13 Hrs]

Introduction to the Internet of Things: Introduction - History of IoT - About objects / things in the IoT - The identifier in the IoT - Enabling technologies of IoT - About the Internet in IoT. Radio Frequency Identification Technology: Introduction- Principle of RFID - Components of RFID system - Issues.

[Book 1: Chapters: 1,2]

Unit II:

[13 Hrs]

Wireless Sensor Networks: Technology: History and context-The node-Connecting nodes-Networking nodes-Securing Communication-Standards and For. Power Line Communication Technology: Introduction:Overview of existing PLC technologies and standards-Architectures for Home network applications-Internet of things using PLC technology.

[Book 1: Chapters: 3,4]

Unit III:

[13 Hrs]

RFID Applications and Related Research Issues: Introduction-Concepts and terminology-RFID applications-Ongoing research projects. RFID Deployment for Location and Mobility Management on the Internet: Introduction-Background and related work-Localization and handover management relying on RFID-Technology considerations-Performance evaluation.

[Book 1: Chapters: 5,6]

***Unit IV:**

[13 Hrs]

Prototyping the Physical Design: 3D Printing-Repurposing /Recycling. Prototyping Online Components: Getting Started with API-Writing New API-Real-Time Reactions -Other Protocols. Techniques for Writing Embedded Code: Memory Management-Performance and Battery Life-Libraries- Debugging.

[Book 2: Chapters: 5,6,7,8]

Unit V:

[13 Hrs]

From Prototype to Reality: Business Models: A Short History of Business Models -The Business Model Canvas-Who is the Business Model For?-Models-Finding an Internet of Things Startup-Learn Startups. Moving to Manufacture: Certification-Costs. Ethics.

[Book 2: Chapters: 9,10,11]

***Starred unit is a self study unit.**

Books for Study:

1. Hakima Chaouchi ,“ The Internet of Things Connecting Objects to the Web”, Wiley India Pvt. Ltd., Reprint 2017.
2. Adrian McEwen, Hakim Cassimally, “Designing the Internet of Things”, Wiley India Pvt. Ltd., Reprint 2017.

Book for Reference:

Jan Holler, Vlasios Tsiatsis,Catherine Mulligan,Stamatis Karnouskos,Stefan Avesand, David Boyle, “From Machine-to-Machine to the Internet of Things Introduction to a New Age of Intelligence”, Elsevier Ltd First Published 2014.

M.Sc Computer Science

Semester- II

Core Practical II - Python Programming

17MSP2

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

38 Hrs

- To learn loops and decision statements in Python.
- To learn functions in Python.
- To learn about the lists, tuples and dictionaries in Python.

List of Programs:

1. Program to implement the Classes.
2. Program to implement Conditional Functions.
3. Program to implement Iterators Functions.
4. Program to implement Generators.
5. Program to Create a File and its mode.
6. Program to perform file operations.
7. Program to implement Exceptions.

8. Program to implement Command line arguments.
9. Program to implement Closures.
10. Program to implement Threads.
11. Program to implement GUI Programming.
12. Program to implement Web Programming.

**M.Sc Computer Science
Semester - II**

Core Practical III - Software Testing 17MSP3

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

27 Hrs

- To make students understand the principles of software testing.
- To explain the basics of software testing.
- To identify the issues in testing management.
- To bring out the ways and means of controlling and monitoring testing activity.

List of Programs:

1. Write programs in C Language to demonstrate the working of the following constructs:
 - i) do...while
 - ii) while....do
 - iii) if...else
 - iv) switch
 - v) for
2. If a program written in C language for Matrix Multiplication fails, then introspect the causes for its failure and write down the possible reasons for its failure.
3. Take any system (e.g. ATM system) and study its system specifications and report the various bugs.
4. Write the test cases for any known application (e.g. Banking application).
5. Create a test plan document for any application (e.g. Library Management System).
6. Study of any testing tool (e.g. Win runner).
7. Study of any web testing tool (e.g. Selenium).
8. Study of any bug tracking tool (e.g. Bugzilla, bugbit).
9. Study of any test management tool (e.g. Test Director).
10. Study of any open source-testing tool (e.g. Test Link).

**M.Sc Computer Science
Semester - II**

Elective II - Network Security and Cryptography 17MSE4

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objective:

75 Hrs

- This course provides an introduction to the fundamental principles of cryptography and its applications on the network security domain.
- To make the students to understand the principles of encryption algorithms, conventional and public key cryptography.
- To evaluate the security of communication systems, networks and protocols based on a multitude of security metrics.
- To understand the various key distribution and management schemes.

Unit I:

[15 Hrs]

Classical Encryption Techniques: Symmetric Cipher Model - Substitution Techniques: Caesar Cipher - Monoalphabetic Ciphers - Playfair Cipher - Hill Cipher - Polyalphabetic Ciphers

- one-Time Pad. Transposition Techniques - Steganography. Block Ciphers and the Data Encryption Standard: Traditional Block Cipher Structure: Stream Ciphers and Block Ciphers - The Feistel Cipher - The Data Encryption Standard - A DES Example -Block Cipher Design Principles.

[Chapters: 1,2]

Unit II:

[15 Hrs]

Advanced Encryption Standard: AES Structure - AES Transformation Functions. Block Cipher Operation: Multiple Encryption and Triple DES - Electronic Code Book - Cipher Block Chaining Mode - Cipher Feedback Mode - Output Feedback Mode - Counter Mode.

[Chapters: 4,5]

Unit III:

[15 Hrs]

Pseudorandom Number Generation and Stream Ciphers: Principles of Pseudorandom Number Generation - Pseudorandom Number Generators - Pseudorandom Number Generation Using a Block Cipher - Stream Ciphers. Public-Key Cryptography and RSA: Principles of Public-Key Cryptosystems - The RSA Algorithm.

[Chapters: 6,8]

***Unit IV:**

[15 Hrs]

Cryptographic Hash Functions: Applications of Cryptographic Hash Functions - Two Simple Hash Functions - Hash Functions Based on Cipher Block Chaining - Secure Hash Algorithm (SHA) - SHA-3. Message Authentication Codes: Message Authentication Requirements - Message Authentication Functions - Requirements for Message Authentication Codes - MACs Based on Hash Functions: HMAC - MACs Based on Block Ciphers: DAA and CMAC. Digital Signatures: Properties, Attacks and Forgeries, Digital Signature Requirements, Direct Digital Signature - Elliptic Curve Digital Signature Algorithm.

[Chapters: 10,11,12]

Unit V:

[15 Hrs]

Key Management and Distribution: Distribution of Public Keys - Public-Key Infrastructure. User Authentication: Remote User-Authentication Principles - Remote User-Authentication Using Symmetric Encryption - Personal Identity Verification. Transport-Level Security: Transport Level Security - HTTPS Secure Shell (SSH). Wireless Network Security: Wireless Security - Mobile Device Security. IP Security: IP Security Overview - IP Security Policy.

[Chapters: 13,14,15,16,18]

***Starred unit is a self study unit.**

Book for Study:

William Stallings, "Cryptography and Network Security - Principles and Practice", Pearson Education, Sixth Edition, 2015.

Books for Reference:

1. Atul Kahate, "Cryptography and Network Security", Tata McGraw Hill Education, Third Edition, 2013.
2. Behrouz A. Forouzan, "Cryptography and Network Security", Tata McGraw Hill Education, 2016.
3. Brijendra Singh, "Network Security and Management", PHI Learning Private Ltd, 3e, 2015.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Computer Science
 Scheme of Examination - CBCS Pattern
Programme : M.Sc Computer Science
 (For the students admitted from the academic year 2015 - 2016 onwards)

Course Code	Course	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
15MS01	Core I - Advanced JAVA	5	3	25	75	100	4
15MS02	Core II - Object Oriented Analysis & Design with UML	4	3	25	75	100	4
15MS03	Core III - Distributed Systems and Components	5	3	25	75	100	4
15MS04	Core IV - PHP with MySQL	5	3	25	75	100	4
15MSE1	Elective I - Human Resource Management	6	3	25	75	100	4
15MSP1	Core Practical I - Advanced Java Programming and PHP	5	3	40	60	100	4
	Semester II						
15MS05	Core V - Parallel Processing	5	3	25	75	100	4
15MS06	Core VI - Python Programming	5	3	25	75	100	4
15MS07	Core VII- Data Mining and Data Warehousing	5	3	25	75	100	4
15MS08	Core VIII - Software Testing	4	3	25	75	100	4
15MSE2	Elective II - Design and Analysis of Algorithms	5	3	25	75	100	4
15MSP2	Core Practical II - Python Programming	4	3	40	60	100	4
15MGCS	Cyber Security	2	2	50	-	Grade	Grade
15MSA1	Advanced Learners Course I - Nano Computing	-	-	-	100	100	4*

	Semester III						
15MS09	Core IX - Image Processing	6	3	25	75	100	4
15MS10	Core X - Open Source Technologies	5	3	25	75	100	4
15MS11	Core XI - Wireless Communication	4	3	25	75	100	4
15MS12	Core XII - Cloud Computing	5	3	25	75	100	4
15MSE3	Elective III - Embedded Systems	6	3	25	75	100	4
15MSP3	Core Practical III - Digital Image Processing and Open Source Technologies	4	3	40	60	100	4
	Semester IV						
15MS13	Core XIII - Software Project Management	5	3	25	75	100	4
15MSE4	Elective IV - Neural Networks and Fuzzy Logic	6	3	25	75	100	4
15MSPV	Project and Viva - Voce	-	-	100	150	250	10
15MSA2	Advanced Learners Course II - Unix	-	-	-	100	100	4*
Total Credits						2250	90

- Single Starred Credits are treated as additional credits which are optional

**M.Sc Computer Science
Semester-I**

Core IV – PHP with MySQL

15MS04

(For the students admitted from the academic year 2015-2016 onwards)

Preamble:

65 Hrs

This course enhance the students for web development with fast, flexible and pragmatic.

- PHP is a Very Popular Scripting language used by most of the website developers to enhance the functions and appearance of the websites.
- PHP is a open source language that's often utilized by PHP web developers to build dynamic and eye-Catching internet Pages.
- MySQL is a open source RDBMS which support applications built on LAMP stack.

Unit I:

[13 Hrs]

Structuring Documents for the web: Introducing HTML and XHTML-Basic text Formatting-Lists. Links and Navigation: Basic Links. Images, audio and video: Adding images using the element. Tables: Basic Table Elements and Attributes. Forms: Creating form with the <form> element. Cascading Style Sheet: Introducing CSS-Basic Example-where you can add CSS rules. Learning Javascript: How to add Script to your pages-Variables-Operators-Functions-Conditional Statements-Looping-Events-Built in objects: Date.

(Book1: Chapter: 1,2,3,4,5,7,11)

***Unit II:**

[13Hrs]

Introducing PHP: Why PHP and MySQL: What is PHP- Deciding on a web application Platform. Server side Scripting Overview-Client Side Technologies-Server Side Scripting. Getting started PHP: Installing PHP- Escaping from HTML: Canonical PHP tags-Hello world-jumping in and out of PHP mode. Learning PHP Syntax and variables: PHP Syntax is C-Like-Variables. Learning PHP Control Structures and Functions: Logical Operators-Comparison operators- The ternary Operators-Branching-Looping: While-Do-While-For.

(Book2: Chapter: 1,2,3,4,5)

Unit III :

[13Hrs]

Function Documentation- Defining Your own Functions-Functions and Variables Scope-Functions Scope. Learning Arrays: Creating Arrays- Retrieving Values-Multi dimensional Array. Learning PHP String Handling: String Functions.

(Book2: Chapter: 5,7,8)

Unit IV:

[13Hrs]

Introducing Object Oriented PHP: Basic PHP Constructs for OOP-Advanced OOP Features- Interfaces-Constants-Abstract Classes. Working with Cookies and Sessions: what's a Session- Home grown Alternatives- How Sessions work in PHP-Session Functions-Cookies. Handling Exceptions with PHP-Error Handling in PHP.

(Book2: Chapter: 20,24,30)

Unit V :

[13 Hrs]

Introducing MySQL: What makes MySQL so popular. The many MySQL Clients: Introducing the Command Line Clients-PHPMyAdmin. MySQL Storage Engines and Datatypes: Datatypes and Attributes-Working with Databases and Tables. Using PHP with MySQL: Using the mysqli Extension- Interacting with the Database-Executing Database Transactions.

(Book3: Chapter: 25,27,28,30)

***Starred unit is a self study unit**

Book for Study:

Book1:"Beginning HTML, XHTML,CSS and JavaScript"-Jon Duckett Wiley Publishing Inc., 2010 Edition.

Book2:"PHP6 and My SQL 6 Bible "-Steve Suehring, Tim Converse, Joyce Park Wiley Publishing Inc., 2009 Edition.

Book3: "Beginning PHP and MySQL From Novice to Professional" -W.Jason Gilmore
Apress, Berkeley Fourth Edition.

**M.Sc. Computer Science
Semester - I**

**Elective I – Human Resource Management 15MSE1
(For the students admitted from the academic year 2015-2016 onwards)**

Preamble: 65 Hrs

The aim of this course is to help the students to analyse the workforce profile, skills, abilities, qualifications, potential, capabilities etc. and assign them various responsibilities as per the requirement of the job and the workers profile.

- It plays a pivotal role in the achievement of the overall organizational goals and objectives.
- It also facilitates acquiring, training and retaining the talents.

Unit I: [13 Hrs]

Introduction to Human Resource Management: Nature and scope of Human Resource Management – Organising the Human Resource function – Strategic Human Resource Management – Human Resource policies.

(Book1: Chapter: 1,2,3,4)

Unit II: [13 Hrs]

Acquiring Human Resource: Human Resource planning – Job Analysis and Job Design – Recruitment and Selection – Placement, Induction and socialization.

(Book1: Chapter: 5,6,7,8)

Unit III: [13 Hrs]

Managing Performance and Compensation: Performance Appraisal – Job Evaluation – Wage and salary Administration – Incentive Compensation.

(Book1: Chapter: 14,15,16,17)

***Unit IV: [13 Hrs]**

Maintaining and Retaining Human Resources: Job Changes – Transfers, promotions and separations – Absenteeism and Labour Turn over – Employee health and safety – employee welfare. Work Environment.

(Book1: Chapter: 18,19,20,21,23)

Unit V: [13 Hrs]

Developing Human Resources: Career planning and development. Motivating Human Resource: Motivation at Work – Empowerment. HR In knowledge Era: Human Resource in Information Technology Organizations.

(Book2: Chapter: 10,12,24)

***Starred unit is a self study unit**

Book for Study:

Book 1: "Human Resource Management", C.B. Gupta, Sultan Chand & Sons New Delhi, Edition 2012.

Book 2: "Human Resource Management", Biswajeet Pattanayak, PHI Learning Pvt Ltd, 3rd Edition.

Book for Reference:

1. "Human Resource Management test and cases", VSP Rao, Excel Books New Delhi, 3rd Edition.

**M.Sc Computer Science
Semester- I**

**Core Practical I – Advanced Java Programming and PHP 15MSP1
(For the students admitted from the academic year 2015-2016 onwards)**

List of Programs:

Advanced Java Programming: 52 Hrs

1. Program to perform File handling operations.
2. Program to display a text message using RMI.
3. Program to create Employee Database and prepare Employee Payroll using JDBC.
4. Design an Online Application program using Swing.
5. Program to Check the User Name Password using Swing.
6. Program to find out the creation time and the last-accessed time for a session using Session Tracking.
7. Program to Asynchronous and Synchronous Communication.
8. Program to RPC under Client-Server environment.

PHP: 23 Hrs

1. Design a College Webpage Using HTML.
2. Design a Program for Email Validation using PHP.
3. Design a Webpage for College Using PHP.
4. Design a Form to Generate an ID Using PHP.
5. Design a form for Scientific Calculator using PHP and MySQL.
6. Design a form with Simple Connectivity using PHP and MySQL.
7. Create a Student Database using PHP and MySQL.
8. Create a Questionnaire for Students in a college using PHP and MySQL.

**M.Sc Computer Science
Semester II**

**Core VII - Data Mining and Data Warehousing 15MS07
(For the students admitted from the academic year 2015-2016 onwards)**

Preamble: 65 Hrs

Data Mining helps the students to know the concepts and utilize technical tools to design datamining applications.

- The extraction of hidden predictive information from large databases.
- Data mining techniques are the result of a long process of research and product development.

Unit I: [13 Hrs]

Data mining:Introduction-What is data mining-Definitions-KDD vs.Datamining-DBMS vs DM-Other related Areas-DM techniques- DM application areas. Association rules:Introduction-What is association rule-method to discover association rules-apriori algorithm-pincer search algorithm-Dynamic Item set counting algorithm-FP-tree growth algorithm-Border algorithm.

Book 1: Chapter 3, 4

Unit II: [13 Hrs]

M Clustering Techniques:clustering paradigms-k-method algorithms-DBSCAN-BIRCH-ROCK-CACTUS.Decision Trees:What is a decision tree-Tree construction principle- splitting

indices-splitting criteria-Decision tree construction with presorting-Rain forest-Approximate methods-CLOUDS-Pruning technique.

Book1: Chapter 5,6

Unit III:

[13 Hrs]

Other techniques-web mining:Introduction-web structure mining-web usage mining-text mining-unstructured text-Temporal and spatial data mining:Introduction-What is Temporal mining- Temporal association rules-sequence mining –The GSP algorithm.spatial mining- spatial mining tasks-spatial clustering.

Book 1: Chapter 7,8,9

Unit IV:

[13 Hrs]

Data warehousing:An introduction-characteristics of a data warehouse-data mart-other aspects of data mart. Online analytical processing:Introduction-OLTP & OLAP systems-data modelling-star schema for multidimensional view- data modelling-multifactor star schema or snowflake schema-OLAP TOOLS- state of the market-OLAP TOOLS and the internet.

Book 2: Chapter 1,2

***Unit V:**

[13 Hrs]

Developing a data warehouse:why and how to build a data warehouse-data warehouse architectural strategies and organization issues.Design consideration-data content-metadata distribution of data- tools for data warehousing-performance considerations-crucial decisions in designing a data warehouse.

Applications of data warehousing and data mining in government: Introduction –National data warehouses-other areas for data warehousing and data mining.

Book 2: Chapter 4,5

***Starred unit is a self study unit**

Book for Study:

Book 1. Arun K pujari, “Data mining techniques”, 2nd Edition.

Book 2. C.S.R Prabu, “Data warehousing concepts, techniques,products and applications”, PHI 3rd Edition

Book for Reference:

1.Margaret H.dunham, “Data mining introductory and advanced topics”, Pearson education, 2003.

2.Alex berson,stephen j.smith, “Data warehousing, Data mining & OLAP” ,TMCH,2001.

3.Jiawei Han & michelinje kamber, “Data mining concepts & techniques”, 2001, academic press.

M.Sc Computer Science

Semester-II

Core VIII – Software Testing

15MS08

(For the students admitted from the academic year 2015-2016 onwards)

Preamble:

52 Hrs

The aim of this course is

- To make students understand the principles of software testing
- To identify the issues in testing management
- To bring out the ways and means of controlling and monitoring testing activity

Unit I:

[10 Hrs]

Introduction-Purpose of testing-Dichotomies-Models for testing- Consequences of Bugs-Taxonomy for bugs-Structured approach to testing-Testing Strategy-Developing a Test Strategy-Establish a software testing methodology.

(Book2: Chapter: 1,2) (Book4: Chapter: 2,3)

Unit II: [10 Hrs]

White box testing : static testing-structural testing-challenges in white box testing –Black box testing: what is black box testing-Why Black Box testing-When to do Black Box Testing-How to do black box testing-Integration testing-System and Acceptance Testing.

(Book1: Chapter: 3,4,5,6)

Unit III: [10 Hrs]

Testing Planning, Management, Execution and Reporting: Introduction -Test Planning-Test Management -Test process - Test Reporting- Software Test Automation: Skills needed for automation – scope of automation- Design and architecture for Automation – requirements for a test tool – Challenges in automation.

(Book1: Chapter: 15,16)

Unit IV: [11 Hrs]

Testing of object oriented system - Test metrics and Measurement: Project metrics - Progress metrics - Productivity metrics.

(Book1: Chapter: 11,17)

***Unit V:** [11 Hrs]

Software Testing Tools : Overview-WinRunner -Silk Test – SQA Robot – Load Runner – Jmeter – Test Director – Quick Test Professional.

(Book3: Chapter: 3,4,5,6,7,8,9,11)

***Starred unit is a self study unit**

Book for Study:

1. Srinivasan Desikan, Gopalswamy Ramesh, “Software Testing – Principles and Practices”, Pearson Education.
2. B.Beizer,2003, “Software Testing Techniques”, II edn., DreamTech India New Delhi. Marnie L.Hutcheson, “Software Testing Fundamentals- Methods and Metrics”, Wiley-India.
3. K.V.K.K Prasad, “Software Testing Tools”, dreamtech.
4. William E.Perry, “Effective Methods for Software Testing”, Second Edition, John Wiley & sons, Inc,2000

Book for Reference:

1. Marnie L.Hutcheson, “Software Testing Fundamentals- Methods and Metrics”, Wiley-India.

M.Sc Computer Science

Semester- II

Core Practical II – Python Programming

15MSP2

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Programs:

65 Hrs

1. Program to implement the concept of input, output functions
2. Program to implement the Classes
3. Program to implement If, else, else if
4. Program to implement Conditional Functions
5. Program to implement Iterators Functions
6. Program to Create a File and its mode
7. Program to perform file operations
8. Program to implement Exceptions
9. Program to implement Functions
10. Program to implement Closures
11. Program to implement Threads
12. Program to implement GUI Programming
13. Program to implement Web Programming

M.Sc. Computer Science

Semester - III

Core IX - Image Processing

15MS09

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble:

75 Hrs

Image processing deals with basic interpretations that will provide skills for image rectification and enhancement.

- To study the image fundamentals and mathematical transforms necessary for image processing.
- Be exposed to image Enhancement, Restoration and Color Processing techniques.
- To be familiar with Image compression and Segmentation procedures.

Unit I:

[15 Hrs]

Image Processing: Introduction - Motivation and Perspective - Scenes and Images - Applications - Components of Image processing system.

Mathematical Preliminaries: Introduction - Vector Algebra - Linear Operations - Orthogonal Transforms - Singular Value Decomposition - Probability and Statistics - Fuzzy sets and properties - Mathematical Morphology.

Visual Preliminaries: Introduction - Brightness Adaptation and Contrast - Acuity and Contour - Texture and Pattern Discrimination - Shape Detection and Recognition - Perception of Colour - Computational Model of Perceptual Processing.

(Chapter: 1, 2, 3)

Unit II:

[15 Hrs]

Image Formation: Introduction - Geometric Model - Photometric Model. Digitization: Introduction - Sampling - Quantization - Visual Detail in the Digital Image - Digital Image - Elements of Digital Geometry. Image Enhancement: Introduction - Contrast Intensification - Smoothing - Image Sharpening.

(Chapter: 4, 5, 6)

Unit III:

[15 Hrs]

Restoration: Introduction - Minimum Mean Square Error Restoration - Least Square Error Restoration - Constrained Least Square Error Restoration - Restoration by Singular Value Decomposition - Restoration by Maximum a Posterior Estimation - Restoration by Homomorphic Filtering - Other Methods.

Image Compression: Introduction - Error Criterion - Lossy Compression - Loss-less Compression - Other Methods.

Registration: Introduction - Geometric Transformation - Registration by Mutual Information Maximization - Stereo Imaging.

(Chapter: 7, 8, 9)

Unit IV:

[15 Hrs]

Multi valued Image Processing: Introduction - Processing of Colour Images - Colour Image Enhancement. Segmentation: Introduction - Region Extraction - Pixel based Approach - Multi level Thresholding - Local Thresholding - Region based Approach - GrowCut Region Growing - Colour Image Segmentation.

Edge and Line Detection: Introduction - Edge Detection - Derivative Operators - Canny Edge Detector - Morphologic Edge detection - Watershed Segmentation - Edge Detector Performance - Line Detection - Corner Detection.

(Chapter: 10, 11, 12)

***Unit V:**

[15 Hrs]

Feature Extraction: Introduction - Representation - Topological Attributes. Description: Introduction - Boundary based Description - Region based Description - Projection - Minimum Bounding Rectangle - Concavity Tree - Relationship - Intensity based Description.

Recognition: Introduction - Clustering - Deterministic Methods - Statistical Classification
- Fuzzy Mathematical Recognition - Syntactic Recognition - Tree Search - Graph Matching.

(Chapter: 13, 14, 15)

***Starred Unit is a self study Unit**

Book for Study:

“Digital Image Processing and Analysis”, B. Chanda, D. Dutta Majumder, PHI, Second Edition, 2013.

Books for Reference:

1. “Image Processing, Analysis and Machine Vision”, Milan Sonka, Vaclav Hlavac, Roger Boyle, Cengage Learning India Private Limited, First Indian Reprint, 2012.
2. “Digital Image Processing Using MATLAB”, Rafael C Gonzale, Richard E Woods, Steven L. Eddins, Second Edition, McGraw Hill Education, Eighth Reprint, 2013.

M.Sc. Computer Science

Semester - III

Core X - Open Source Technologies

15MS10

(For the students admitted from the academic year 2015 - 2016 onwards)

65 Hrs

Preamble:

- The open-source model is a collaborative development from multiple independent sources, generates an increasingly more diverse scope of design perspective than any one company is capable of developing and sustaining long term.
- The Linux provide a simple example of how a basic client and service application could be implemented.
- Android is an open ecosystem where android app practitioners can freely access desired sections of the android code.

Unit I:

[13 Hrs]

Introduction Open Source Development : A brief history about open source development
- The Evolution of the open source movement -FLOSS- Free, libre, open source software-
Advantage and disadvantage of Open source -Open Source trends and perspective .Open source
business models-Licensing -Participating in Open Source Development: The Big picture-Open
source communities -Starting your own open source project.

(Book 1: Chapter: 1,2,3,5,6)

Unit II:

[13 Hrs]

Linux: Introduction to Linux - Linux Distribution - Operating Systems and Linux. Linux
Overview : Linux Software -Accessing your Linux System - Command Line Interface. The
Linux Shell and File structure: The Shell : The Command Line-File Name Expansion - Standard
input\output and redirections- pipes -Jobs: Backgrounds kills and interruptions - Ending
processes :Ps and Kill -The C shell: Command line Editing and history .The shell Scripts and
programming :Shell Variables-shell Scripts: User defined commands-Environmental variables
and Subshells -Control structures. Shell configuration: Aliases - Linux files, Directories and
archives.

(Book 2: Chapter: 1,2,3,4,5,6)

***Unit III:**

[13 Hrs]

Linux software: Software management-office and database application-Graphical tools
and multimedia -Security: Firewalls. Internet and Network services: FTP Servers-Web servers.

(Book 2 : Chapter :10,11,12,20,22,23)

Unit IV:

[13 Hrs]

APACHE Introduction - Apache Explained - Starting, Stopping, and Restarting Apache -
Modifying the Default Configuration - Securing Apache - Set User and Group - Consider

Allowing Access to Local Documentation - Don't Allow public_html Web sites - Apache control with .htaccess.

(Book 3 : Chapter: 3)

Unit V:

[13 Hrs]

Android Application Development: Getting Started with Android Programming: What is Android ? : Android Versions - Features of Android - Architecture of Android - Android Devices in the Market - The Android Market. Obtaining the Required Tools : Eclipse - Android SDK -

Android Development Tools (ADT) - Creating AVDs - Creating your First Android Application. Using Eclipse For Android Development: Getting Around in Eclipse - Debugging.

(Book 4: Chapter : 1)

***Starred unit is a self study unit.**

Books for Study:

Book1 : Rachna Kapur , Mario Briggs, Tapas saha, Ulisses costa, Tedro carvalho, Raul F . Chong Peter Kohlmann , “Getting started with Open source Development -Ideal for application developers and administrators” - IBM corporation 2010 , First edition.

Book2 : Richard Petersen “Linux :The complete Reference”, Sixth Edition -, Tata McGrawHill Education Private Limited, Edition 2008.

Book3 : James Lee and Brent Ware, "Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP", Dorling Kindersley(India) Pvt. Ltd, 2008.

Book4 : “Beginning Android Application Development”, Wiley Publishing, Inc.2012 edition.

Books for Reference:

1. EricRosebrock, Eric Filson, "Setting up LAMP: Getting Linux, Apache, MySQL, and PHP and working Together", Wiley and Sons, 2004.
2. Mark G Sobell ,”A practical guide to fedora and Red Hat Enterprise Linux” - 6th edition 2012.

M.Sc. Computer Science

Semester - III

Core XI - Wireless Communication

15MS11

(For the Students admitted from the academic year 2015 - 2016 onwards)

Preamble:

52 Hrs

This paper is an introduction to the field of wireless communications and focuses on digital data transfer.

- Basic understanding of communication and a rough knowledge of internet or network.
- It shows the integration of services and application from fixed networks.
- It presents a succinct, challenging, and accessible overview of the transformations and challenges presented by this most personal, yet most overlooked, technology.

Unit I:

[10 Hrs]

Introduction - Transmission Fundamentals: Signals for Conveying information - Analog and Digital data Transmission - Channel Capacity- Transmission media. Communication Networks: LANs, MANs and WANs - Switching Techniques - Circuit Switching - Packet Switching - Asynchronous Transfer mode. Wireless LAN Technology: Infrared LANS - Spread Spectrum LANs - Narrowband Microwave LANs.

(Book 1: Chapter: 1, 2, 3,13)

Unit II:

[11 Hrs]

Wireless Transmission: Frequencies for radio transmission - Signals - Antennas - Signal propagation - Multiplexing - Modulation - Spread spectrum - Cellular Systems. Wireless Link improvement Techniques: Error Detection - Block Error correction codes. Multiple Accesses in

Wireless System: Multiple access Scheme - FDMA - TDMA - CDMA - SDMA - Packet Radio access - Multiple access with Collision avoidance.

(Book 2: Chapter: 2) (Book 1: Chapter: 8,9)

Unit III:

[10 Hrs]

Wireless System Operations and Standards: Wireless Local Loop - WIMAX and IEEE 802.16 Broadband Wireless access Standards.

Satellite Systems: History - Applications - Basics - Routing - Localization - Handover. Mobile Network Layer: Mobile IP- Dynamic Host Configuration Protocol.

(Book 1: Chapter: 11) (Book 2: Chapter: 5,8)

Unit IV:

[11 Hrs]

Broadcast Systems: Overview - Cyclic Repetition of Data - Digital Audio Broadcasting - Digital Video Broadcasting - convergence of broadcasting and mobile communication.

Wireless LAN: IEEE 802.11 - System architecture- Protocol architecture - Physical Layer - Medium access control layer - MAC management - 802.11 b - 802.11a - newer developments.

Bluetooth: User scenarios - Architecture - Radio Layer - Base band Layer - Link Manager Protocol - L2CAP -Security - SDP - Profiles - IEEE 802.15.

(Book 2: Chapter: 6,7)

***Unit V:**

[10 Hrs]

Mobile Transport Layer: Traditional TCP: Congestion Control - SlowStart - Fast Retransmit / Fast Recovery - Implications of Mobility. Classical TCP Improvements : Indirect TCP - Snooping TCP - Mobile TCP - - Fast Retransmit / Fast Recovery - Transmission / Timeout Freezing - Selective Retransmission - Transaction Oriented TCP .Support for mobility : File Systems -Wireless Application Protocol(version 1.x) - I-mode - SyncML - WAP 2.0 .

(Book 2: Chapter: 9,10)

***Starred unit is a self study unit.**

Books for Study:

Book1 : William Stallings, "Wireless communications and networks", Pearson publication, 2012.

Book2 : Jochen Schiller, "Mobile communications and networks, Pearson publication, 2013.

Book for reference:

1. Timothy Pratt, Charles Bostian, Jeremy Allnut, "Satellite Communications", Wiley Publications, Second Edition Reprint -2010.

2. Iti Saha Misra, "Wireless Communications and Networks: 3G and Beyond", McGraw Hill Education (India) Pvt Ltd, 2013.

M.Sc Computer Science

Semester - III

Elective III - Embedded Systems

15MSE3

(For the students admitted from the academic year 2015-2016 onwards)

Preamble:

75 Hrs

Embedded system is a computer system with a dedicated function within a larger mechanical or electrical system often with real time computing constraint.

- Embedded system tools and products are evolving rapidly.
- This deals with various approaches to building embedded systems.
- It introduces unified view of hardware and software.
- The aim of this is to make the students aware of the various applications of embedded systems.

Unit I:

[15 Hrs]

Introduction to Embedded systems: What is an embedded system? Classification of Embedded Systems - Major Application Areas of Embedded Systems- Purpose of Embedded

Systems-The Typical Embedded System: Core of the Embedded System-Memory-Sensors and Actuators-Communication Interface-Embedded Firmware- Characteristics and Quality Attributes of Embedded Systems-Embedded Systems-Application-and Domain-Specific.

(Book 1: Chapter: 1,2,3,4)

Unit II: [15 Hrs]

Devices and Communication Buses for Devices Network-IO Types and Examples- Serial Communication Devices-Parallel Device Ports- Sophisticated Interfacing Features in Device Ports-Wireless Devices-Timer and Counting Devices-Watchdog Timer-Real Time Clock-Network Embedded Systems-Serial Bus Communication Protocols- Wireless and Mobile system protocols -Interprocess Communication and Synchronization of Processes, Threads and Tasks: Concept of Semaphores-Shared Data-Interprocess Communication-Signal Function-Semaphore Functions-Message Queue Functions-Mailbox Functions-Pipe Functions-Socket Functions-RPC Functions.

(Book 2: Chapter: 3,7)

Unit III: [15 Hrs]

Embedded Hardware Design and Development: Analog Electronic Components-Digital Electronic Components-VLSI and Integrated Circuit Design-Electronic Design Automation (EDA) Tools-Embedded Firmware Design and Development.

(Book 1: Chapter: 8,9)

***Unit IV:** [15 Hrs]

Real-Time Operating System(RTOS) based Embedded System Design-Operating System Basics-Types of Operating Systems-Tasks, Process and Threads-Multiprocessing and Multitasking-Task Scheduling-Task Communication-Task Synchronization- Device Drivers-How to choose an RTOS.

(Book 1: Chapter: 10)

Unit V: [15 Hrs]

The Embedded System Development Environment-Product Enclosure Design and Development - The Embedded Product Development Life Cycle-Trends in the Embedded Industry.

(Book 1: Chapter: 13,14,15,16)

***Starred unit is a self study unit**

Books for Study:

Book1 : Shibu K. V, "Introduction to Embedded Systems", McGraw Hill Education(India) Private Limited, New Delhi,2013.(Unit I, III, IV, V)

Book2 : Rajkamal,"Embedded Systems Architecture, Programming and Design", Second Edition, Tata MCGRaw Hill , Copyright year : 2013.(Unit II)

Book for Reference:

David E. Simon, "An Embedded Software Primer", Pearson Education Asia, First Indian Reprint, 2000.

**M.Sc Computer Science
Semester-III**

**Core Practical III - Digital Image Processing and Open Source Technologies 15MSP3
(For the students admitted from the academic year 2015 -2016 onwards)**

Preamble: 52 Hrs

- Understand the Matlab Desktop, Command window and the Graph Window.
- Be able to do simple and complex calculation using Matlab
- Be able to carry out numerical computations and analyses.
- Understand the mathematical concepts upon which numerical methods rely.
- Ensure you can competently use the Matlab programming environment.

- Understand the tools that are essential in solving engineering problems.
- To provide practical experience in software development using Linux, Tomcat server and Android.

List of Programs:

Digital Image Processing:

1. Write a Program for Contra Stretching.
2. Write a Program to Sharpen an Image.
3. Write a Program to shrink and enlarge an image.
4. Perform Segmentation.
5. Compress a given Image.
6. Write a Program for color processing.
7. Write a Program to classifying the various object of an image.

Open Source Technologies:

Linux:

1. Create colorful script “Hello World” application. That will display “Hello World” in the middle of the screen in the red color with white background.
2. Write a shell Script to prepare pay slip.
3. Write a shell script using for loop to print the following pattern on screen.
4. Write a Shell Script to search a file from the current directory in any of the subdirectories and report the path.

Tomcat server:

5. Create a dynamic web application using eclipse IDE and Tomcat server.
6. Convert the static login web page into dynamic web pages using servlets and cookies using Tomcat Server.

Android:

7. Create an application that will change color of the screen, based on selected options from the menu.
8. Create a background application that will open activity on specific time.
9. Read messages from the mobile and display it on the screen.
10. Create an application to make Insert, update, Delete and retrieve operation on the database.

M.Sc Computer Science Semester - IV

Core XIII – Software Project Management

15MS13

(For the students admitted from the academic year 2015-2016 onwards)

Preamble:

65 Hrs

Software project management covers many types of software, including scheduling, cost control and budget management which are used to deal with the complexity of large projects.

- It is an integral part of organizational processes.
- It is a sub discipline of project management in which software planned, implemented, monitored and controlled.

Unit I:

[13 Hrs]

Introduction-Why is Software Project Management important-What is project software projects versus other types of project-Activities covered by Software Project Management-Problems with software projects-Setting objectives – Stakeholders - Requirement specification-Management control - An Overview of project planning.

(Chapter: 1,2)

Unit II:

[13 Hrs]

Programme Management and Project Evaluation: Introduction - Programme Management-Managing the allocation of resources within programmes-creating programme-

Aids to Programme management-Benefits Management-Cost benefit analysis-Cash Flow forecasting-cost-benefit evaluation techniques-Risk Evaluation.

Selection of an appropriate project approach: Introduction-choosing Technologies-Technical plan contents list-The V-Process model-The spiral model-software prototyping.

(Chapter: 3,4)

Unit III:

[13 Hrs]

Software effort Estimation: Introduction-Where are estimates done-The basis for software estimating-Software Effort Estimation Techniques-A Procedural Code-Oriented approach-COCOMO: A Parametric Model.

Activity Planning: Introduction-The objectives of activity planning-Project schedules-Projects and activities-Network planning models-Formulating a network model-Adding the time dimension-The forward pass-The Backward pass-Identifying the critical path-activity float-Activity on arrow networks.

(Chapter: 5,6)

***Unit IV:**

[13 Hrs]

Risk Management: Introduction-Risk-categories of risk-A Framework for dealing with risk-Risk identification-Risk assessment-Risk planning-Risk Management-Applying the PERT technique. Resource allocation: Introduction-The nature of resources-Identifying resource Requirements.Scheduling resources-Counting the cost-Cost schedules.

(Chapter: 7,8)

Unit V:

[13 Hrs]

Monitoring and control: Introduction-Creating the framework-Collecting the data-Visualizing progress-Cost monitoring-Earned value analysis-Getting the project back to target-change control.

Managing the people and organizing teams: Introduction-Understanding behavior-Organizational behaviour: a background-Selecting the right person for the job instructing in the best methods-Motivation-The Oldham-Hackman job characteristics model-Becoming a team-Decision making-Leadership-organizational structures.

(Chapter: 9,11)

***Starred unit is a self study unit**

Book for Study:

Bob Hughes & Mike Cotterell ,”Software Project Management”,Tata McGraw-Hill Publishing Company Limited-Fourth Edition.

M.Sc. Computer Science
Semester wise distribution with Scheme of Examination
(For the Candidates admitted during the academic year 2014-2015 & Onwards)

Semester	Courses	Credits	Duration of Exam(ESE)	Marks		Total
				CIA	ESE	
I	Core I – J2EE	5	3	25	75	100
	Core II- Object Oriented Analysis and Design with UML	5	3	25	75	100
	Core III – Soft Computing	5	3	25	75	100
	Elective I – Distributed Systems and Components	3	3	25	75	100
	Elective II –Human Resource Management	3	3	25	75	100
	Core Practical I: J2EE	4	3	40	60	100
II	Core IV – Parallel Processing	5	3	25	75	100
	Core V – DB2	5	3	25	75	100
	Core VI - Data mining and Data Warehousing	5	3	25	75	100
	Core VII – Software Testing	5	3	25	75	100
	Elective III – Design and Analysis of Algorithms	3	3	25	75	100
	Core Practical II: Software Testing	3	3	40	60	100
	Advanced Learners I – Nano Computing	4*	3	-	100	100
III	Core VIII – Image Processing	5	3	25	75	100
	Core IX – Open Source Technologies	5	3	25	75	100
	Core X – Network Security	5	3	25	75	100
	Core XI – Wireless Communication	5	3	25	75	100
	Elective IV – Embedded Systems	3	3	25	75	100
	Core Practical III- Digital Image Processing Using MAT Lab	4	3	40	60	100
	Core Practical IV – Open Source Technologies	4	3	40	60	100
IV	Project and Viva-voce	8	3	100	200	300
	Advanced Learners II – Cloud Computing	4*	3	-	100	100

Total Credits

90

M.Sc Computer Science
Semester - I
Core I – J2EE

14MS01

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 52 Hrs

Preamble:

- Understood the advanced concepts in J2EE Architectures.
- Understood the Java JDBC Objects, Client/Server Message Services.
- Learn advanced concepts, Server architecture using Java.

Module I:

[10 Hrs]

Java Beans: What is a Java Beans? – Advantages of Java Beans – Introspection – Bound and Constrained Properties – Persistence – Customizers – The Java Beans API..

Introducing Swing: - What is Swing – The origins of Swing – Swing Is Built on the AWT- Two Key Swing Features – The MVC Connection – Components and Containers – The Swing Packages – A Simple Swing Application – Event Handling – Create a Swing Applet – Painting in Swing.

Module II:

[10 Hrs]

Understanding RMI – Remote Method Invocation (RMI) – Client / Server Architecture – Implementing RMI – Limitation of RMI. Networking : Networking Basics – Java and the Net – Inet Address – TCP / IP Client Sockets - URL Connection – The URI Class – Cookies - TCP / IP Server Sockets – Datagrams.

Servelets – The Life Cycle of a Servlet– Using Tomcat – A Simple Servlet – The Servlet API –Servlet Package – Reading Servlet Parameters – Servlet HTTP Package – Handling HTTP request and response – Using cookies - Session Tracking.

Module III:

[10 Hrs]

Java Server Pages - JSP - Installation - JSP tags – Tomcat – Request String – User Sessions – Cookies – Session Objects.

J2EE Basics: J2EE Multi-Tier Architecture: Distributed Systems-The Tier-J2EE Multi-tier Architecture-Client Tier Implementation-Web Tier Implementation-Enterprise JavaBeans Tier Implementation – Enterprise Information Systems Tier Implementation.

J2EE Databases : JDBC Objects.

Module IV:

[11Hrs]

J2EE Databases: JDBC and Embedded SQL: Objects: Model Programs-Tables-Indexing-Inserting Data into Tables-Selecting Data from a Table-Metadata-Updating Tables-Deleting Data from a Table-Joining Tables-Calculating Data-Grouping and Ordering Data-Sub queries-VIEW

Module V:

[11 Hrs]

J2EE Foundation: HTML, XML, and XHTML-XML-XHTML.

J2EE Interconnectivity: Java Mail API: Java Mail-Protocols-Exceptions-Send Email Message-Retrieving Email Messages-Deleting Email Messages-Replying to Forwarding an Email Message-Forwarding an Email Message-Receiving Attachments-Searching an Email Folder.

Books for Study:

1. Herbert Schildt, “Java The Complete Reference”, Eighth Edition, McGraw Hill Education Pvt Ltd.
2. “Java 6 Programming Black Book”, New Ed, Kogent Solutions Inc, Dreamtech Press.
3. Jim Keogh, “The Complete Reference J2EE”, Edition 1.4, Tata McGraw Hill Education Pvt Ltd.

M.Sc. Computer Science
Semester - I
Elective II – Human Resource Management **14MSE2**
(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs

Preamble:

- It plays a pivotal role in the achievement of the overall organizational goals and objectives.
- It helps the students to analyse the workforce profile, skills, abilities, qualifications, potential, capabilities etc. and assign them various responsibilities as per the requirement of the job and the workers profile.
- It also facilitates acquiring, training and retaining the talents.

Module I: **[13 Hrs]**

Introduction to Human Resource Management: Nature and scope of Human Resource Management – Organising the Human Resource function – Strategic Human Resource Management – Human Resource policies

Module II: **[13 Hrs]**

Acquiring Human Resource: Human Resource planning – Job Analysis and Job Design – Recruitment and Selection – Placement, Induction and socialization.

Module III: **[13 Hrs]**

Managing Performance and Compensation: Performance Appraisal – Job Evaluation – Wage and salary Administration – Incentive Compensation.

Module IV: **[13 Hrs]**

Maintaining and Retaining Human Resources: Job Changes – Transfers, promotions and separations – Absenteeism and Labour Turn over – Employee health and safety – employee welfare. Work Environment.

Module V: **[13 Hrs]**

Developing Human Resources: Career planning and development. Motivating Human Resource: Motivation at Work – Empowerment. HR In knowledge Era: Human Resource in Information Technology Organizations.

Book for Study:

1. “Human Resource Management”, C.B. Gupta, Sultan Chand & Sons New Delhi, Edition 2012.
2. “Human Resource Management”, Biswajeet Pattanayak, PHI Learning Pvt Ltd, 3rd Edition.

Book for Reference:

2. “Human Resource Management test and cases”, VSP Rao , Excel Books New Delhi, 3rd Edition.

M.Sc Computer Science
Semester- I
Core Practical I – J2EE **14MSP1**
(For the Candidates admitted during the academic year 2014 -2015 & onwards) 75Hrs

List of Programs:

1. Design an Online Application program using Swing.
2. Design a form for Personal Information using Swing.
3. Program to Check the User Name Password using Swing.

4. Program for RMI based application, which reads a file with list of marks of student from a client, send it to server and find how many students having distinct.
5. Program to Read the First Name and Last Name of a user using cookies in Servlet.
6. Program to find out the creation time and the last-accessed time for a session using Session Tracking.
7. Program to Read and Write a Data using JSP.
8. Program to send an Email with Attachment from your machine
9. Program to generate the Working Schedule for a Trainer in a MNC Company using JDBC.
10. Program using a socket that connects to a server, sends a greeting, and then waits for a response.
11. Program to create Employee Database and prepare Employee Payroll using JDBC.

M.Sc Computer Science Semester - II

Core VI - Data Mining and Data Warehousing 14MS06

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs

Preamble:

- The extraction of hidden predictive information from large databases.
- Data mining techniques are the result of a long process of research and product development.
- Data mining tools sweep through databases and identify previously hidden patterns in one step.
- Data mining tools predict future trends and behaviors, allowing businesses to make proactive, knowledge-driven decisions.
- Discovering hidden value in your data warehouse
- Integrated with a data warehouse as well as flexible interactive business analysis tools.
- An OLAP server enables a more sophisticated end-user business model to be applied when navigating the data warehouse.

Module I:

[13 Hrs]

Data mining:Introduction-What is data mining-Definitions-KDD vs.Datamining-DBMS vs DM-Other related Areas-DM techniques- DM application areas. Association rules:Introduction-What is association rule-method to discover association rules-apriori algorithm-pincer search algorithm-Dynamic Item set counting algorithm-FP-tree growth algorithm-Border algorithm.

Module II:

[13 Hrs]

M Clustering Techniques:clustering paradigms-k-method algorithms-DBSCAN-BIRCH-ROCK-CACTUS.Decision Trees:What is a decision tree-Tree construction principle- splitting indices-splitting criteria-Decision tree construction with presorting-Rain forest-Approximate methods-CLOUDS-Pruning technique.

Module III:

[13 Hrs]

Other techniques-web mining:Introduction-web structure mining-web usage mining-text mining-unstructured text-Temporal and spatial data mining:Introduction-What is Temporal mining- Temporal association rules-sequence mining –The GSP algorithm.spatial mining- spatial mining tasks-spaial clustering.

Module IV:

[13 Hrs]

Data warehousing:An introduction-characteristics of a data warehouse-data mart-other aspects of data mart. Online analytical processing:Introduction-OLTP & OLAP systems-data modelling-star schema for multidimensional view- data modelling-multifact star scheme or snow flake schema-OLAP TOOLS- state of the market-OLAP TOOLS and the internet.

Module V:**[13 Hrs]**

Developing a data warehouse: why and how to build a data warehouse-data warehouse architectural strategies and organization issues. Design consideration-data content-metadata distribution of data- tools for data warehousing-performance considerations-crucial decisions in designing a data warehouse.

Applications of data warehousing and data mining in government: Introduction –National data warehouses-other areas for data warehousing and data mining.

Book for Study:

1. Arun K. Pujari, "Data mining techniques", second edition.
2. C.S.R. Prabu, "Data warehousing concepts, techniques, products and applications", PHI Third edition

Book for Reference:

1. Margaret H. Dunham, "Data mining introductory and advanced topics", Pearson education, 2003.
2. Alex Berson, Stephen J. Smith, "Data warehousing, Data mining & OLAP", TMCH, 2001.
3. Jiawei Han & Micheline Kamber, "Data mining concepts & techniques", 2001, academic press

M.Sc Computer Science**Semester-II****Core VII – Software testing****14MS07****(For the Candidates admitted during the academic year 2014 -2015 & onwards) 75 Hrs****Preamble:**

- To make students understand the principles of software testing
- To explain the basics of software testing
- To identify the issues in testing management
- To bring out the ways and means of controlling and monitoring testing activity

Module I:**[15 Hrs]**

Introduction-Purpose of testing-Dichotomies-Models for testing- Consequences of Bugs-Taxonomy for bugs-Structured approach to testing-Testing Strategy-Developing a Test Strategy-Establish a software testing methodology.

Module II:**[15 Hrs]**

Testing and levels – Levels of Testing-Testing approaches-White box testing : static testing-structural testing-challenges in white box testing –Black box testing: what is black box testing-Why Black Box testing-When to do Black Box Testing-How to do black box testing-Integration testing-System and Acceptance Testing.

Module III:**[15 Hrs]**

Testing Planning, Management, Execution and Reporting: Introduction -Test Planning-Test Management -Test process - Test Reporting- Software Test Automation: Skills needed for automation – scope of automation- Design and architecture for Automation – requirements for a test tool – Challenges in automation.

Module IV:**[15 Hrs]**

Test metrics and Measurement: Project metrics - Progress metrics - Productivity metrics – status meeting – Reports and Control Issues – Criteria for test Completion.

Module V:**[15 Hrs]**

Software Testing Tools : Overview-WinRunner -Silk Test – SQA Robot – Load Runner – Jmeter – Test Director – Quick Test Professional.

Book for Study:

5. Srinivasan Desikan, Gopalswamy Ramesh, "Software Testing – Principles and Practices", Pearson Education.

6. B.Beizer,2003, “Software Testing Techniques”, II edn., DreamTech India New Delhi. Marnie L.Hutcheson, “Software Testing Fundamentals- Methods and Metrics”, Wiley-India.
7. K.V.K.K Prasad, “Software Testing Tools”, dreamtech

Book for Reference:

1. Willian E.Perry, “Effective Methods for Software Testing”, Second Edition, John Wiley & sons, Inc,2000
2. Marnie L.Hutcheson, “Software Testing Fundamentals- Methods and Metrics”, Wiley-India.

M.Sc. Computer Science

Semester – II

Core Practical II – Software Testing

14MSP2

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 52Hrs

List of Programs:

1. Develop a software Requirement specification for Hotel Management System.
2. To Generate Module testing report for Online Ticket Booking System.
3. To test the application by synchronization testing using win runner.
4. Recording and running Test cases for calculator operations.
5. Create the test cases using the bitmap and database checkpoints.
6. Create the test cases using the text and GUI checkpoints.
7. Create a program data driver wizard.
8. Write a program to implement black box testing technique using Domain testing automated, credit and information.
9. Write a program to implement ATM password checking using security test.
10. Perform white box testing for Book store management

M.Sc. Computer Science

Semester – III

Core VIII – Image Processing

14MS08

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 75 Hrs

Preamble:

- Allows visualizing and presenting your images in several dimensions.
- The functionality of this imaging toolbox expands constantly with a wide range of different modules.
- A more intuitive presentation in some areas, such as image transforms and image restoration.
- To introduce the students to the basic concepts and analytical methods of satellite remote sensing as applied to environmental systems.

Module I:

[15 Hrs]

Introduction – The image, its representations and Properties – The image, its Mathematical and Physical background – Data structure for image analysis.

Module II:

[15 Hrs]

Image preprocessing – Segmentation I – Segmentation II.

Module III:

[15 Hrs]

Shape representation and description – Object recognition – Image understanding.

Module IV: [15 Hrs]

3D Vision, Geometry – Use of 3D Vision – Mathematical Morphology.

Module V: [15 Hrs]

Image data compression – Textures – Motion Analysis.

Book for Study:

1. “Image Processing, Analysis and Machine Vision”, Milan Sonka, Vaclav Hlavac, Roger Boyle, Cengage Learning India Private Limited, First Indian Reprint 2012.

Book for Reference:

1. “Digital Image Processing and Analysis”, B. Chanda, D. Dutta Majumder, PHI, 2003
2. “Digital Image Processing”, Rafael C Gonzale, Richard E Woods, Second edition, Pearson Education.

**M.Sc. Computer Science
Semester – III**

Core IX – Open Source Technologies 14MS09

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 52Hrs

Preamble:

- To utilize the .NET framework to build distributed enterprise applications.
- To develop ASP.NET Web Services, secure web services, and .NET remote applications.
- It helps to understand the protocols behind web services including: SOAP, DISCO, and UDDI.
- The goal of this course is to provide students with the knowledge and ability to write Computer scripts using PHP, a server-side scripting language.
- To study and apply concepts relating to operating systems, such as concurrency and control of asynchronous processes, deadlocks, memory management, processor and disk scheduling, parallel processing, and file system organization

Module I: [10 Hrs]

Fundamentals of Open source: overview of Foss/Open Source – Linux Distribution Understanding Linux Kernel – Inside GNU Linux – Getting into GNU Services.

Asp.Net: The .Net Framework – Learning the .Net Languages – Types, objects and Namespaces.Asp.Net Applications: Asp.Net Configuration: Web controls.

Module II: [10Hrs]

ADO.Net :Overview of ADO.Net – ADO.Net Access – Data Binding - The DataList, DataGrid, Repeater.

Module III: [11 Hrs]

Basics of PHP: Getting Started with PHP – PHP Language – Code organization and Reuse – Object oriented Programming – Working with Arrays.

Module IV: [10 Hrs]

Database Basics: Introduction to databases – How to select a Database Server – Designing and creating a database – Using Databases: Storing and Retrieving Data – PHP and Data Access.

Module V: [11 Hrs]

Overview of Linux- Getting Started – Linux files and directories – Intermediate File Management – Editing files - Shell Scripting Programming.

Books for study:

1. “Open Source software Development Series, Understanding OSTC”, GNU Developers, B. Mahendran, 2009 Edition.
2. “The Complete Refernce ASP.Net” Matthew MacDonald, Tata McGraw – Hill Publishing Company Ltd, Edition 2002.

3. “Core Web Application Development with PHP and MySQL”, Marc Wand Schneider, 2006 Edition, Saurabh Printers Pvt Ltd.
4. “Introduction to Unix/Linux”, Christopher Diaz, Cengage Learning , India Edition, Reprint 2009.

Book for Reference:

1. “Head First PHP & MySQL”, Lynn Beighley, Michael Morrison, Shroff Publishers and Publishers Pvt Ltd, 4th Reprint, 2010 Edition.

M.Sc. Computer Science

Semester - III

Core X – Network Security

14MS10

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs

Preamble:

- It helps the students to learn the different aspects of information and network security.
- It covers basic concepts of network security, network security primitives, authentication techniques, security and privacy.
- This course helps the students to list the common threats and vulnerabilities of networked systems.

Module I:

[13 Hrs]

Introduction – Attacks, Services and Mechanisms – Security Attacks – Security Services – A model for Inter network Security - Conventional Encryption Principles- Conventional Encryption Algorithms – Cipher Block Modes of Operation – Location of Encryption devices – Key Distribution. Public Key Cryptography and Message Authentication: Approaches to Message Authentication –Secure Hash function and HM AC – Public key Cryptography Principles – Public key Cryptography algorithms – Digital Signatures.

Module II:

[13 Hrs]

IP Security : IP Security Overview – IP Security Architecture – Authentication header – Encapsulating Security payload – Combining Security Associations – Key Management. Web Security: Web Security Requirements – Secure Socket Layer and Transport Layer Security – Secure Electronic Transaction.

Module III:

[13 Hrs]

Network Management Security: Basic concepts of SNMP – SNMPv1 community facility. Intruders and Viruses: Intruders - Viruses and Related threats – Fire wall design Principles – Trusted Systems.

Module IV:

[13 Hrs]

Cryptography Techniques: Plain Text and Cipher Text – Substitution Techniques – Transposition Techniques – Encryption and Decryption – Symmetric and Asymmetric key Cryptography – Steganography.

Symmetric key Cryptographic algorithms: Algorithm types and modes – Data Encryption Standard(DES) – International Data Encryption Algorithm(IDEA) – Advanced Encryption Standards(AES).

Module V:

[13 Hrs]

Internet Security Protocols: Basic Concepts – Secure Socket Layer(SSL) – Transport Layer Security(TLS) – Secure Hyper Text transfer Protocol(SHTTP) – Secure Electronic Transaction(SET) – Email Security – Wireless application protocol Security – Link security versus Network security.

User Authentication Mechanism: Authentication Basics – Passwords – Authentication Tokens – Certificate based Authentication – Biometric Authentication – Kerberos – Security handshake pitfalls.

Book for Study:

1. William Stallings – “Network Security Essentials”, Pearson Education Asia.
2. Atul Kahate – “Cryptography and Network Security”, Tata McGraw Hill, 3rd Edition

Book for Reference:

1. Security Technologies for the World Wide Web, Rolf Oppliger, Artech House, 2000
2. Internet and Intranet Security, Rolf Oppliger, Artech House, 1998
3. Building Internet Firewalls, Brent Chapman and Elizabeth Zwicky, O'Reilly and Associates, 1995
4. Network Security: Private Communication in a Public World, C. Kaufman, R. Perlman and M. Speciner,

M.Sc. Computer Science**Semester – III****Core XI – Wireless Communication****14MS11****(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs****Preamble:**

- This book is an introduction to the field of wireless communications and focuses on digital data transfer.
- Basic understanding of communication and a rough knowledge of internet or network in general.
- It shows the integration of services and application from fixed networks.
- It presents a succinct, challenging, and accessible overview of the transformations and challenges presented by this most personal, yet most overlooked, technology.

Module I:**[13 Hrs]**

Transmission Fundamentals-Communication Network. Wireless communication Technology: Cellular wireless networks- Modulation techniques.

Module II:**[13 Hrs]**

Wireless Networking: Wireless system operations and standards-Wireless Lan: wireless LAN technology-Wi-Fi and the IEEE 802.11 Wireless LAN standard-Bluetooth and IEEE 802.15 500.

Module III:**[13 Hrs]**

Mobile Communications: Mobile Network layer: Mobile IP-Mobile ad-hoc networks. Mobile Transport layer: Traditional TCP-classical TCP improvements- Support for mobility: file systems-i-mode-SyncML-WAP2.0.

Module IV:**[13 Hrs]**

Satellite Communications: Introduction- A Brief history of satellites communications- Orbital Mechanics and Launches: (orbital mechanics)-Look angle determination-orbital perturbations-orbit determination-orbital effects in communications system performance.

Module V:**[13 Hrs]**

Satellites: satellite sub systems-AOCOS-Telemetry, Tracking, command, and monitoring-satellite antennas-satellite link design: design of downlinks-satellite system using small earth stations-uplink design.

Book for Study:

1. William Stallings, “Wireless communications and networks”
2. Jochen Schiller, “**Mobile communications and networks**”
3. Timothy Pratt Charles Bostian, Jeremy Allutt, second edition, “**Satellite Communications**”

Book For reference:

3. Varsha Agrawal, Anil K. Maini, “**Satellite Communications**”.
4. Vijay Garg, “**Wireless Communications & Networking**”.

M.Sc Computer Science

Semester - III

Elective IV – Embedded Systems 14MSE4

(For the Candidates admitted during the academic year 2014 -2015 & onwards) 65 Hrs

Preamble:

- Embedded system tools and products are evolving rapidly.
- This deals with various approaches to building embedded systems.
- It introduces unified view of hardware and software.
- The aim of this is to make the students aware of the various applications of embedded systems.

Module I:

[13 Hrs]

Introduction to Embedded systems: What is an Embedded system? Classification of Embedded Systems – Major Application Areas of Embedded Systems- Purpose of Embedded Systems-The Typical Embedded System: Core of the Embedded System-Memory-Sensors and Actuators-Communication Interface-Embedded Firmware- Characteristics and Quality Attributes of Embedded Systems-Embedded Systems-Application-and Domain-Specific.

Module II:

[13 Hrs]

Devices and Communication Buses for Devices Network-IO Types and Examples- Serial Communication Devices-Parallel Device Ports- Sophisticated Interfacing Features in Device Ports-Wireless Devices-Timer and Counting Devices-Watchdog Timer-Real Time Clock-Network Embedded Systems-Serial Bus Communication Protocols- Wireless and Mobile system protocols -Interprocess Communication and Synchronization of Processes, Threads and Tasks:Concept of Semaphores-Shared Data-Interprocess Communication-Signal Function-Semaphore Functions-Message Queue Functions-Mailbox Functions-Pipe Functions-Socket Functions-RPC Functions.

Module III:

[13 Hrs]

Embedded Hardware Design and Development: Analog Electronic Components-Digital Electronic Components-VLSI and Integrated Circuit Design-Electronic Design Automation(EDA) Tools-Embedded Firmware Design and Development.

Module IV:

[13 Hrs]

Real-Time Operating System(RTOS) based Embedded System Design-Operating System Basics-Types of Operating Systems-Tasks, Process and Threads-Multiprocessing and Multitasking-Task Scheduling-Task Communication-Task Synchronization- Device Drivers-How to choose an RTOS.

Module V:

[13 Hrs]

The Embedded System Development Environment-Product Enclosure Design and Development – The Embedded Product Development Life Cycle-Trends in the Embedded Industry.

Book for Study:

- 1.Shibu K. V, “Introduction to Embedded Systems” , McGraw Hill Education(India) Private Limited, New Delhi,2013(Unit I, III, IV, V)
- 2.“Embedded Systems Architecture, Programming and Design”, Rajkamal, Second Edition,Tata MCGRaw Hill , Copyright year : 2013.(Unit II)

Book for Reference:

1. “An Embedded Software Primer”, David E. Simon, Pearson Education Asia, First Indian Reprint, 2000.

**M.Sc Computer Science
Semester-III**

Core Practical III: Digital Image Processing Using MAT Lab 14MSP3
(For the Candidates admitted during the academic year 2014 -2015 & onwards) 52 Hrs

List of Programs

1. Write a Program for Contra Stretching.
2. Write a Program to smoothen a Blue red image.
3. Write a Program to Sharpen an Image.
4. Write a Program to shrink and enlarge an image.
5. Perform Segmentation.
6. Compress a given Image.
7. Write a Program for color processing.
8. Perform Morphological operation.
9. Generate Image descriptors or features.
10. Write a Program to classifying the various object of an image.

**M.Sc Computer Science
Semester-III**

Core Practical IV – Open Source Technologies 14MSP4
(For the Candidates admitted during the academic year 2014 -2015 & onwards) 38Hrs

List of Programs:

1. To create a .Net program using console application with concept of Object oriented programming [Class, object, Inheritance, Abstraction, Encapsulation, Data Binding & Polymorphism]
2. To write a .Net program using window application to calculate Inventory control using C#.
3. To create a .Net program using Windows application to generate Dayout Print preview.
4. To create a .Net program using Web application for Photo gallery to view pictures.
5. Write a PHP program to validate the Mail ID.
6. To create a MySQL program to generate basic commands with database.
7. To create a MySQL program to establish Administrative details over databases.
8. To create a MySQL program to establish Joins over the database.
9. To create a MySQL program to load and dump a database.
10. Write the shell script to check the status of file using test command.
11. Write a menu driven shell program to perform the following.
 - i. Enter the sentence in File.
 - ii. Search a whole word in an existing file.
 - iii. Quit.
12. Write a shell script to perform case conversion.

Semester wise distribution with Scheme of Examination
(For the Candidates admitted during the academic year 2012 – 2013 Batch)

Semester	Courses	Credits	Duration of Exam(ESE)	Marks		Total
				CIA	ESE	
I	Core I - Advanced Java	5	3	25	75	100
	Core II- Object Oriented Analysis and Design	4	3	25	75	100
	Core III - TCP/IP Networks & Applications	5	3	25	75	100
	Elective I – Advanced Data Structures	3	3	25	75	100
	Elective II – Compiler Design	3	3	25	75	100
	Core Practical I: Java Programming	4	3	40	60	100
II	Core IV – Advanced Operating System	5	3	25	75	100
	Core V – Web Technology	5	3	25	75	100
	Core VI - Data mining and Data Warehousing	4	3	25	75	100
	Core VII – Middleware Technologies	5	3	25	75	100
	Elective III – Design and Analysis of Algorithms	3	3	25	75	100
	Core Practical II: Web Technology	3	3	40	60	100
	Advanced Learners I – Nanotechnology	4*	3	-	100	100
III	Core VIII – WAP & XML	5	3	25	75	100
	Core IX - Software Testing	5	3	25	75	100
	Core X - Digital Image Processing.	5	3	25	75	100
	Core XI - Mobile Computing	5	3	25	75	100
	Elective IV -Embedded Systems	3	3	25	75	100
	Core Practical III- Digital Image Processing Using MAT Lab and XML	4	3	40	60	100
	Core Practical IV – Software Testing	4	3	40	60	100
IV	Project and Viva-voce	10	3	100	200	300
	Advanced Learners II – Neural Networks and Fuzzy Logic	4*	3	-	100	100

**M.Sc Computer Science
Semester- I**

Core III – TCP / IP Networks and Applications S.C: 12MS03

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 65Hrs

Preamble:

- A protocol for communication between computers, used as a standard for transmitting data over networks and as the basis for standard Internet protocols.
- The combination of a network and transport protocol developed by ARPANET for internetworking IP-based networks like the Internet.

Module I: [13 Hrs]

Introduction: Protocols and standards - OSI model and TCP / IP protocol suite - Underlying technologies.

Module II: [13 Hrs]

IP Addresses: Classful addressing –IP Addresses - Classless addressing - Delivery, Forwarding and Routing of IP Packets - ARP and RARP.

Module III: [13 Hrs]

Internet Protocol – Internet Control Message Protocol (ICMP) - IGMP: Inter Group Management Protocol (IGMP): IGMP messages – IGMP operation - Encapsulation, IGMP package – User Data Gram Protocol (UDP).

Module IV: [13Hrs]

Transmission Control Protocol (TCP): TCP Services, TCP Features – Segment – Flow Control - Error control - Congestion Control - TCP package - Unicast routing protocols(RIP, OSPF and BGP) : Distance vector routing – RIP – Link state routing – OSPF – BGP. Multicasting and multicast Routing Protocols: Unicast, Multicast and Broadcast – Multicast Applications – Multicast Routing - MOSPF – CBT - PIM .

Module V: [13 Hrs]

Host Configuration BOOTP and DHC - DNS : Name space – Resolution - Types of records – Electronic mail : SMTP, POP,IMAP – Next generation : IPv6 and ICMPv6 – Network Security.

Book for Study:

“TCP/IP protocol suite “,Behrouz Forouzan, Third edition, Tata McGrawhill..

Book for Reference:

“Internetworking with TCP / IP”, Douglas Comer, Vol – 1, PHI, 2000.

**M.Sc Computer Science
Semester- I**

Core Practical I - Java & Network S.C: 12MSP1

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 75Hrs

Advanced JAVA:

1. Program to implement packages to display employee information
2. Program to implement polymorphism, Inheritance and inner classes
3. Create a Frame. Use Menu to display different shapes with different colors in that frame
4. Program to implement Multithreading
5. Program to handle mouse events
6. Calculator using Applet
7. Program to maintain student information in Text File
8. Program to generate a text editor
9. Program for an application form using swings

10. Program using JDBC to access the database
11. Program to display a text message using RMI
12. Program to manipulate an image

Network Lab:

1. Study of Asynchronous and Synchronous Communication
2. Study Performance stop and wait an sliding & Window protocol
3. Study of different routing protocols
4. Study of RPC under Client-Server environment
5. Study of Different application standards in the areas of
 - File transfer access and management
 - Remote logging and virtual terminals
 - E-mail Systems
6. Study of Network Configurations and System details

**M.Sc. Computer Science
Semester - II**

Core IV - Advanced Operating System

S.C: 12MS04

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 65 Hrs

Preamble:

- Its primary objective is to concisely present a clear explanation of current state of the art in OS.
- It provides a clear description of design principles.
- Operating systems control and support the usage of computer systems
- Number of services to assist the users of the computer system:
- Implementations are very powerful and very robust, while other implementations are very simple.

Module I: **[13 Hrs]**

Introduction: What is an Operating System - History of Operating System – The Operating System Zoo – Operating system concepts – Operating System Structures – The Nature of the Design Problem – Interface Design.

Module II: **[13 Hrs]**

Process and Threads – Processes – Threads – Interprocess Communication – Classical IPC Problems – Scheduling – Deadlocks: Detection and Recovery, Avoidance and Prevention.

Module III: **[13 Hrs]**

File Systems – Files – Directories – File System Implementation. Case Studies: Design of UNIX/LINUX, WINDOWS 2000 – Operating System Design: Implementation – Trends in Operating System Design.

Module IV: **[13 Hrs]**

Distributed Operating System Concepts & Design - Fundamentals – Remote Procedure Calls: The RPC Model – Transparency of RPC – Implementing RPC mechanism- Stub Generation – RPC Messages – Marshaling Arguments and Results – Server Management – Parameter-passing Semantics – Call Semantics – Communication Protocol for RPC's. Distributed File System: Introduction – Desirable Features of a good distributed file system – File Models – File- Accessing Models – File-Sharing Semantics – File-Caching Schemes – File Replication - Fault Tolerance – Atomic Transaction.

Module V:**[13 Hrs]**

Real-Time Operating Systems and Microkernel's: Characteristics of Real-Time Systems
– Scheduling for Real-Time Systems - Microkernel's and RTOS.

Books for Study:

Book 1: "Modern Operating Systems", Andrew S.Tanenbaum, Prentice Hall of India, Second Edition, 2004.

Book 2: "Distributed Operating Systems concepts and Design", Pradeep K.Sinha, Prentice Hall of India, 2004.

Book 3: "An Introduction to Operating Systems concepts and Practice", Pramod Chandra P.Bhatt, PHI, 2003.

Book for Reference:

1. "System Programming and Operating Systems", D.M.Dhamdhare, Tata McGraw Hill Publishing Co. Ltd-2003.

2. "Operating System a concept based approach", D.M.Dhamdhare, Tata McGraw Hill Publishing Co.Ltd-2003.

M.Sc Computer Science**Semester - II****Core VI - Data Mining and Data Warehousing S.C: 12MS06**

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 65 Hrs

Preamble:

- The extraction of hidden predictive information from large databases.
- Data mining techniques are the result of a long process of research and product development.
- Data mining tools sweep through databases and identify previously hidden patterns in one step.
- Data mining tools predict future trends and behaviors, allowing businesses to make proactive, knowledge-driven decisions.
- Discovering hidden value in your data warehouse
- Integrated with a data warehouse as well as flexible interactive business analysis tools.
- An OLAP server enables a more sophisticated end-user business model to be applied when navigating the data warehouse.

Module I:**[13 Hrs]**

Introduction - Visualizing and Exploring Data – Data Analysis and Uncertainty.

Module II:**[13 Hrs]**

Models and Patterns – Search and Optimization Methods – Data Organization and Databases.

Module III:**[13 Hrs]**

Data Warehouse – Introduction, Data Warehouse Architecture: System Processes – Process Architecture, DESIGN: Database schema – Partitioning Strategy – Aggregations – Data Mining – Metadata.

Module IV:**[13 Hrs]**

Hardware and Operational Design: Hardware Architecture - Physical Layout- Security – Backup and Recovery – Service Level Agreement – Operating and Data Warehouse.

Module V:**[13 Hrs]**

Capacity Planning – Tuning The Data Warehouse – Testing the Data Warehouse – Data Warehouse Futures.

Book for Study:

Book 1: "Principles of Data Mining", David Hand, Heikki Mannila and Padhraic Smyth, PHI Learning Private Limited, 2009.

Book 2: "Data Warehousing in the Real World", Sam Anahory and Dennis Murray,

Pearson Education, 2009.

Book for Reference:

1. "Data Mining", Pieter Adriaans, Dolf Zantinge, Pearson Education, 2004.
2. "Data Mining Concepts and Techniques", Jiawei Han and Micheline Kamber, Morgan Kaufmann Publishers, Second Edition, 2006

M.Sc. Computer Science

Semester – II

Core Practical II – Web Technology

S.C: 12MSP2

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 52Hrs

ASP.Net Program:

1. Program to calculate employee salary.
2. Program for supplier details Using .NET.
3. Write a program to create a web based calculator.
4. Write a program to retrieve cookies.
5. Write a program to retrieve browser capability.
6. Write a program to create advertisement with alternative text using AdRotator Component.
7. Validation control using registration form in C#.NET.
8. Write a program to create Master Page.
9. Write a program for database connectivity for student information.
10. Write a program to count the visitors of the page using View State Management.
11. Check whether the given number is Armstrong number or not using Java Script.
12. Prepare String functions in VB Script.
13. Sort a list of N numbers and display the Lowest and Highest value in the list.
14. Design a web page for bank operation and generate report.

M.Sc. Computer Science

Semester – III

Core IX – Software Testing

S.C: 12MS09

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 52Hrs

Preamble:

- To make students understand the principles of software testing
- To explain the basics of software testing
- To identify the issues in testing management
- To bring out the ways and means of controlling and monitoring testing activity

Module I:

[10 Hrs]

What is a Defect? – The Business Perspective for Testing – Testing An Organizational Issue – Establishing a Testing Policy - Structured Approach to Testing – Test Strategy - Developing a Test Strategy. Establishing a Software Testing Methodology: What Are You testing For? Why Are Defects Hard to Find? – What are verification and validation?- Eight considerations in Developing Testing Methodologies.

Module II:

[10Hrs]

White Box Testing – Black Box Testing – Integration Testing- System and Acceptance Testing-.

Module III:

[11 Hrs]

Performance Testing - Regression Testing – Internationalization Testing – Adhoc Testing.

Module IV:

[10 Hrs]

Testing planning management execution and reporting –Testing Metrics and measurement.

Module V:**[11 Hrs]**

Software Testing Tools : An Overview – WinRunner - Silk Test – Load Runner – Quick Test Professional.

Books for study:

1. William E. Perry "Effective Methods for Software Testing", Second Edition, John Wiley & sons, Inc, 2000
2. Srinivasan Desikan, Gopalswamy Ramesh, "Software Testing – Principles and Practices", Pearson Education.
3. Dr. K. V. K. K. Prasad, 2007, "Software Testing Tools", DreamTech press

Book for Reference:

B. Beizer, 2003, "Software Testing Techniques", II edn., DreamTech India New Delhi.
Marnie L. Hutcheson, "Software Testing Fundamentals- Methods and Metrics", Wiley-India.

M.Sc. Computer Science**Semester - III****Core X - Digital Image Processing****S.C: 12MS10****(For the Candidates admitted during the academic year 2013 – 2014 Batch) 65 Hrs****Preamble:**

- Allows visualizing and presenting your images in several dimensions.
- The functionality of this imaging toolbox expands constantly with a wide range of different modules.
- A more intuitive presentation in some areas, such as image transforms and image restoration.
- To introduce the students to the basic concepts and analytical methods of satellite remote sensing as applied to environmental systems.
- The primary objective of the is to provide students with the skills and knowledge to apply remote sensing to their own research problems.
- Digital Image Processing indicates that the new, shortened coverage of object recognition is a logical place.

Module I:**[13 Hrs]**

Introduction – The image, its representations and Properties – The image, its Mathematical and Physical background – Data structure for image analysis.

Module II:**[13 Hrs]**

Image preprocessing – Segmentation I – Segmentation II.

Module III:**[13 Hrs]**

Shape representation and description – Object recognition – Image understanding.

Module IV:**[13 Hrs]**

3D Vision, Geometry – Use of 3D Vision – Mathematical Morphology.

Module V:**[13 Hrs]**

Image data compression – Textures – Motion Analysis.

Book for Study:

"Digital Image Processing and Computer Vision", Milan Sonka, Vaclav Hlavac, Roger Boyle, Cengage Learning India Private Limited, 2008

Book for Reference:

1. "Digital Image Processing and Analysis", B. Chanda, D. Dutta Majumder, PHI, 2003
2. "Digital Image Processing", Rafael C Gonzale, Richard E Woods, Second edition, Pearson Education.

M.Sc. Computer Science**Semester – III****Elective IV – Embedded Systems****S.C: 12MSE4****(For the Candidates admitted during the academic year 2013 – 2014 Batch) 65Hrs**

Preamble:

- Embedded system tools and products are evolving rapidly.
- This deals with various approaches to building embedded systems.
- It introduces unified view of hardware and software.
- The aim of this is to make the students aware of the various applications of embedded systems.

Module I:**[13 Hrs]**

Fundamentals To Embedded Systems: Definition and Classification – Overview of Processors and Hardware Modules in an Embedded System – Software Embedded into the System – Exemplary Embedded Systems – Embedded Systems on a Chip (SoC) and the Use of VLSI Designed Circuits.

Module II:**[13 Hrs]**

Devices And Buses For Devices Network: I/O Devices – Device I/O Types and Examples – Synchronous – ISO-synchronous and Asynchronous Communications from Serial Devices – Examples of Internal Serial-Communication Devices – UART and HDLC – Parallel Port Devices – Sophisticated interfacing features in Devices/Ports – Timer and Counting Devices – ‘12C’– ‘USB’– ‘CAN’ and Advanced I/O SerialHigh Speed Buses – ISA – PCI – PCI – X – CPCI and Advanced buses.

Module III:**[13 Hrs]**

Embedded Programming: Programming in Assembly Language (ALP) vs. High Level Language – C Program Elements – Macros and Functions – Use of Pointers – NULL Pointers – Use of Function Calls – Multiple Function Calls in a Cyclic Order in the Main Function Pointers – Function Queues and Interrupt Service Routines Queues Pointers – Concepts of EMBEDDED PROGRAMMING in C++ – Objected Oriented Programming – Embedded Programming in C++ – ‘C’ Program compilers –Cross compiler – Optimization of Memory Codes.

Module IV:**[13 Hrs]**

Real Time Operating Systems: OS Services – Interrupt Routines Handling – Task Scheduling Models – Handling of Task Scheduling and Latency and Deadlines as Performance Metrics – Inter Process Communication and Synchronization – Shared Data Problem – Use of Semaphore(s) – Priority Inversion Problem and Deadlock Situations – Inter Process Communications using Signals – Semaphore Flag or Mutex as Resource key – Message Queues – Mailboxes – Pipes – Virtual (Logical) Sockets – RPCs.

Module V:**[13 Hrs]**

Real Time Operating Systems: Study of RTOS– VxWorks – Basic Features – Task Management Library at the System – Library Header File – VxWorks System Functions and System Tasks – Inter Process (Task) Communication Functions – Case Study of Coding for Sending Application Layer Byte Streams on a TCP/IP Network Using RTOS Vxworks.

Book for study

1. “Embedded Systems Architecture, Programming and Design”, Rajkamal, Tata McGraw Hill, Copyright Year: 2008.

Book for Reference

1. “An Embedded Software Primer”, David E. Simon, Pearson Education Asia, First Indian Reprint, 2000.

M.Sc Computer Science**Semester-III****Core Practical III: Digital Image Processing Using MAT Lab and XML S.C: 12MSP3**

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 52 Hrs

List of Programs**Digital Image Processing Lab**

1. Write a Program for Contra Stretching.

2. Write a Program to smoothen a Blue red image.
3. Write a Program to Sharpen an Image.
4. Write a Program to shrink and enlarge an image.
5. Perform Segmentation.
6. Compress a given Image.
7. Write a Program for color processing.
8. Perform Morphological operation.
9. Generate Image descriptors or features.
10. Write a Program to classifying the various object of an image.

XML Lab

1. Create an XML document to store an address book and create DTD.
2. Create an XML schema for the book's XML document.
3. Create an XML document to store resumes for a job web site and create the DTD file.
4. Present the book's XML document using cascading style sheets (CSS).
5. Create an XML schema for viewing food menu.
6. Create an application for the CD Catalog.
7. Create an XML document for inventory and create the DTD file.

M.Sc Computer Science

Semester-III

Core Practical IV – Software Testing

S.C: 12MSP4

(For the Candidates admitted during the academic year 2013 – 2014 Batch) 38Hrs

List of Programs:

1. Develop a software Requirement specification for Hotel Management System.
2. To Generate Module testing report for Online Ticket Booking System.
3. To test the application by synchronization testing using win runner.
4. Recording and running Test cases for calculator operations.
5. Create the test cases using the bitmap and database checkpoints.
6. Create the test cases using the text and GUI checkpoints.
7. Create a program data driver wizard.
8. Write a program to implement black box testing technique using Domain testing automated, credit and information.
9. Write a program to implement ATM password checking using security test.
10. Perform white box testing for Book store management

Curriculum Design
SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiyar University
 Department of Computer Applications
 Scheme of Examination-CBCS Pattern
 Programme: B.C.A
 (For the students admitted from the academic year **2017-2018** onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
117BT1/ 117MY1/ 117HD1/ 117FR1 117EN1 117K01 117KP1 117AK1 117EVS	Semester I						
	Part I: Language-I	6	3	25	75	100	4
	Part II: English I	6	3	25	75	100	4
	Part III						
	Core I – Programming in C with Data Structure	5	3	25	75	100	4
	Core Practical I – Programming in C with Data Structure	5	3	40	60	100	4
	Allied I – Basic Mathematics and Statistics	6	3	25	75	100	4
	Part IV: Environmental Studies	2	2	50	-	50	2
217BT2/ 217MY2/ 217HD2/ 217FR2 217EN2 217K02 217K03 217KP2 217AK2 217VEC	Semester II						
	Part I: Language - II	6	3	25	75	100	4
	Part II: English II	6	3	25	75	100	4
	Part III						
	Core II – Object Oriented Programming	3	3	25	75	100	4
	Core III – Digital Fundamentals and Computer Architecture	3	3	25	50	75	3
	Core Practical II – Object Oriented Programming	4	3	40	60	100	4
	Allied II – Discrete Mathematics	6	3	25	75	100	4
	Part IV: Value Education	2	2	50	-	50	2

	Semester III						
	Part III						
317K04	Core IV– Programming in Java	4	3	25	75	100	4
317K05	Core V – Computer Graphics and Multimedia	5	3	25	50	75	3
317K06	Core VI – Principles of Operating System	5	3	25	50	75	3
317KP3	Core Practical III– Programming in Java	5	3	40	60	100	4
317AK3	Allied III–Operations Research	6	3	25	75	100	4
	Part IV						
317NFM	Non Major Elective: Basics of Internet	2	2	50	-	50	2
317KS1	Skill Enhancement Course I : Interactive Media – Surfing Techniques	3	3	75	-	75	3
	Semester IV						
	Part III						
417K07	Core VII – Visual Programming	4	3	25	75	100	4
417K08	Core VIII –Relational Database Management System	4	3	25	75	100	4
417K09	Core IX– Software Engineering and Testing	5	3	25	50	75	3
417KP4	Core Practical IV– Visual Programming and RDBMS	6	3	40	60	100	4
417AK4	Allied IV –Principles of Accountancy	6	3	25	75	100	4
	Part IV						
417NGA	General Awareness	-	1	50	-	50	2
417KS2	Skill Enhancement Course II : Interactive Media - Web Designing	3	3	75	-	75	3
417GIS	Information Security	2	2	50	-	Grade	Grade
417ALK	Advanced Learners Course I – Cloud Computing	-	3	-	100	100	4*
	Semester V						
	Part III						
517K10	Core X – VB.Net	5	3	25	75	100	4
517K11	Core XI – Data Communication Network	5	3	25	75	100	4
517K12	Core XII – Data Mining and Warehousing	5	3	25	50	75	3
517KP5	Core Practical V – VB.Net	6	3	40	60	100	4
517KE1 /517GE1	Elective I : Information Storage and Management / Compiler Design	6	3	25	75	100	4
	Part IV						
517KS3	Skill Enhancement Course III : Interactive Media - Animation Techniques	3	3	75	-	75	3

	Semester VI						
	Part III						
617K13	Core XIII – ASP.Net	4	3	25	75	100	4
617K14	Core XIV – Programming in PHP	5	3	25	50	75	3
617KP6	Core Practical VI - ASP.Net and PHP	6	3	40	60	100	4
	Elective II:						
617KE2	Basics of IoT	6	3	25	75	100	4
/ 617SE2	/ Mobile Computing						
617KPV	Project and Viva Voce	6	3	25	75	100	4
	Part IV:						
617KS4	Skill Enhancement Course IV : Interactive Media - Multimedia Systems	3	3	75	-	75	3
	Part V:						
617EX1/ 617EX2/ 617EX3/ 617EX4/ 617EX5	Extension Activity	-	-	50	-	50	2
617ALK	Advanced Learners Course II - Big Data Analytics with R and Hadoop	-	3	-	100	100	4*

Total

3500

140

- Starred Credits are treated as additional credits, which are optional.

Bachelor of Computer Applications

Semester II

Part III – Core III – Digital Fundamentals and Computer Architecture 217K03

(For the students admitted from the academic year 2017 - 2018 onwards)

Objectives

Total Hours: 38

- To impart the basic knowledge of digital components involved in the system.
- To provide idea to the students about the way the hardware components are connected together to form a computer system.

Unit I

[8 Hrs]

Number Systems and Binary Codes: Decimal System – Binary System – Octal System – Hexadecimal System – Binary Addition – 1's Complement of a Binary Number.

Unit II

[8 Hrs]

Boolean Algebra-Logic Gates-Karnaugh Map and Minimization: Gates – Inverter or NOT Gate – OR Gate - AND Gate – NOR Gate – NAND Gate – Exclusive OR Gate – Exclusive NOR Gate - Karnaugh Map-Construction and Properties – Don't Care Combinations.

Unit III

[8 Hrs]

Arithmetic and Logic Circuit: Half Adder – Full Adder – Half Subtractor – Full Subtractor. Sequential Circuits, Flip-Flops and Multivibrators: Sequential Circuits – Flip-Flops – R-S Flip-Flops – Clocked R-S Flip-Flop - Positive Edge Triggered J K Flip-Flop – T Flip-Flop.

Unit IV**[7 Hrs]**

Combinational Logic with MSI and LSI: Decoders-Multiplexers.

Registers, Counters, and the Memory Unit: Registers- Shift Registers- Ripple Counters.

Computer Design: Introduction – System Configuration –Computer Instructions- Timing and Control-Execution of Instructions- Design of Computer Registers-Design of Control.

Unit V**[7 Hrs]**

Microcomputer System Design: Microcomputer Organization – Microprocessor Organization – Instructions and Addressing Modes-Stack, Subroutines and Interrupt- Memory Organization –Direct Memory Access.

Books for Study

1. V.K.Puri, “Digital Electronics”, Tata McGraw-Hill Publishing Company Limited, Seventh Edition, 25th Reprint 2014 – [UNIT I, II, III].
2. M.Morris Mano, “Digital Logic and Computer Design”, Pearson India Education Services Pvt Ltd, Second Impression, 2017-[UNIT- IV, V].

Books for References

1. Thomas L Floyd, “Digital Fundamentals”, Pearson Education, First Edition, 2013.
2. P.V.S. Rao, “Computer System Architecture”, PHI Learning Private Limited, 2009.

Course Outcomes:

Upon successful completion, Students will be able to

CO	Description
CO 1	Understand and examine the structure of various number systems.
CO 2	Understand Boolean Algebra, Gates, Karnaugh’s Map and its applications in digital designing.
CO 3	Understand, analyze and design various combinational and sequential circuits.
CO 4	Analyze and prevent various hazards and timing problems in digital design and circuits.
CO 5	Acquire the basic requirements for design applications and purpose for a cost effective solution.

Curriculum Design
SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
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 Department of Computer Applications
 Scheme of Examination-CBCS Pattern
 Programme : B.C.A
 (For the students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
115BT1/ 115MY1/ 115HD1/ 115FR1 115EN1 115K01 115KP1 115AK1 115EVS	Semester I Part I: Language-I	6	3	25	75	100	4
	Part II: English I	6	3	25	75	100	4
	Part III Core I – Programming in C with Data Structure	5	3	25	75	100	4
	Core Practical I – Programming in C with Data Structure	5	3	40	60	100	4
	Allied I–Basic Mathematics	6	3	25	75	100	4
	Part IV: Environmental Studies	2	2	50	-	50	2
215BT2/ 215MY2/ 215HD2/ 215FR2 215EN2 215K02 215K03 215KP2 215AK2 215VEC	Semester II Part I: Language - II	6	3	25	75	100	4
	Part II: English II	6	3	25	75	100	4
	Part III Core II – Programming in C++	3	3	25	75	100	4
	Core III – Digital Fundamentals and Computer Architecture	3	3	25	50	75	3
	Core Practical II – Programming in C++	4	3	40	60	100	4
	Allied II – Discrete Mathematics	6	3	25	75	100	4
	Part IV: Value Education	2	2	50	-	50	2
315K04 315K05 315K06 315KP3 315AK3 315KS1	Semester III Part III Core IV– Programming in Java	4	3	25	75	100	4
	Core V – Operating System	5	3	25	50	75	3
	Core VI – Computer Graphics and Multimedia	5	3	25	50	75	3
	Core Practical III– Programming in Java	5	3	40	60	100	4
	Allied III–Operations Research	6	3	25	75	100	4
	Part IV Skill Based Course I : Interactive	3	3	75	-	75	3

315NFM	Media - Working Principles of Internet Non Major Elective Course I : Front Office Management	2	2	50	-	50	2
Semester IV							
Part III							
415K07	Core VII – Visual Basic	4	3	25	75	100	4
415K08	Core VIII –Relational Database Management System	4	3	25	75	100	4
415K09	Core IX– Software Engineering	5	3	25	50	75	3
415KP4	Core Practical IV– Visual Basic and RDBMS	6	3	40	60	100	4
415AK4	Allied IV –Accounting for Management	6	3	25	75	100	4
Part IV							
415KS2	Skill Based Course II : Interactive Media - Web Designing	3	3	75	-	75	3
415NGA	Non Major Elective Course II : General Awareness (Online)	-	1	50	-	50	2
415GIS	Information Security	2	2	50	-	Grade	Grade
415ALK	Advanced Learners Course I – Cloud Computing	-	3	-	100	100	4*
Semester V							
Part III							
515K10	Core X – VB.Net	5	3	25	75	100	4
515K11	Core XI – Computer Networks	5	3	25	75	100	4
515K12	Core XII – Enterprise Resource Planning	5	3	25	50	75	3
515KP5	Core Practical V – VB.Net	6	3	40	60	100	4
515KE1	Elective I – Data Mining	6	3	25	75	100	4
Part IV							
515KS3	Skill Based Course III : Interactive Media - Animation Techniques	3	3	75	-	75	3
Semester VI							
Part III							
615K13	Core XIII – ASP.Net	5	3	25	75	100	4
615K14	Core XIV - Client/Server Technology	5	3	25	50	75	3
615KP6	Core Practical VI - ASP.Net	5	3	40	60	100	4
615KE2	Elective II - Information Storage and Management	6	3	25	75	100	4
615KPV	Project and Viva Voce	6	3	25	75	100	4
615KS4	Part IV: Skill Based Course IV : Interactive Media - Multimedia Systems	3	3	75	-	75	3

615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V: Extension	-	-	50	-	50	2
615ALK	Advanced Learners Course II - Big Data Analytics with R and Hadoop	-	3	25	75	100	4*

Total

3500

140

- Starred Credits are treated as additional credits, which are optional.

Bachelor of Computer Applications

Semester II

Part III – Core III – Digital Fundamentals and Computer Architecture 215K03

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

Total Hours: 38

- This Papers endeavors to impart the basic knowledge of digital components involved in the system.
- Provides idea to the students about the way the hardware components are connected together to form a computer system.
- This paper is concerned with the structure and behavior of the various functional modules of the computer.

Unit I

[8 Hrs]

Number Systems and Binary Codes: Decimal System – Binary System – Octal System – Hexadecimal System – Binary Addition – 1's Complement of a Binary Number.

Unit II

[8 Hrs]

Boolean Algebra-Logic Gates-Karnaugh Map and Minimization: Gates – Inverter or NOT Gate – OR Gate - AND Gate – NOR Gate – NAND Gate – Exclusive OR Gate – Exclusive NOR Gate - Karnaugh Map-Construction and Properties – Don't Care Combinations.

Unit III

[8 Hrs]

Arithmetic and Logic Circuit: Half Adder – Full Adder – Half Subtractor – Full Subtractor. Sequential Circuits, Flip-Flops and Multivibrators: Sequential Circuits – Flip-Flops – R-S Flip-Flops – Clocked R-S Flip-Flop - Positive Edge Triggered J K Flip-Flop – T Flip-Flop.

Unit IV

[7 Hrs]

Registers and Counters: Decoders – Encoders – Multiplexers – Demultiplexers. Central Processing Module: General Register Organization – Stack Organization – Instruction Formats – Addressing Modes.

Unit V

[7 Hrs]

Input Output Organization: Asynchronous Data Transfer – Direct Memory Access.
Memory Organization: Auxiliary memory – Associative Memory – Cache Memory.

Books for Study

- 1.V.K.Puri , “ Digital Electronics” , Tata McGraw-Hill Publishing Company Limited, Seventh Edition, 25th Reprint 2014 – [UNIT I, II, III].
- 2.M.Morris Mano, “Computer System Architecture”, Prentice Hall of India, Third Edition, 2000-[UNIT- IV, V].

Bachelor of Computer Applications

Semester III

Part III - Core IV - Programming in Java

315K04

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 52

Preamble

- Java is used as platform independent language.
- It is a dynamic programming language with various graphical packages.
- It is used for Client/Server applications.

Unit I

[11 Hrs]

OOP and Java: Introduction - Objects and Classes – Encapsulation – Inheritance – Polymorphism - Evolution of Java Language - Java Development Kit - Features of Java- Structure of a Java Program - Creating and Executing a Simple Java Application. The Primaries: Introduction - Character Set - Lexical Issues – Constants - Variables – Operators - Arithmetic Expressions - Automatic Type Conversion in Expressions - Operator Precedence and Associativity.

Unit II

[11 Hrs]

Control Statements - Arrays and Methods - Classes And Objects: Introduction- General form of a class - Creation of Objects -Usage of Constructors - this keyword - Copy constructors - Static Data Members - Static Methods - finalize() Method. Inheritance and Polymorphism: Inheriting the variables in a Class - Inheriting the Methods in a Class - Inheritance and Constructors - Abstract Classes - Final Classes.

Unit III

[10 Hrs]

Interfaces and Packages: Interfaces: Structure of an Interface - Implementation of an Interface. Packages - Placing the Classes in a Package: Package Hierarchy – Hiding the classes in a Package - Access Control Modifiers.

Applets - Abstract Windowing Toolkit-I - Abstract Windowing Toolkit-II: Windows and Frames - Menus - Dialogs - Mouse Events and their Listeners.

Exception Handling: Default Exception Handling - Exception and Error Classes - Catch Block Searching Pattern - throw Statement– throws Clause.

Unit IV**[10 Hrs]**

Multithreading: Life Cycle of a Thread - Creating and Running Threads –Runnable Interface- Methods in the Thread Class - Setting the priority of a thread - Synchronization - Deadlock – Inter-thread Communication - Applets Involving Threads.

Unit V**[10 Hrs]**

Swing-Combo Boxes, Progress Bars, Tooltips, Seperators and Choosers - Understanding RMI.

Book for Study

1. C.Muthu, "Essentials of Java Programming", Vijay Nicole Imprints Private Limited, First Reprint 2009.
2. "JAVA 6 Programming Black Book", KOGENT Solutions Inc., DreamTech Press, New Delhi, 2009 [Unit V]

Reference

Spoken Tutorial Project Java as e-Resource for Learning -IIT, Mumbai under National Mission on Education through ICT, MHRD, Govt. of India.

**Bachelor of Computer Applications
Semester III**

Part III – Core V - Operating System

315K05

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 65**Preamble**

- OS is an essential component in Computer System.
- It provides the concept of Process Management and Task handling.
- It provides Multithreading facilities.

Unit I**[13 Hrs]**

Introduction: What is an Operating System? - Mainframe Systems – Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems – Real Time Systems – Handheld Systems. Computer – System Structures: Hardware Protection.

Operating-System Structures: System Components – Operating-System Services – System Calls – System Programs. Processes: Process Concept – Process Scheduling – Operations on Processes – Cooperating Processes – Interprocess Communication.

Unit II**[13 Hrs]**

Threads: Overview – Threading Issues. CPU Scheduling: Basic Concepts – Scheduling Criteria – Scheduling Algorithms – Multiple-Processor Scheduling – Real Time Scheduling.

Process Synchronization: The Critical-Section Problem – Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Critical Regions – Monitors.

Unit III**[13 Hrs]**

Deadlocks: System Model – Deadlock Characterization – Methods for handling Deadlocks -Deadlock Prevention – Deadlock Avoidance – Deadlock Detection – Recovery from Deadlock.

Memory Management: Swapping – Contiguous Memory Allocation – Paging
Segmentation - Segmentation with Paging.

Unit IV

[13 Hrs]

Virtual Memory: Demand Paging – Process Creation – Page Replacement – Allocation of Frames – Thrashing.

File – System Interface: File Concept – Access Methods – Directory Structure – File System Mounting – File Sharing – Protection.

Unit V

[13 Hrs]

File System Implementation: File System Structure – File System Implementation – Directory Implementation – Allocation Methods – Free-Space Management.

I/O Systems: Kernel I/O Subsystem. Mass-Storage Structure: Disk Structure – Disk Scheduling – Disk Management – Swap-Space Management. Case Study: The Linux System – Windows 2000.

Book for Study

Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, Sixth Edition, Ninth Reprint 2008.

Bachelor of Computer Applications Semester-III

Part III – Core VI – Computer Graphics and Multimedia 315K06

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 65

Preamble

- To provide students with an understanding of the algorithms and theories that forms the basis of computer graphics and modeling.
- It provides the key concepts of digital production of animation and visual effects with reference to workflow, people and technology.
- To understand the wonders of Graphics, Animation through Multimedia.

Unit I

[13 Hrs]

Overview of Graphics Systems: Video Display Devices-Refresh Cathode Ray Tubes-Raster Scan Displays - Color CRT Monitors – Direct-View Storage Tubes – Flat Panel Displays -Input devices-Hard Copy devices. Output Primitives: Points and Lines – DDA Algorithm - Bresenham’s Line Algorithm-Circle Generating Algorithm.

Unit II

[13 Hrs]

Two Dimensional Geometric Transformations: Basic Transformations-Matrix Representations and Homogeneous Coordinates - Other Transformation– Two Dimensional Viewing: The viewing pipeline-Viewing Coordinate Reference Frame-Window to Viewport Coordinate Transformations-Clipping operations, Point Clipping, Line Clipping: Cohen-Sutherland Line Clipping, Curve Clipping, Text Clipping.

Unit III

[13Hrs]

Three Dimensional Concepts – Three Dimensional Geometric and Modeling Transformations: Translation, Rotation, Scaling - Three Dimensional Viewing: Viewing Pipeline-Viewing Coordinates-Projections - Visible-Surface Detection Methods: Back-Face Detection- Depth-Buffer Method - A-Buffer Method -Scan Line Method.

Unit IV

[13Hrs]

What is Multimedia? – Text: Font Editing and Design Tools – Hypermedia and Hypertext –Sound: Multimedia System Sounds – Making MIDI Audio- MIDI Versus Digital Audio — Audio File Formats– Adding Sound to Your Multimedia Project. Images: Making Still Images – Color – Image File Formats. Animation: The Power of Motion – Principles of Animation – Making Animations that Work – Video: Using Video – How Video works – Analog Display Standards – Digital Video - Video Recording and Tape Formats - Shooting and Editing Video.

Unit V

[13Hrs]

Basic Software Tools-Multimedia Authoring Tools: Types of Authoring Tools – Card-and-Page-Based Authoring Tools – Icon and Object – Based Authoring Tools – Time- Based Authoring Tools — Cross-Platform Authoring Notes-Tools for the World Wide Web. Designing for the World Wide Web.

Books for Study

1. Donald Hearn, M.Pauline , Baker, “Computer Graphics”, Baker, Prentice-Hall India Private Limited Second Edition, Seventh impression 2008.
2. Tay Vaughan “Multimedia: Making it Work”, – Seventh Edition – Tata McGraw Hill Edition Fifth Reprint 2008.

Bachelor of Computer Applications Semester III

Part IV - Skill Based Course I: Interactive Media - Working Principles of Internet 315KS1
(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 38

List of Programs

1. Create an email-id and
 - a) Compose a mail.
 - b) With or without attaching a document.
2. Send a mail to a large number of recipients using cc and bcc options.
3. Forward a mail and to reply for a mail.
4. Download the attached document of a mail received.
5. Browse using a search engine.
6. Open and read newspaper sites, TV program schedules using the Internet.
7. Verify a University and College details by opening their websites.
8. Upload your resume with any one job portal.
9. Purchase any products in Online.
10. Book a ticket in any one travel / IRCTC.
11. To Register and study any course in Online Educational website.

12. To store a documents using google drive.

II UG Course

Semester III

Part IV – Non Major Elective Course I: Front Office Management 315NFM

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 25

List of Programs

Word Processor

1. Prepare a Timetable.
2. Create a document and perform
 - i. Aligning and Use Bulleting
 - ii. Add Page Numbers, Date and Time
 - iii. Find and Replace
 - iv. Change case
 - v. Insert header and footer
3. Prepare a Resume.
4. Using the concept of Mail Merge
 - i) Blood donation Camp
 - ii) Seminar Organisation
5. Prepare an Advertisement for Clean India.

Spreadsheet

6. Prepare a mark list for 5 subjects for a class and consolidate by using the formula:
Sum, Average, Max, Min, Count.
7. Create Employee details using Sort and Filter.
8. Prepare Student Information.

Presentation

9. Prepare Power point slides regarding Sports Day (Use Hyperlink)
10. Prepare slides using Custom Animation.

Internet

11. Create an E-Mail Account and Send a mail by attaching files.
12. Store and Surf the documents in Google drive.

Bachelor of Computer Applications

Semester IV

Part III - Core VIII – Relational Database Management System

415K08

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 52

Preamble

- It is designed to manage large amount of information.
- Helps the user to understand how the data are stored and maintained.
- It is used in various sectors such Banking, Airlines, Tele communication.

Unit I **[11 Hrs]**

Introduction: Database-System Applications - Purpose of Database Systems - View of Data - Database Languages - Relational Databases - Database Design - Object-Based and Semi structured Databases – Data Storage and Querying – Transaction Management - Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

Unit II **[11 Hrs]**

Relational Model: Structure of Relational Databases - Fundamental Relational-Algebra Operations - Additional Relational-Algebra Operations - Extended Relational-Algebra Operations - Null Values - Modification of the Database.

Unit III **[10 Hrs]**

SQL: Background - Data Definition - Basic Structure of SQL Queries - Set Operations - Aggregate Functions - Null Values - Nested Subqueries - Complex Queries - Views-Modification of the Database - Joined Relations. Advanced SQL: SQL Data Types and Schemas - Integrity Constraints – Authorization - Embedded SQL.

Unit IV **[10 Hrs]**

Other Relational Languages: The Tuple Relational Calculus – The Domain Relational Calculus – Query-by-Example. Database Design and the E-R Model: Overview of the Design Process – The Entity-Relationship Model – Constraints – Entity-Relationship Diagrams – Entity-Relationship Design Issues – Weak Entity Sets – Database Design for Banking Enterprise.

Unit V **[10 Hrs]**

Relational Database Design: Features of Good Relational Designs – Atomic Domains and First Normal Form – Decomposition Using Functional Dependencies – Functional-Dependency Theory – Decomposition Using Multivalued Dependencies – More Normal Forms – Database-Design Process.

Book for Study

Database System Concepts, Fifth edition, Abraham Silberschatz , Henry F. Korth, S. Sudarshan, McGraw-Hill, Fifth Edition 2006.

Bachelor of Computer Applications

Semester IV

Part III - Core IX – Software Engineering

415K09

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

Total Hours: 65

- To get acquainted with the systematic process of Software development.
- To get introduced to various Life Cycle Model.
- To ensure Quality Assurance.

Unit I **[13 Hrs]**

Introduction to Software Engineering: Software – The Changing Nature of Software – Software Myths. A Generic View of Process: Software Engineering-A layered Technology – A Process Framework. Process Model: The Waterfall Model – Incremental Process Models – Evolutionary Process Models.

Unit II [13 Hrs]

System Engineering: The System Engineering Hierarchy. Requirements Engineering: Requirements Engineering Tasks – Initiating the Requirement Engineering Process – Negotiating Requirements – Validating Requirements. Building the Analysis Model: Data Modeling Concepts – Flow-Oriented Modeling.

Unit III [13 Hrs]

Design Engineering: Design Concepts – Pattern-Based Software Design. Creating an Architectural Design: Data Design – Architectural Design – Mapping Data Flow into a Software Architecture.

Unit IV [13 Hrs]

Testing Strategies: A Strategic Approach to Software Testing – Strategic Issues – System Testing – The Art of Debugging. Testing Tactics: Software Testing Fundamentals – White-Box Testing – Control Structure Testing – Black-Box Testing.

Unit V [13 Hrs]

Risk Management: Software Risks – Risk Identification – Risk Refinement. Quality Management: Quality Concepts – Software Quality Assurance. Reengineering: Software Reengineering – Reverse Engineering – Restructuring.

Book for Study

Roger S. Pressman, “Software Engineering A Practitioner’s Approach”, McGraw Hill, Sixth Edition 2005.

Bachelor of Computer Applications

Semester IV

Part IV - Skill Based Course II: Interactive Media – Web Designing 415KS2
(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 38

List of Programs

1. Design a web page which displays text in physical & logical styles.
2. Create a web page with external and internal links.
3. Design a timetable using HTML tags.
4. Design a web page for hospital.
5. Create a web page with links between two frames.
6. Write a HTML program using image and list tags.
7. Create a web page in DHTML using Cascading Style Sheets (use all attributes).
8. Design a web page in DHTML using class in external style sheets.
9. Creating a JavaScript, which checks the contents entered in a form’s Text element. If the text entered is in lower case, convert to upper case.

10. Creating a web page, which accepts user information and user comments on the web site to check if all the Text fields have being entered with data else display an alert.

Bachelor of Computer Applications
Semester IV
Advanced Learners Course I-Cloud Computing **415ALK**
(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

- To identify the various technological drivers of cloud computing
- To familiarize with the latest developments in each of these enabling technologies
- To understand how each of these technological components contributes to the success of cloud computing.

Unit I

Introduction to Cloud Computing: Cloud Computing in a Nutshell – Roots of Cloud Computing – Layers and Types of Clouds – Desired Features of a Cloud – Cloud Infrastructure Management –Infrastructure as a Service Providers - Platform as a Service Providers – Challenges and Risks.

Unit II

Migrating into a Cloud: Introduction – Broad Approaches to Migrating into the Cloud – The Seven-Step Model of Migration into a Cloud – Conclusions. The Enterprise Cloud Computing Paradigm: Introduction - Background – Issues for Enterprise Applications on the Cloud – Transition Challenges - Enterprise Cloud Technology and Market Evolution – Business Drivers Toward a Market place for Enterprise Cloud Computing – The Cloud Supply Chain.

Unit III

On the Management of Virtual Machines for Cloud Infrastructures: The Anatomy of Cloud Infrastructures – Distributed Management of Virtual Infrastructure – Scheduling Techniques for Advance Reservation of Capacity – Capacity Management to meet SLA Commitments – Conclusions and Future Work. Enhancing Cloud Computing Environments Using a Cluster as a Service: Introduction- Related work – Cluster as a Service: The Logical Design – Proof of Concept. Secure Distributed Data Storage in Cloud Computing: Introduction – Cloud Storage: from LANs to WANs – Technologies for Data Security in Cloud Computing.

Unit IV

An Architecture for Federated Cloud Computing: Introduction – The Basic Principles of Cloud Computing – A model for Federated Cloud Computing – Security Considerations.SLA Management in Cloud Computing: A Service Provider's Perspective: Inspiration – Types of SLA – Life Cycle of SLA – SLA Management in Cloud. Data Security in the cloud: An Introduction to the idea of Data Security – The current state of Data Security in the cloud – Homo Sapiens and Digital Information – Cloud Computing and Identity – The cloud, Digital, Identity and Data security.

Unit V

Best Practices in Architecting Cloud Applications in the AWS Cloud – Introduction – Cloud Concepts – Cloud Best Practices – Future Research Directions. Legal Issues in Cloud Computing: Introduction – Data Privacy and Security Issues – Cloud Contracting models –

Commercial and Business Considerations–A Cloud User’s Viewpoint. Achieving Production Readiness for Cloud Services: Introduction – Service Management – Producer-Consumer Relationship – Cloud Service Life Cycle – Assessing Production Readiness

Books for Study

Rajkumar Buyya, James Broberg, Andrzej Goscinski “Cloud Computing: Principles and Paradigms” Wiley Publication 2011, Reprint 2013.

Bachelor of Computer Applications

Semester V

Part III – Core X - VB.Net

515K10

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 65

Preamble

- Provides the programmer with the knowledge needed to build real world GUI based applications.
- It provides an opportunity to develop Windows Application in RAD Model.
- It helps to build robust, secure and stable applications.

Unit I

[13 Hrs]

Introducing .NET: .NET Framework Overview – Common Type System – Common Language Specification – Common Intermediate Language – Just in Time Compiler – Virtual Execution System - .NET Framework Class Library – Why VB. NET? – Objects – Encapsulation – Overloading – Inheritance – Polymorphism – Constructors and Destructors – Interfaces – Free Threading – Delegates – Structured Exception Handling – Extended Markup Language (XML) – Web Services – Winforms – Console Applications – Assemblies – ADO.NET – Active Server Pages .NET (ASP.NET).

Data Types and Operators: Data Types – Declaration of Variables – Constants - Operators – Arithmetic Operators – Concatenation Operators – Relational Operators – Compound Assignment Operator – Logical Operators – Bitwise Operators – Scope of variables.

Unit II

[13 Hrs]

Control Statements: If Statements – Block-if – Nested ifs – Looping – Select-Case Statement – Goto Statement – Form Control – Events – Label – Text Box – Group Box Control – Check Box Control – Radio Button Control – Scroll Bar Control – Link Label - Arrays.

Unit III

[13 Hrs]

Procedures and Structures – Creating Menus and using Dialog boxes.

Unit IV

[13 Hrs]

Library Functions – Data Access with ADO.Net

Unit V

[13 Hrs]

Events, Delegates and Exception Handling – Advanced Controls and Making Reports in VB.NET

Books for Study

P.Radhaganesan, “VB.NET”, Scitech Pub Pvt Ltd, Chennai. Reprint March 2014.

**Bachelor of Computer Applications
Semester V****Part III – Core XI – Computer Networks****515K11****(For the students admitted from the academic year 2015 - 2016 onwards)****Preamble****Total Hours: 65**

- To understand the concepts of Data Communications.
- To study the functions of different Layers.
- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks.

Unit I**[13 Hrs]**

Introduction: Data Communication – Networks – Protocols and Standards. Basic Concepts: Line Configuration – Topology – Transmission Mode – Categories of Networks – Internetworks. The OSI Model: The Model – Functions of the Layers – TCP/IP Protocol Suite. Encoding and Modulating: Digital –To-Digital Conversion - Analog-To-Digital Conversion – Digital –To–Analog Conversion – Analog – To – Analog Conversion – Key Terms and Concepts.

Unit II**[13 Hrs]**

Transmission Media: Guided Media – Unguided Media – Transmission Impairment – Performance – Wavelength. Multiplexing: Many To One/One To Many – Frequency-Division Multiplexing (FDM) – Wave-Division Multiplexing (WDM) - Time-Division Multiplexing (TDM) – Multiplexing Application: The Telephone System – Digital Subscriber Line (DSL) – FTTC.

Unit III**[13 hrs]**

Error Detection and Correction: Types of Errors – Detection – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cyclic Redundancy Check (CRC) – Checksum – Error Correction. Data Link Control: Flow Control – Error Control. Data Link Protocols – Asynchronous Protocols – Synchronous Protocols – Character - Oriented Protocols – Bit-Oriented Protocols.

Unit IV**[13 Hrs]**

Switching: Circuit Switching – Packet Switching – Message Switching. Point-to-Point Protocol (PPP): Transition States – PPP Layers – Link Control Protocol (LCP) – Authentication – Network Control Protocol (NCP). Frame Relay: Introduction – Frame Relay Operation – Frame Relay Layers – Congestion Control – Leaky Bucket Algorithm – Traffic Control. Transport Layer: Duties of the Transport Layer – Connection – The OSI Transport Protocol.

Unit V**[13 Hrs]**

TCP/IP Protocol Suite: Part 2 Application Layer: Client-Server Model – Bootstrap Protocol (BOOTP) and Dynamic Host Configuration Protocol (DHCP) – Domain Name System (DNS) – TELNET – File Transfer Protocol (FTP) – Simple Mail Transfer Protocol – Simple Network Management Protocol (SNMP) – Hypertext Transfer Protocol (HTTP) – World Wide Web (WWW). VLANs and VPNs: VLAN – VPN – Key Terms and Concepts. Network Security – Four Aspects of Security – Privacy – Digital Signature – PGP – Access Authorization.

Book for Study

1. Behrouz A. Forouzan, "Data Communications and Networking", Published by Tata McGraw-Hill Education Private Limited New Delhi, 2003 Second Edition, 30th Reprint 2011.

Bachelor of Computer Applications**Semester V****Part IV – Core XII - Enterprise Resource Planning****515K12****(For the students admitted from the academic year 2015 - 2016 onwards)****Total Hours: 65****Preamble**

- To acquaint the basic knowledge about Enterprise Resource Planning.
- To develop an understanding on ERP Modules.
- Act as a solution to the Information Management Problems.
- Helps to understand the end to end integration.

Unit I**[13 Hrs]**

Introduction to ERP: Introduction – Common ERP Myths – A Brief History of ERP – The Advantages of ERP – Why ERP Packages Now – Over Expectations in ERP – Roadmap for Successful ERP Implementation. Basic Concepts of ERP: Introduction – Will ERP Fit the Ways a Company does Business – Why is ERP Important to a Company – ERP Market has Grown and will Continue to Grow – How does ERP Create Value.

Unit II**[13 Hrs]**

Risks and Benefits of ERP: Justifying ERP Investments – Quantifiable Benefits from an ERP System – The Intangible Benefits of ERP – Other Factors – Risks of ERP – Risk Factors of ERP Implementation – People Issues – Process Risks – Technological Risks – Implementation Issues – Operation and Maintenance Issues – Managing Risk on ERP Projects – Benefits of ERP.

Unit III**[13 Hrs]**

ERP and Related Technologies: Introduction – Business Process Reengineering (BPR) – Data Warehousing – Data Mining – On-line Analytical Processing (OLAP) – Product Life Cycle Management (PLM) – Supply Chain Management (SCM) – Customer Relationship Management (CRM) – Geographical Information Systems (GIS) – Intranets and Extranets – Advanced Technology and ERP Security – Technological Advancements – Middleware – Computer Crimes – Security and ERP – Computer Security – Crime and Security.

Unit IV**[13 Hrs]**

ERP Implementation Basics: Introduction – Why ERP – Technological, Operational, and Business Reasons for Implementing ERP – Implementation Challenges. ERP Implementation

Life Cycle: Introduction – Objectives of ERP Implementation – Different Phases of ERP Implementation – Why do Many ERP Implementations Fail. ERP Package Selection: Introduction – Why Many ERP Package Implementations Fail – ERP Package Evaluation and Selection – ERP Packages: Make or Buy.

Unit V

[13 Hrs]

ERP and eBusiness: Introduction – ERP and eBusiness – eBusiness-Supply Chain Integration – The eBusiness Process Model – Components of the eBusiness Supply Chain – ERP/eBusiness Integration. ERP, Internet and WWW-ERP II: Introduction – The Internet Explosion – ERP Internet and WWW – ERP to ERP II-Bringing ERP to the Entire Enterprise – Best Practice of ERP II.

Books for Study

Alexis Leon, “Enterprise Resource Planning”, Tata McGraw Hill, Second Edition, Eighth Reprint 2010.

Bachelor of Computer Applications

Semester V

Part IV - Skill Based Course III: Interactive Media – Animation Techniques 515KS3

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 38

List of Programs

1. Draw a butterfly using Oval tool, Circle tool and Pencil tool.
2. Create a shape with Pencil tool (Using Straight smooth and free form lines).
3. Draw a Pentagon using Vector Graphics Method.
4. Create a Drop Shadow effect with depth.
5. i) Create a text along a curved path.
ii) Draw a 3D ring.
6. Create a 3D Tunnel
7. Draw a picture in multiple frame using Onion Skin Effect.
8. Create a animated button with a gradient in the upstate and a text over it.
9. Create folders in the library with names, eyes, heads, mouth and nose. Create symbols with different types of eyes, head etc., and store in the corresponding folders. Using those symbols assemble different types of Faces.
10. Using multiple motion tweening effect, draw a pendulum.

Bachelor of Computer Applications

Semester VI

Part III – Elective I –Data Mining

515KE1

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

Total Hours: 75

- To introduce the fundamental concepts in Data Mining
- To understand the application of data mining techniques for real world problem.
- To develop skills for solving practical problems using Data Mining algorithms.

Unit I [15 Hrs]
Introduction – Data Mining – Functionalities – Classification of data mining systems – Major issues.

Unit II [15 Hrs]
Data preprocessing: Data cleaning – Data integration and transformation – Data reduction – Discretization and concept hierarchy generation. Data Mining Primitives & Tasks.

Unit III [15 Hrs]
Mining Rules: Association rule mining – Mining single dimensional Boolean association rule from transactional databases Mining Multidimensional association rules from relational databases and data warehouses.

Unit IV [15 Hrs]
Classification and prediction: What is classification - Issues regarding classification – Classification Methods and types.

Unit V [15 Hrs]
Cluster Analysis: Types of data in cluster analysis – Categorization of major methods in clustering & Partitioning.

Book for Study

Jiawei Han, Micheline Kamber, “Data Mining – Concepts and Techniques”, Morgan Kaufmann Publishers, Second Edition, 2006.

Bachelor of Computer Applications

Semester VI

Part III - Elective II- Information Storage and Management 615KE2

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 75

Preamble

- To improve the knowledge in Storage and Management of Corporate Information.
- Provides an overview of virtualization.

Unit I [15 Hrs]

Introduction to Information Storage and Management: Information Storage – Evolution of Storage Technology and Architecture – Data Center Infrastructure. Data Center Environment: Storage - Disk Drive Components – Disk Drive Performance – Host Access to Data – Storage Design Based on Application Requirements and Disk Performance.

Unit II [15 Hrs]
Data Protection: RAID: RAID Implementation Methods – RAID Array Components – RAID Levels – RAID Comparison. Intelligent Storage System: Components of an Intelligent Storage System – Types of Intelligent Storage Systems.

Unit III [15 Hrs]
Fiber Channel Storage Area Networks: Fiber Channel: Overview – The SAN and Its Evolution – Components of SAN – FC Connectivity – Switched Fabric Ports – Fiber Channel Architecture – FC SAN Topologies.

Unit IV**[15 Hrs]**

Network-Attached Storage: General-Purpose Servers vs. NAS Devices – Benefits of NAS – File Systems and Network File Sharing – Components of NAS – NAS File-Sharing Protocols – Factors Affecting NAS Performance. Object-Based and Unified Storage: Content-Addressed Storage.

Unit V**[15 Hrs]**

Securing the Storage Infrastructure: Information Security Framework – Risk Triad – Storage Security Domains – Security Implementations in Storage Networking.

Book for Study

Wiley, “Information Storage and Management”, EMC Education Services, Second Edition.

Bachelor of Computer Applications**Semester VI****Part III - Core XIII – ASP.Net****615K13****(For the students admitted from the academic year 2015 - 2016 onwards)****Total Hours: 65****Preamble**

- It is a technology which is very popular for developing web based applications.
- To Strengthen the knowledge in Web application development.
- Provide easy way for building web applications.

Unit I**[13 Hrs]**

Getting Set Up: What Is ASP.NET? – Setting Up For ASP.NET – The Development Environment – ASP and ASP.NET: An Overview – ASP.NET Programming Languages.

Unit II**[13 Hrs]**

Programming Basics: Basics of Programming – Program Flow – Effective Coding Techniques – Designing Applications –How Dynamic Website Applications Work – Processing ASP.NET Applications – Visual Basic .NET.

Unit III**[13 Hrs]**

Programming ASP.NET with Visual Basic .NET: VB.NET Programming Language Structures – Built-in ASP.NET Objects and Interactivity – The Response Object – The ASP Server Object.

Unit IV**[13 Hrs]**

ASP.NET Configuration, Scope and State: ASP.NET and Configuration – ASP.NET and State – The Application Object – ASP Sessions – The Session Object.

Unit V**[13 Hrs]**

ASP.NET and SQL Server: Using SQL Server – Using Databases in ASP.NET Applications – ActiveX Data Objects – The ADO.NET Object Model – Coding Structured Query Language (SQL).

Book for Study

Dave Mercer, “ASP.NET A Beginner’s Guide”, Tata McGraw Hill, Sixth Reprint 2008.

Bachelor of Computer Applications
Semester VI
Part III – Project and Viva Voce **615KPV**
(For the students admitted from the academic year 2015 - 2016 onwards)
Total Hours: 75

Preamble

- To inculcate research skills of the students.
- To enhance the application oriented learning.

Project Plan

Selection of Topic and Data collections	- 1 1/2 Months
Rough Draft & Final Draft Submission	- 1 1/2 Months

Bachelor of Computer Applications
Semester VI
Part IV - Skill Based Course IV: Interactive Media –Multimedia Systems **615KS4**
(For the students admitted from the academic year 2015 - 2016 onwards)
Total Hours: 38

List of Programs

Desktop Publishing

1. Create a Program using Drawing Tools
2. Create a logo using Corel Draw.
3. Create an invitation for College day.

Image Editing

4. Create a GIF transparency.
5. Design a 3D text.
6. Use the heal brush and make changes in an image.
7. Build a glow effect with stroke path.
8. Merge two or more layers with different effects.
9. Create type masking.
10. Build a filter based GIF animation.

Department of Computer Applications
(For Candidates admitted during the academic year 2012 – 2013 and onwards)
Semester wise Distribution with Scheme of Examinations

Sem	Courses	Credits	ESE Exam Duration	Marks		Total
				CIA	ESE	
I	Part I – Language I	3	3	25	75	100
	Part II – English I	3	3	25	75	100
	Part III: Core I – Programming in C	4	3	25	75	100
	Core Practical I – Programming in C	2	3	40	60	100
	Allied I – Basic Mathematics	5	3	25	75	100
	Part IV: Environmental Studies	2	-	50	-	50
II	Part I – Language II	3	3	25	75	100
	Part II – English II	3	3	25	75	100
	Part III: Core II – Digital Fundamentals & Computer Architecture	4	3	25	75	100
	Core III – Object Oriented Programming with C++	4	3	25	75	100
	Core Practical II – Object Oriented Programming with C++	2	3	40	60	100
	Allied II – Discrete Mathematics	5	3	25	75	100
	Part IV: Value Education	2	-	50	-	50
	Advanced Learners Course I – Software Industry Domains	3*	3	-	100	100
III	Part III: Core IV – Programming in Java	4	3	25	75	100
	Core V – Fundamentals of Data Structures	4	3	25	75	100
	Core VI – Operating System & its concepts	4	3	25	75	100
	Core Practical III – Programming in Java	2	3	40	60	100
	Allied III – Operations Research	5	3	25	75	100
	Part IV: Skill Based Course: I – HTML, DHTML & Dream Weaver	3	3	100	-	100
	Non Major Elective	2	-	75	-	75
IV	Part III: Core VII – Visual Basic	4	3	25	75	100
	Core VIII – RDBMS and Oracle	5	3	25	75	100

	Core IX – Software Engineering and Testing	4	3	25	75	100
	Core Practical IV – Visual Basic and RDBMS	2	3	40	60	100
	Allied IV – Financial and Management Accounting	5	3	25	75	100
	Part IV: Skill Based Course: II – Page maker and CorelDraw	3	3	100	-	100
	General Awareness	2	-	75	-	75
	Advanced Learners Course II – Distributed Operating System	3*	3	-	100	100
	Part V: Extension	1	-	50	-	50
V	Part III: Core X - .Net Programming	4	3	25	75	100
	Core XI – Computer Networks	5	3	25	75	100
	Core XII – Computer Graphics and Multimedia	4	3	25	75	100
	Core Practical V-.Net Programming and XML	2	3	40	60	100
	Elective I – WAP & XML	5	3	25	75	100
	Part IV: Skill Based Course: III – Photoshop	3	-	100	-	100
VI	Part III: Core XIII – Data Mining	4	3	25	75	100
	Core XIV – Mobile Computing	4	3	25	75	100
	Core XV – Cyber Security	4	3	25	75	100
	Elective II–Enterprise Resource Planning	5	3	25	75	100
	Project and Viva voce	5	3	25	75	100
	Part IV: Skill Based Course: IV-Flash	3	-	100	-	100
	Advanced Learners Course III – Client/Server Technology	3*	3	-	100	100
Total Credits		140				

Starred credits are treated as additional credits.

30% of the syllabus in each course should be taught using OHP, LCD & Seminars.

Note: Underlined portions are for Self Study.

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)
Semester II

Part III – Core II – Digital Fundamentals & Computer Architecture 212K02

Preamble

Total Hours: 52

- This Paper endeavors to impart the basic knowledge of digital components involved in the system.
- Provides idea to the students about the way the hardware components are connected together to form a computer system.
- This paper is concerned with the structure and behavior of the various functional modules of the computer.

Module I

[10 Hrs]

Binary System: Binary number – [Number Base Conversion – Octal and Hexadecimal Conversion – Complements] – Binary Codes. Boolean algebra And Logic Circuits: Basic Theorems and properties of Boolean algebra - Digital Logic Gates (AND, OR, NOT, NAND, NOR, XOR gates)

Module II

[11 Hrs]

Simplification of Boolean Function: The Karnaugh Map method – Product of sum simplification. Combinational Logic: Adder – Subtractors. Combinational Logic with MSI and LSI: Decoder – Multiplexers.

Module III

[11 Hrs]

Sequential Logic: Flip-flops.
Registers, Counters and the Memory Module: Ripple Counters – Synchronous counters.
Central Processing Module: General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer And Manipulation.

Module IV

[10 Hrs]

Computer Arithmetic: Addition and Subtraction – Multiplication Algorithms – Division Algorithms. Input Output Organization: Asynchronous Data Transfer – Direct Memory Access.

Module V

[10 Hrs]

Pipeline and Vector processing: Parallel Processing – Pipelining – [Arithmetic pipeline] – Instruction Pipeline – Vector Processing – Array Processor. Memory Organization: Auxiliary memory – Associative Memory – Cache Memory.

Books for Study:

1. M. Morris Mano, “Digital logic & Computer Design”, Prentice Hall of India PVT LTD, Edition 2007-[Module-I,II,III]
2. M. Morris Mano, “Computer System Architecture”, Prentice Hall of India, Third Edition, 2000-[Module- IV, V].

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)

Semester-III

Part III - Core IV – Programming in Java

312K04

Preamble

Total Hours: 52

- The students can develop their programming skills in GUI applications.
- Java is one of the popular programming languages for developing consumer electronic devices.
- It is an object-oriented language that enables students to create real world applications.

Module I

[11 Hrs]

Overview of JAVA Language-Constants, Variables and Data Types-Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Module II [10 Hrs]
Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces: Multiple Inheritance_– Packages: Putting Classes Together - Multithreaded Programming

Module III [10Hrs]
Managing Errors and Exceptions–Applet Programming – Graphics Programming.

Module IV [10Hrs]
AWT - Text Fields, Buttons, Checkboxes, Radio Buttons and Layouts. AWT- Lists, Choices, Text Areas, Scrollbars and Scroll Panes –AWT - Windows, Menus and Dialog Boxes.

Module V [11Hrs]
[Managing Input/Output files in JAVA] - Swing: Combo Boxes, Progress Bars, Tool tips, Separators and Choosers – Understanding RMI.

Books for study:

1. E. Balagurusamy, “Programming with JAVA A Primer”, Tata McGraw Hill Publishing -Company Limited, New Delhi, 2008. [Module- I, II, III, V].
2. “JAVA 6 Programming Black Book”, KOGENT Solutions Inc., DreamTech Press, New Delhi, 2009.-[Module-IV].

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)

Semester III

Part III – Core VI-Operating System and its concepts

312K06

Preamble:

Total Hours: 65

- This paper is unique in presenting the students a comprehensive framework for the design, study and implementation of Operating Systems.
- Operating Systems is an exciting software area because the design of an Operating System exerts a major influence on the overall function and performance of the entire computer.

Module I [13 Hrs]

Introduction to operating Systems: Introduction-What is an operating system-Early history: The 1940's and 1950's-The 1960's-The 1970's-The 1980's-History of the Internet and world wide web-The 1990's-2000 and beyond-*Operating system components and goals-Operating System architectures. Process and Threads : Process Concepts.

Module II [13 Hrs]

Thread Concepts: Introduction-Definition of thread-Thread States: Life cycle of thread-Thread operations-Threading models.

Asynchronous concurrent execution: Introduction-Mutual exclusion-Implementing mutual exclusion primitives-Semaphores. Concurrent Programming : Monitors- Deadlock and Indefinite postponement.

Module III [13 Hrs]

Processor Scheduling: Introduction-Scheduling levels-Preemptive versus non-preemptive scheduling-Priorities-Scheduling objectives- Scheduling criteria- [Scheduling algorithms-Multilevel feedback queues-Fair share scheduling]-Deadline Scheduling.

Module IV

[13 Hrs]

Real Memory organization and Management - Virtual Memory Organization: Virtual memory: Basic concepts-Paging-Segmentation. Virtual Memory Management.

Module V

[13 Hrs]

Disk Performance Optimization: Introduction-Evolution of secondary storage-Characteristics of Moving-Head disk storage-Why disk scheduling is necessary-Disk Scheduling strategies - Caching and Buffering. File and Database Systems: Files-File organization-File allocation-Case Study: Linux.

Book for Study :

1. H.M.Deitel, P.J.Deitel, D.R.Choffnes – “Operating System”, 3rd Edition, Pearson Education Incorporation, 4th Impression 2009.

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester III

Part IV Skill Based Course I-HTML, DHTML & Dream weaver S.C:312SS1

(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- Information plays a vital and dynamic role in HTML and DHTML
- DHTML is a new and emerging technology that has evolved to meet the increasing demand for eye catching and mind catching web sites.
- Dream weaver is a web development application allows users to preview websites in locally installed web browsers.

Module I:

[10 Hrs]

Introduction to Html-Hypertext markup language (HTML)-commonly used HTML commands-Titles & footers-Text formatting-Emphasizing material in a web page-Text styles-Other text effects.

Module II:

[7 Hrs]

Lists: Type of lists, Adding graphics to HTML Documents.

Module III:

[7 Hrs]

Tables-linking documents-frames

Module IV:

[7 Hrs]

Dynamic HTML-Cascading style sheets –Class-Using the ... -External style sheets-Using the <DIV>... </DIV>

Module V:

[7 Hrs]

Get Started with DreamWeaver>Create a Page with Text-Add Images and Hyperlinks to your Web Page

Books for study

1. Ivan Bayross, “HTML, DHTML, Java Script, perl, CGI”,BPB Publications, New Delhi, Reprinted 2011.
2. Michael Meadhra,”DreamWeaver 8 A Beginner’s Guide”,Dream Tech Press, Edition 2006.

List of programs:

- 1.Design a web page which displays text in physical & logical styles.
- 2.Create a web page with external and internal links.
- 3.Design a timetable using HTML tags.

- 4 Design a web page for hospital.
- 5 Create a web page with links between two frames.
6. Write a HTML program using image and list tags.
7. Create a web page in DHTML using Cascading Style Sheets (use all attributes).
8. Design a web page in DHTML using class in external style sheets.
9. Design a web page for online recruitment process using dreamweaver.
10. Design a web page showing your bio-data using dreamweaver.

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)

Semester IV

Part III - Core VIII – RDBMS & Oracle

412K08

Preamble:

Total Hours: 65 Hours

- It is an essential part of an education in computer science.
- It is used in various sectors such Banking, Airlines, Tele communication.
- Database systems are designed to manage large bodies of information.

Module I **[13 Hrs]**

Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling –Dependency –Normal forms – Dependency Diagrams -Denormalization – Another Example of Normalization.

Module II **[13 Hrs]**

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Module III

Interactive SQL Part I- Interactive SQL Part II. **[13 Hrs]**

Module IV **[13 Hrs]**

PL/SQL: Introduction to PL/SQL –PL/SQL Transactions-PL/SQL Database Objects: Database Triggers-Types of Trigger-Deleting a Trigger.

Module IV **[13 Hrs]**

PL/SQL Composite Data Types: Records – Tables –Varrays. **Named Blocks:** Procedures – Functions – Packages –Triggers –DataDictionary Views.

Books for Study:

1. Database Systems Using Oracle – Nilesh Shah, 2nd edition, PHI. [Unit I,II,V]
2. Ivan Bayross, “PL/SQL the Programming Language of Oracle”, Third Edition, BPB Publications, First Indian Edition 2005 Reprinted 2009.[Unit –III, IV]

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)

Semester IV

Part III - Core IX – Software Engineering & Testing

412K09

Preamble:

Total Hours: 52 Hours

- To improve the quality of software products and to increase the productivity and job satisfaction of software engineers.

- It is a systematic approach for development, operation and maintenance of software.
- To explain the basics of software testing.
- To highlight the strategies for software testing.

Module I **[10 Hrs]**

Introduction to Software Engineering – A Generic view of Process – Process Models-The Waterfall Model – Incremental Process Models – Evolutionary Process Models – Specialized Process Models-The Unified Process.

Module II **[11 Hrs]**

System Engineering: System Engineering Hierarchy- System Modeling – Requirements Engineering: Requirements Engineering Tasks, Initiating the Requirements Engineering Process, Eliciting Requirements- Developing Use Cases, Negotiating Requirements-Validating Requirements-Building the Analysis Model: Data Modeling Concepts, Flow Oriented Modeling.

Module III **[10 Hrs]**

Design Engineering: Design concepts, The Design model, Pattern based software design- Creating an Architectural Design: Data Design-Architectural Design-Mapping data Flow into a Software Architecture.

Module IV **[10 Hrs]**

Testing Strategies: A Strategic Approach to Software Testing, Strategic Issues- Testing Tactics: Software Testing Fundamentals, Black Box Testing and White Box Testing-White Box Testing- Basis Path Testing – Control Structure Testing- Black Box Testing- Testing for Specialized Environments, Architectures and Applications – Testing Patterns.

Module V **[11 Hrs]**

Flow/Graphs and Path Testing: Path Testing Basics: Path Testing – Loops- Predicate, Paths Predicates and Achievable paths – Path Instrumentation – Implement and Application of Path Testing – Transaction Flow Testing – Data Flow Testing: Data Flow Testing Strategies.

Book for Study:

1. Roger S.Pressman “Software Engineering: A Practitioner’s Approach”, Sixth Edition, McGraw-Hill International Edition-2005. [Module I,II,III,IV]
2. B. Beizer , 2009, “Software Testing Techniques”, Second Edition, DreamTech India, New Delhi. [Module V]

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)
Semester V

Part III Core X- .Net Programming

512K10

Preamble

Total Hours: 52 Hours

To gain .NET Programming Knowledge.

Module I **[11 Hrs]**

Introducing .NET: .NET framework overview - Common type system-Common language specifications-Common intermediate language - Just in time compiler-Virtual execution system-.NET framework class library-Namespace-Languages in .Net - Visual studio.net-Why vb.net?-Win forms-Console applications-Assemblies. Our first vb.net program - Data types & Operators - Control statements: If statement - Block if-Nested if-Looping - Select case statement-Goto statement-Exit-Intrinsic control list-Form control-Events-Labels-Text box-Group box-Check box-Radio button-Scroll bar control.

Module II **[11 Hrs]**

Arrays-Procedures & Structures: Subroutine procedures - Function procedures Property procedure – Functions - Calling a functions - Call by reference - Function with arrays - Function

with param Arrays - Function Overloading – Sub procedures - Invoking a sub procedures – Structure - Nested structure - Message box - Input box.

Module III [10 Hrs]

Creating Menus & Using Dialog Boxes – Library Functions in VB.net.

Module IV: [10 Hrs]

Data Access With ADO.NET – Making reports in VB.net.

Module V [10 Hrs]

ASP.NET 2.0 Essentials – Navigation Controls - Validation Controls.

Note: Italics denotes Self Study Topics

TEXT BOOK:

1. P.Radhaganesan, VB.NET, Scitech Pub Pvt Ltd, Chennai. Reprint Sep 2008.[Module 1,2,3,4]
2. Vikas Gupta & Kogent solutions Inc. Comdex.Net programming Course Kit, Dreamtech Press 2007 [Module 5].

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)
Semester V

Part III – Core XI – Computer Networks **512K11**

Preamble **Total Hours: 65 Hours**

- To understand the concepts of data communications.
- To study the functions of different layers.
- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks.

Module I [13 Hrs]

Introduction: Uses of Computer Networks- Network Hardware – Network Software: Protocol Hierarchies- Design Issues for the Layers – Connection Oriented and Connectionless Services - Reference Models: The OSI Reference Model- The TCP/IP Reference Model.

Module II [13 Hrs]

Transmission media: Guided media. Transmission of Digital data: Interfaces and modems: Digital data transmission-DTE-DCE-interface-Modems. Multiplexing: Many to One/One to Many-FDM-WDM-TDM-multiplexing application: the telephone system.

Module III: [13 Hrs]

Error detection and correction: Types of errors-detection-CRC-checksum-Error correction. Data link protocols: asynchronous protocols-synchronous protocols-Character oriented protocols. Local area networks: project – Ethernet. Frame relay: Congestion control-leaky bucket algorithm-Traffic control.

Module IV

[13 Hrs]

Switching: Circuit Switching – packet Switching – message Switching. Networking and internetworking devices: Routing algorithms- Distance vector routing-Link state routing.TCP/IP protocol suite: network layer-addressing-Subnetting.

Module V

[13Hrs]

Transport Layer: Duties of Transport Layer-connection. TCP/IP protocol suite: Transport layer. Presentation layer. Application layer: DNS. N/W security: digital signature. Access authorization..

Book for Study:

1. Andrew S. Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi, Fourth Edition, Sixth Impression, 2009. [Unit I]
2. “Data Communication and Networking”, Behrouz A. Forouzan, Tata McGraw-Hill edition 2003, Second edition update. [Unit II, III,IV,V]

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester IV

Part IV Skill Based Course II - PageMaker and CorelDraw S.C: 412SS2

(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- This Paper enlighten the students with the knowledge of CorelDraw And PageMaker
- This software helps the students to work and edit along with the images and pictures.

Module I:

[10 Hrs]

What's new in CorelDraw 12? – Interfacing with CorelDraw. Getting Started with CorelDraw12: Measuring and Drawing Helpers - Zooming and Viewing – Essential Objects Commands.

Module II:

[7 Hrs]

Working with object tools: Creating Basic Shapes – Drawing with Line Tools – Cutting, Shaping and Reshaping objects – Arranging and organizing objects.

Module III:

[7Hrs]

PageMaker Basics – Working with Publications – Drawing tools – Text tools.

Module IV:

[7 Hrs]

Importing Graphics – Transformations - Master Pages – Utilities

Module V:

[7 Hrs]

Working with Text – The Story Editor -Working with Frames – Working with Layers.

Book for Study:

1. SteveBain with Nick Wilkinson,”CorelDraw 12”DreamTech Publications.
2. Satish jain , “Trainning Guid – PageMaker 7”, BPB, Publications

List of Programs:

Corel Draw:

1. Create a program using Drawing Tools
2. Create a logo using Corel Draw.
3. Create an invitation for college day.

PageMaker:

1. Create a program to work with Layers.
2. Create a program using Drawing Tools

3. Create a program using Text tools.
4. Create a program to Import Images and align the images.
5. Create a program for Transformation of an object.
6. Create a program to work with Frames.
7. Create a program for masking a picture.

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)
Semester-V

Part III – Core XII – Computer Graphics and Multimedia

512K12

Preamble

Total Hours: 65 Hours

- To provide the students with an overview of the key concepts of digital production of animation and visual effects with reference to workflow, people and technology.
- To provide students with an understanding of the algorithms and theories that forms the basis of computer graphics and modeling.
- To understand the wonder of Graphics, Animation through Multimedia.

Module I

[13 Hrs]

Overview of Graphics Systems: Video Display Devices-Refresh Cathode Ray Tubes-Raster Scan Displays - Color CRT Monitors – Direct-View Storage Tubes – Flat Panel Displays -Input devices-Hard Copy devices. Output Primitives: Points and Lines – DDA Algorithm - Bresenham's Line Algorithm-Circle Generating Algorithm.

Module II

[13 Hrs]

Two Dimensional Geometric Transformations: Basic Transformations-Matrix Representations and Homogeneous Coordinates - Other Transformation– Two Dimensional Viewing: The viewing pipeline-Viewing Coordinate Reference Frame-Window to Viewport Coordinate Transformations-Clipping operations, Point Clipping, Line Clipping: Cohen-Sutherland Line Clipping, Curve Clipping, Text Clipping.

Module III

[13Hrs]

Three Dimensional Concepts – Three Dimensional Geometric and Modeling Transformations:Translation,Rotation,Scaling - Three Dimensional Viewing:Viewing Pipeline-Viewing Coordinates-Projections - Visible-Surface Detection Methods: Back-Face Detection-Depth-Buffer Method - A-Buffer Method -Scan Line Method.

Module IV

[13Hrs]

What is Multimedia? – Text: Font Editing and Design Tools – Hypermedia and Hypertext –Sound:Multimedia System Sounds – Making MIDI Audio- MIDI Versus Digital Audio — Audio File Formats– Adding Sound to Your Multimedia Project.Images: Making Still Images – Color – Image File Formats. Animation: The Power of Motion – Principles of Animation – Making Animations that Work – Video: Using Video – How Video works – Analog Display Standards – Digital Video - Video Recording and Tape Formats - Shooting and Editing Video.

Module V

[13Hrs]

Basic Software Tools-Multimedia Authoring Tools: Types of Authoring Tools – Card-and-Page-Based Authoring Tools – Icon and Object – Based Authoring Tools – Time- Based

Authoring Tools — Cross-Platform Authoring Notes-Tools for the World Wide Web. Designing for the World Wide Web.

Book for Study:

1. “Computer Graphics”, Donald Hearn, M.Pauline Baker, Prentice-Hall India Private Limited
Second Edition, 2007.
2. “Multimedia: Making it Work”, Tay Vaughan — 7th Edition – Tata McGraw Hill Edition – 2008.

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester V

Part IV Skill Based Course III – Photoshop S.C :512SS3

(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- Photoshop is an important tool for graphic designers and professionals who have to work with images.
- The syllabus starts with the basics of Photoshop and subsequently studies every aspect in detail.
- Different kinds of image effects can be developed with the Photoshop.
- The practical programs develop the skill to expert with Photoshop, which is a basic tool for multimedia and animation.

Module I:

[10 Hrs]

Starting Photoshop CS2: Getting started with Photoshop CS2– Opening an existing file- The Photoshop program window- Guidelines for working with toolbox- Screen modes- Creating a new file- Saving files.

Working with images: Vector and bitmap images- Opening recently used files- Image size- Editing images- Opening files created in illustrator or freehand- Color modes- Setting a current foreground and background colors- File formats.

Module II:

[7 Hrs]

Making selections: Making selection-The selection tools- The magnetic lasso tool- The grow and similar commands- Moving a portion of an image- Editing selections- Copying a selection into another image- Filling a selection – Transforming selections.

Module III:

[7 Hrs]

Painting, drawing and retouching tools: The painting tools- The drawing tools- The retouching tools.

Module IV:

[7 Hrs]

Layers: Layers palette- Working with layers- New layer via cut- New layer via copy- Hiding/showing layers- Repositioning layers- Flattening images-Working with adjustment layers- Layer effects.

Type: Creating type- Type tool- Converting point type to paragraph type- Converting type layers to standard layers- Type masking.

Module V:

[7 Hrs]

Filters: The filter menu- Filter gallery- Extract filter- Vanishing point filter- Artistic filters- Blur filters- Distort filters- Noise filters- Pixelate filters- Lighting effects.

Book for study:

“Photoshop CS2 in simple steps”, Shalini Gupta, Adity Gupta, Published by Dream tech press, 2006.

List of programs:

1. Create a GIF transparency.
2. Design a 3D text.
3. Use the heal brush and make changes in an image.
4. Build a glow effect with stroke path.
5. Show/ Hide a layer.
6. Merge two or more layers.
7. Create different layer effects.
8. Build lighting effects and difference clouds.
9. Annotate files with text and audio.
10. Create type masking.
11. Build a filter based GIF animations.
12. Create an advertisement.
13. Design a student identity card.
14. Create a newsletter.
15. Create an invitation.

Bachelor of Computer Applications
(For Candidates admitted from 2012 - 2013 Batch Only)

Semester-VI

Part III – Core XIII – Data Mining

612K13

Preamble

Total Hours: 65 Hours

- Data mining is the analysis of data for relationships that have not previously been discovered.
- It automatically analyzes and extracts knowledge from data.
- It develops highly detailed model of some large data set.
- A type of database application that looks for hidden patterns in large groups of data.

Module I

[13 Hrs]

Introduction: An expanding universe of data – Information as a production factor – Computer systems that can learn – Data mining – Data mining versus query tools – Data mining in marketing – Practical applications of data mining. What is learning? – Data mining and the data warehouse.

Module II

[13 Hrs]

The knowledge discovery process – Setting up a KDD Environment.

Module III

[13 Hrs]

Classification and Prediction: What is Classification? What is Prediction? – Issues regarding classification and prediction – Classification by decision tree Induction – Bayesian Classification – Rule Based Classification – Other classification methods – Prediction – Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Ensemble Methods – Model Selection.

Module IV

[13 Hrs]

Cluster Analysis: What is cluster analysis? – Types of Data in Cluster analysis – A Categorization of major clustering methods – Partitioning methods – hierarchical methods – Density Based Methods – Model based clustering methods – Clustering high dimensional data – Constraint based Cluster Analysis.

Module V

[13 Hrs]

Graph Mining, Social network Analysis and Multirelational data mining: Graph mining – Social network analysis – Multirelational Data mining. Application and trends in Data mining: Data mining Applications – Additional themes of Data mining – Social impacts of data mining – Trends in data mining.

Book for Study:

1. Pieter Adriaans, Dolf Zantinge, “Data Mining”, Pearson Education, 1998. [Module-I,II].
2. Jiawei Han and Micheline Kamber, “Data Mining Concepts and Techniques”, Morgan Kaufmann Publishers, Second Edition, 2006. [Module-III, IV, V].

Bachelor of Computer Applications (For Candidates admitted from 2012 - 2013 Batch Only) Semester VI

Part III – Elective II - Enterprise Resource Planning

612KE2

Preamble:

Total Hours: 75 Hours

To enrich the student in the concept of Enterprise Resource Planning.

Module I

[15 Hrs]

Introduction to ERP:– Introduction – Evolution of ERP – What is ERP? – Reasons for the growth of the ERP market – The advantage of ERP - Why do Many ERP implementations Fail? – Why Are ERP Packages Being Used Now?

Module II

[15 Hrs]

ERP-A Manufacturing Perspective:– Introduction – ERP – CAD/CAM –Materials Requirement planning (MRP) – Bill of Material – Closed loop MRP – Manufacturing Resource Planning (MRP-II) –Distribution Requirements Planning (DRP) – JIT and Kanban – Computer-aided-Design/computer-Aided-Manufacturing (CAD/CAM)- Product Data Management (PDM) – Data Management – Benefits of PDM- Make-to-Order (MTO)and Make-to-Stock(MTS) – Assemble-to –Order(ATO) – Engineer-to-order(ETO) – Configure-to-Order (CTO).

Module III

[15 Hrs]

ERP Modules:- Introduction – Finance – Plant Maintenance –Quality Management – Materials Managements – Benefits of ERP:– Introduction – Reduction of Lead-Time – On-time Shipment – Reduction in Cycle Time – Improved Resource Utilisation - Better Customer Satisfaction –Improved Supplier Performance – Increased Flexibility – Reduced Quality Costs – Improved Information Accuracy and Decision-making Capability.

Module IV

[15 Hrs]

ERP Implementation Lifecycle:– Introduction- Pre-evaluation Screening – **Package Evaluation** – Project Planning Phase – Gap Analysis – Reengineering – Configuration – Implementation Team Training – Testing – Going Live – End-user Training – Post-implementation (Maintenance mode).

Module V

[15 Hrs]

Future Directions in ERP:- Introduction – New Markets – New Channels – Faster Implementation Methodologies – Business Models and BAPIs – Convergence on Windows NT – Application Platforms – New Business Segments – More Features – Web Enabling – Market Snapshot.

TEXT BOOKS:

1. Alaxis leon, “ Enterprise Resource Planning”,Tata Mcgraw Hill , New Delhi.

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester VI

Part IV Skill Based IV –Flash

S.C:612SS4

(For the Candidates admitted during the academic year 2011-2012 Onwards) 38 Hrs

Preamble:

- This paper gives introductory knowledge about Flash and its application areas.
- The students are capable of doing Animation.
- Publishing a Flash Movie is also given.
- Flash Component technology helps the user to create forms to bind data and to stream video easily using predefined components.

Module I:

[10Hrs]

Introduction: Hierarchy of Flash movie-The work space-Toolbars-Toolbox-Timeline-Panels: Menus.

Module II:

[7 Hrs]

Panels: Design panels-Development panels-Other panels-Project Panels. Graphic Tools in Flash: Drawing tool-Object Selection Tools-Color Selection Tools-Viewing Tools.

Module III:

[7 Hrs]

Advanced Editing Techniques: Reshaping the Objects-Optimizing the Curves-Expand and insert the file-Softening the edges-Converting the lines to fills-Editing the gradient fill and the bitmap fill-Transformation-Arranging the elements-Aligning objects-Handling text-3D Graphics in Flash. Frames, Layers and Scenes: Frames-Layers-Scenes-Documents Properties.

Module IV:

[7 Hrs]

Symbols: Movies clip-Buttons-Graphic-Methods of creating symbols-Editing the symbol-Changing the behavior of the symbol-Instances-Animated symbol-Symbol from other Movie files-Library-Importing Pictures-Importing video clips-Component definition-Shared Library. Animation: Frame-by-Frame animation-Motion tweening –Shape tweening-Hybrid tweening-Text animation-3D Animation.

Module V:

[7 Hrs]

Adding sound to animation: Characteristics of digital sound's-Importing sound files-Exporting sound files-Sound effect settings-Editing the sound envelop-Synchronizing the sound with animation-Exporting the sound with animation. Publishing flash movie: Testing flash movies-File formats for publishing-Publish Preview command-Publish Command.

Book for Study:

“Flash MX 2004” V.V.Thiyagarjan and B.Anubumani, Tata McGraw-Hill Publishing Company Limited-New Delhi.

List of Programs:

1. Draw a Butterfly using Oval tool, Circle tool and Pencil tool.
2. Create a shape with Pencil tool (Using Straight smooth and free form lines).
3. Draw a Pentagon using Vector Graphics Method.
4. Create a Drop Shadow effect with depth.
 - i) Create a text along a curved path.
 - ii) Draw a 3D Ring.
5. Create a 3D Tunnel.
6. Draw a picture in multiple frame use Onion Skin Effect.
7. Create an animated button with a gradient in the upstate and a text over it.
8. Create folders in the library with names, eyes, heads, mouth and nose. Create symbols with different types of eyes, head etc., and store in the corresponding folders. Using those symbols assemble different types of Faces.
9. Using multiple motion tweening effect, draw a pendulum.

Department of Computer Applications

(For the Candidates admitted during the academic year **2011-2012** and Onwards)

Semester wise Distribution with Scheme of Examination

Sem	Courses	Credits	ESE Exam Duration	Marks		Total
				CIA	ESE	
I	Part I – Tamil Course I	3	3	25	75	100
	Part II – English Course I	3	3	25	75	100
	Part III:					
	Core Course I–Digital Fundamentals & Computer Architecture	4	3	25	75	100
	Core Course Practical I – Office Automation Tools	3	3	40	60	100
	Allied Course I–Basic Mathematics					
	Part IV : Environmental Studies	5	3	25	75	100
		2	2½	-	50	50
II	Part I – Tamil Course II	3	3	25	75	100
	Part II – English Course II	3	3	25	75	100
	Part III :					
	Core Course II – C Programming	4	3	25	75	100
	Core Course Practical II – C Programming	2	3	40	60	100
	Allied Course II – Discrete Mathematics	5	3	25	75	100
	Part IV : Value Education	2	2½	-	50	50
	Advanced Learners Course I – UNIX	3*	3	-	100	100

Sem	Courses	Credits	ESE Exam Duration	Marks		Total
				CIA	ESE	
III	Part III:					
	Core Course III–Object Oriented Programming with C++	4	3	25	75	100
	Core Course IV–Data Structures and Algorithms	5	3	25	75	100
	Core Course V–Operating Systems					
	Core Course Practical III–Object Oriented Programming with C++	4	3	25	75	100
	Allied Course III–Operations Research	2	3	40	60	100
	Part IV :	5	3	25	75	100
	Skill Based Course -Multimedia and Animation: Paper I–PageMaker and CorelDraw	3	3	25	75	100
	Non Major Elective Course I	2	3	-	75	75
IV	Part III :					
	Core Course VI – Visual Basic and Oracle	4	3	25	75	100
	Core Course VII–Relational Data Base Management System	5	3	25	75	100
	Core Course VIII–Software Engineering	4	3	25	75	100
	Core Course Practical IV–Visual Basic and RDBMS Programming					
	Allied Course IV – Financial and Management Accounting	3	3	40	60	100
	Part IV :	5	3	25	75	100
	Skill Based Course -Multimedia and Animation: Paper II–Photoshop	3	3	25	75	100
	Non Major Elective Course II	2	3	-	75	75
	Advanced Learners Course II–Distributed Operating System	3*	3	-	100	100

V	Part III :					
	Core Course IX – Java Programming	4	3	25	75	100
	Core Course X–Computer Networks	5	3	25	75	100
	Core Course XI–Computer Graphics	4	3	25	75	100
	Core Course Practical V – Java Programming and Computer Graphics	3	3	40	60	100
	Elective Course I–Client/Server Technology	5	3	25	75	100
	Part IV:					
VI	Skill Based Course -Multimedia and Animation: Paper III–Flash	3	3	25	75	100
	Part III :					
	Core Course XII – Network Security	4	3	25	75	100
	Core Course XIII–Mobile Computing	4	3	25	75	100
	Core Course XIV–Software Testing	4	3	25	75	100
	Elective Course II–Data Mining	5	3	25	75	100
	Elective Course III – Project and Viva Voce	5	3	25	75	100
	Part IV:					
	Skill Based Course - Multimedia and Animation: Paper IV-HTML, DHTML & Dream Weaver	3	3	25	75	100
	Part V: Extension					
	Advanced Learners Course III–Cryptography	1	-	50	-	50
		3*	3	-	100	100

140

Starred credits are treated as additional credits.

Non-Major Elective Course offered by the department–Desktop Publishing.

30% of the syllabus in each course should be taught using OHP, LCD & Seminars.

Note: Underlined portions are for Self Study.

Bachelor of Computer Applications
(For Candidates admitted from 2010-2011 & Onwards)
Semester-V

Part III - Core Course IX – Java Programming

Preamble

- The students can develop their programming skills in GUI applications.
- Java is one of the popular programming languages for developing consumer electronic devices.
- It is an object-oriented language that enables students to create real world applications.

Unit I

[12 Hrs]

Overview of JAVA Language-Constants, Variables and Data Types-Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Unit II

[12 Hrs]

Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces: Multiple Inheritance_– Packages: Putting Classes Together - Multithreaded Programming

Unit III

[12Hrs]

[Managing Errors and Exceptions]–Applet Programming – Graphics Programming.

Unit IV

[12Hrs]

AWT - Text Fields, Buttons, Checkboxes, Radio Buttons and Layouts.AWT- Lists, Choices, Text Areas, Scrollbars and Scroll Panes –AWT - Windows, Menus and Dialog Boxes.

Unit V

[12Hrs]

[Managing Input/Output files in JAVA] - Swing: Combo Boxes, Progress Bars, Tool tips, Separators and Choosers – Understanding RMI.

Books for study:

1. E. Balagurusamy, “Programming with JAVA A Primer”, Tata McGraw Hill Publishing -Company Limited, New Delhi, 2008. [Unit- I, II, III, V].
2. “JAVA 6 Programming Black Book”, KOAGENT Solutions Inc., DreamTech Press, New Delhi, 2009.-[Unit-IV].

Book for Reference:

1. Herbert Schildt, “JAVA 2 the Complete Reference”, Tata McGraw Hill Publishing Company Limited, New Delhi, Fifth Edition, 2005.

Bachelor of Computer Applications
(For Candidates admitted from 2010 - 2011 & Onwards)
Semester V

Part III – Core Course X - Computer Networks

Preamble

- To understand the concepts of data communications.
- To study the functions of different layers.
- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks.

Unit I

[12 Hrs]

Introduction: Uses of Computer Networks- Network Hardware – Network Software: Protocol Hierarchies- Design Issues for the Layers – Connection Oriented and Connectionless Services - Reference Models: The OSI Reference Model- The TCP/IP Reference Model.

Unit II

[12 Hrs]

The Physical Layer: Guided Transmission Media-Wireless Transmission – The Public Switched Telephone Network: Structure of the Telephone System –Trunks and Multiplexing – Switching – The Mobile Telephone System – Cable Television.

Unit III

[12 Hrs]

The Data Link Layer: The Data Link Layer Design Issues - Error Detection and Correction – Elementary Data Link Protocols- Example Data Link Protocols - The Medium Access Control Sublayer:The Channel Allocation Problem - The Multiple Access Protocols: ALOHA, Collision –Free Protocols, Bluetooth.

Unit IV

[12 Hrs]

The Network Layer: Network Layer Design Issues : Store-and-Forward Packet Switching, Services Provided to the Transport Layer - Routing Algorithms: Shortest Path Routing – Flooding - Distance Vector Routing - Link State Routing - Hierarchical Routing - Broadcast Routing-Congestion Control Algorithms: General Principles of Congestion Control - Congestion Prevention Policies-Quality of Service : Requirements – Techniques for Achieving Good Quality of Service.

Unit V

[12 Hrs]

The Transport Layer: The Transport Service - Elements of Transport Protocols: Addressing - Connection Establishment - Connection Release-Flow Control and Buffering. The Application Layer: DNS –The Domain Name System, Electronic Mail.

Book for Study:

1. Andrew S. Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi, Fourth Edition, Sixth Impression, 2009.

Books for Reference:

1. Larry L.Peterson and Peter S. Davie, “Computer Networks”, Harcourt Asia Pvt. Ltd., Second Edition.
2. William Stallings, “Data and Computer Communication”, Sixth Edition, Pearson Education, 2000.
3. Behrouz A. Forouzan, “Data Communications and Networking”, Fourth Edition Tata McGraw-Hill, Special Indian Edition 2006, Twelfth reprint 2009.

Bachelor of Computer Applications (For Candidates admitted from 2010 - 2011 & Onwards) Semester-V

Part III – Core Course XI – Computer Graphics

Preamble

- To provide the students with an overview of the key concepts of digital production of animation and visual effects with reference to workflow, people and technology.
- To give students practical experience in the production of 2D computer animation.
- To provide students with an understanding of the algorithms and theories that forms the basis of computer graphics and modeling.

Unit I

[12 Hrs]

Overview of Graphics Systems: Video display devices-Refresh Cathode tubes-Raster Scan Display-Random Scan Display-Color CRT Monitors-Direct –View Storage tubes-Flat plan Display-Three Dimensional Viewing Devices-Raster Scan System-Random Scan Systems-Input Devices-Hard Copy Devices.

Unit II

[12 Hrs]

Output Primitives: Points and Lines-Line Drawing Algorithms: DDA - Bresenham's Line Algorithm –Circle Generating Algorithm-Filled Area Primitives: Scan line Polygon Fill Algorithm. Two Dimensional Geometric Transformations: Basic Transformations-Matrix Representations and Homogeneous Coordinates- Composite Transformations –Other Transformation.

Unit III

[12 Hrs]

Two Dimensional Viewing: The Viewing Pipeline-Viewing Co-ordinate reference Frame-Window-to-View port Co-ordinate Transformation-Clipping Operations-Line Clipping: Cohen –Sutherland Line Clipping-Nicholl-Lee-Nicholl Line Clipping-Polygon Clipping: Sutherland-Hodgeman Polygon Clipping-Curve Clipping-Text Clipping.

Unit IV

[12 Hrs]

Three Dimensional Concepts -Three Dimensional Object Representations: Polygon Surfaces -Curved Lines and Surfaces-Quadric Surfaces -Spline Representations. Three Dimensional Geometric and Modeling Transformations: Translation-Rotation-Scaling-Other Transformation.

Unit V

[12 Hrs]

Visible–Surface Detection Methods: Classification of Visible- Surface Detection Algorithms-Back face Detection- Depth –Buffer Method- A-Buffer Method-Scan Line Method-Depth Sorting Method-Curved surfaces-Computer Animation.

Book for Study:

1. Donald Hearn, M.Pauline Baker “Computer Graphics”, Prentice-Hall India Private Limited Second Edition, 2007.

Books for Reference:

1. Zhigangxiang, Roy Phastock, “Computer Graphics”, Second Edition TMH.
2. Mahapatra (P.B), “Graphics Programming in C++”, Khan Publishers.
3. Newman (William M) “Principles of Interactive Computer Graphics”, Tata Mc Graw Hill Publication, 2004.

Bachelor of Computer Applications
(For Candidates admitted from 2010 - 2011 & onwards)
Semester VI
Part III - Core Course XIV – Software Testing

Preamble

- To explain the basics of software testing
- To highlight the strategies for software testing
- To identify the issues in testing management
- To bring out the ways and means of controlling and monitoring testing activity

Unit I **[12 Hrs]**

Introduction: The Purpose of Testing. Some Dichotomies: Testing Vs Debugging. - A Model for Testing the Taxonomy of Bugs.

Unit II **[12 Hrs]**

Flow/Graphs and Path Testing: Path Testing Basics: Path Testing – Loops- Predicate, Paths Predicates and Achievable paths. – Path Instrumentation – Implement and Application of Path Testing – Transaction Flow Testing Techniques – Data Flow Testing Strategies.

Unit III **[12 Hrs]**

Domain Testing: Domains and Paths – Domains and Interface Testing. Metrics and Complexity: Linguistic Metrics – Structural Metric. - Path Products and Path Expressions.

Unit IV **[12 Hrs]**

Syntax Testing: A Grammar for Formats – Test Case Generation. Logic Based Testing: Decision Tables. States, State Graphs and Transition Testing: State Graphs - State Testing.

Unit V **[12 Hrs]**

Software Testing Process: Verification and Validation - Levels of Testing – Testing Approaches – Types of Testing – Test Plan. Software Testing Tools: Win Runner – Silk Test.

Book for Study:

1. B. Beizer , 2009, “Software Testing Techniques”, Second Edition, DreamTech India, New Delhi. [Unit I,II,III,IV]
2. K.V.KK. Prasad, 2008, “Software Testing Tools”, DreamTech. India, New Delhi. [Unit V]

Book for Reference:

1. I. Burnstein, 2003, “Practical Software Testing”, Springer International Edition.
2. E. Kit, 1995, “Software Testing in the Real World: Improving the Process”, Pearson Education, Delhi.
3. R.Rajani, and P.P.Oak, 2004, “Software Testing”, Tata Mcgraw Hill, New Delhi.

Bachelor of Computer Applications
(For Candidates admitted from 2010 - 2011 & onwards)
Semester-VI
Part III – Elective Course II – Data Mining

Preamble

- Data mining is the analysis of data for relationships that have not previously been discovered.
- It automatically analyzes and extracts knowledge from data.
- It develops highly detailed model of some large data set.
- A type of database application that looks for hidden patterns in large groups of data.

Unit I **[15 Hrs]**

Introduction: An expanding universe of data – Information as a production factor – Computer systems that can learn – Data mining – Data mining versus query tools – Data mining in marketing – Practical applications of data mining. What is learning? – Data mining and the data warehouse.

Unit II**[15 Hrs]**

The knowledge discovery process – Setting up a KDD Environment.

Unit III**[15 Hrs]**

Classification and Prediction: What is Classification? What is Prediction? – Issues regarding classification and prediction – Classification by decision tree Induction – Bayesian Classification – Rule Based Classification – Other classification methods – Prediction – Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Ensemble Methods – Model Selection.

Unit IV**[15 Hrs]**

Cluster Analysis: What is cluster analysis? – Types of Data in Cluster analysis – A Categorization of major clustering methods – Partitioning methods – hierarchical methods – Density Based Methods – Model based clustering methods – Clustering high dimensional data – Constraint based Cluster Analysis.

Unit V**[15 Hrs]**

Graph Mining, Social network Analysis and Multirelational data mining: Graph mining – Social network analysis – Multirelational Data mining. Application and trends in Data mining: Data mining Applications – Additional themes of Data mining – Social impacts of data mining – Trends in data mining.

Book for Study:

1. Pieter Adriaans, Dolf Zantinge, “Data Mining”, Pearson Education, 1998. [Unit-I,II].
2. Jiawei Han and Micheline Kamber, “Data Mining Concepts and Techniques”, Morgan Kaufmann Publishers, Second Edition, 2006. [Unit-III, IV, V].

Book for Reference:

1. “Data Mining - Introductory and Advanced Topics”, Margaret H.Dunham, S.Sridhar, Dorling Kindersley (India) Pvt Ltd, 2006.

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Business Administration (Computer Application)
BBA (CA)
Scheme of Examination – CBCS Pattern
(For the students admitted from the academic year 2017-18 onwards)

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
117BT1/1 17MY1/ 117HD1/ 117FR1	Semester I Part I-Language I	6	3	25	75	100	4
117EN1	Part II- English I	6	3	25	75	100	4
117V01	Part III Core I - Principles Management	5	3	25	75	100	4
117V02	Core II- Managerial Skills	5	3	25	50	75	3
117AV1	Allied I - Office Automation Tools- Practical	6	3	40	60	100	4
117EVS	Part IV-Environmental Studies	2	2	50	--	50	2
217BT2	Semester II Part I-Language II	6	3	25	75	100	4
217EN2	Part II- English II	6	3	25	75	100	4
217V03	Part III Core III - Programming in C	3	3	25	50	75	3
217VP1	Core Practical I- Programming in C	2	3	20	30	50	2
217 B04/ 217R04/ 217V04	Core IV- Principles of Marketing	5	3	25	75	100	4
217AV2	Allied II –Principles of Accountancy	6	3	25	75	100	4
217VEC	Part IV-Value Education	2	2	50	--	50	2
317V05	Semester III Part III Core V- Business Organisation and Production Management	5	3	25	50	75	3
317 B06/ 317V06	Core VI– Commercial Law	5	3	25	75	100	4
317V07	Core VII- Programming in C++	3	3	25	50	75	3
317VP2	Core Practical II- Programming in C++	2	3	20	30	50	2

317V08	Core VIII – Human Resource Management	4	3	25	50	75	3
317AV3	Allied III –Business Environment	6	3	25	75	100	4
317NAD	Part IV-Non Major Elective - Principles of Advertising	2	2	50	--	50	3
317VS1	Skill Enhancement Course I-Principles of Banking	3	3	75	--	75	3
417V09	Semester IV Part III Core IX – Cost and Management Accounting	6	3	25	75	100	4
417V10	Core X– Organizational Behaviour	4	3	25	75	100	3
417V11	Core XI- Visual Programming	3	3	25	50	75	3
417VP3	Core Practical III- Visual Programming	2	3	20	30	50	2
417V12	Core XII - Advertising and Marketing Research	4	3	25	50	75	3
417AV4	Allied IV- Mathematical Techniques	6	3	25	75	100	4
417NGA	Part IV General Awareness	--	1	50	--	50	2
417VS2	Skill Enhancement Course II-Basic Banking Operations	3	3	75	--	75	3
417GIS	Information Security	2	2	50	--	Grade	Grade
417ALV	Advanced Learners Course I-Management thoughts in Thirukkural	--	3	--	100	100	4*

- *Starred credits are to be treated as additional credits which are optional

2017- 2018

SEMESTER – I
Part III – Core I – Principles of Management

117V01

(For the Candidates admitted from the academic year 2017-18 Onwards)

Course Objectives:

(65 Hours)

- To provide basic knowledge of concepts relating to management and organisation of a business concern.
- To instill skills about variety of management and organisational concepts.
- To acquaint the students with various forms of ownership in organization.

Unit I

Management - Nature and scope - functions - principles - process - scientific management. Planning - nature - process - types of plan. (13 Hours)

Unit II

Objectives- Nature - Management by Objective (MBO) - Policies and Procedures: features- kinds - Decision making: process – types of managerial decisions. (13 Hours)

Unit III

Organizing: organizational structure: types-Span of control- Delegation and Decentralization- line and staff relationship – Staffing – Directing: Nature. Controlling: characteristics- *requirements of an adequate control* – Co-ordination: Principles. (14 Hours)

Unit IV

Business – nature – scope - objectives- Forms of business organization -Sole Proprietorship and Joint Hindu undivided family: features - advantages and disadvantages – Partnership firm: features – merits and demerits - *Distinction between Partnership and Joint Hindu Family* – kinds of partners- dissolution of Partnership firm. (13 Hours)

Unit V

Company – features - classification - public vs private companies - formation of company – prospectus - advantages and disadvantages - Co-operative society : features – merits& demerits – types-chamber of commerce-trade association. (12 Hours)

Note: starred and underlined portions are for self study

Books for study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
P.N.Reddy	Principles of Business Organisation and Management	S.Chand & Company Ltd, Re-print 2009
B.P.Singh, T.N.Chhabra	Business Organisation and Management	Dhanpat Rai & Co (P) Ltd, 5 th Revised edition, 2004

Books for reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Y.K.Bhusan	Business Organisation and Management	Sultan Chand & Sons, New Delhi, Reprint 2007
L.M.Prasad	Principles of Management	Sultan Chand & Sons, New Delhi, Ninth edition, 2015

SEMESTER – I
Part III – Core II – Managerial Skills

117V02

(For the Candidates admitted from the academic year 2017-18 Onwards)

Course Objectives:

(65 Hours)

- To develop communication competence in prospective executives
- To inculcate critical thinking process
- To prepare the students on facing changes and challenges.

Unit I

Managing Self: Introduction – Genders and self – Importance – Process – SWOT Analysis. Self Esteem – Factors – High self-esteem - Low self-esteem - Ways to improve self-esteem. Managing Time: The 80:20 rule – Secrets of time management - *Time management tips*. (13 Hours)

Unit II

Interpersonal skills: Introduction – Stages – Transactional analysis - Ways to improve – Johari Window – Life Positions – Characteristics. Boss-subordinate Relationship: Introduction – Steps in building relationship. (13 Hours)

Unit III

Strategic thinking: Stages – Scope – Importance – Characteristics of strategic thinkers. Lateral thinking: Introduction – uses – Needs – Benefits – Techniques. (13 Hours)

Unit IV

Facing changes: Adapting and understanding change – changes related to people, organisation and system – change and business development – Principles of change management – Models. Facing challenges: Introduction – Benefits – facing challenges in life. (13 Hours)

Unit V

Developing human network: Introduction – Relationship building – benefits – guidelines – Effective networking. Balancing work and life: Introduction – Importance - *Tips for balancing work and life*- Elements. (13 Hours)

Note: starred and underlined portions are for self study.

Book for Study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.K.Alex	Managerial Skills	S.Chand & Co, 2016 Edition

Book for Reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
VSP.Rao	Management text and cases	Excel books, 2 nd edition,2010

SEMESTER – I
Part III- Allied I – Office Automation Tools- Practical

117AV1

(For the Candidates admitted from the academic year 2017-18 Onwards)

Course Objectives:

(75 Hours)

- To make the students become productive by acquiring a basic knowledge about Microsoft Office Tools.

- To design and format Word documents and PowerPoint presentations for managerial activities.
- To display content including data artfully and effectively using Excel, PowerPoint and Word documents.

List of Programs

I. MS Word

1. Type a paragraph and perform the following changes:
Font size
Font style
Line spacing
Page setup (margin)
Text color
Center heading
Under line a text
Bullets/numbering
2. Type a document and perform the following:
Insert page number using footers
Insert header
Find and replace
Cut copy and paste
Change case
3. Prepare an advertisement for a product.
4. Send an application to many companies for suitable job using mail merge option.
5. Resume wizard.
6. Prepare a class timetable using a table menu.
7. Design an invoice by using drawing tool bar, clip art, word art, symbols, borders and shading, charts.

II. MS Excel

1. Prepare a mark list of your class (minimum of 5 subjects) and perform the following operations:
Data entry, Total Average, Result by using Arithmetic and Logical functions and sorting.
2. Prepare payroll for the employers.
3. Compute mathematics of finance.
Simple interest
Compound interest
Net present value
Annuity of a future value(sinking fund method)
4. Draw the different type of charts(line,pie,bar) to illustrate year wise Performance of sales, purchase, profit of a company by using chart wizard

III. MS Power Point

1. Design presentation slide for a product of your choice. The slides must include name, type of product, characteristics, special features, price, special offer etc..
2. Design slides for the headlines news of a popular TV Channel. Make use of slide transition.
3. Design presentation slides for the seminar/Lecture presentation using animation effects.
4. Prepare an organization chart for a company.

IV. MS-Access

1. Create a student mark database
(a) Retrieve the student's details according to the highest marks.

- (b) Display the Query showing marks >75 and Total > 400.
2. Create an item table with the following constraints Item No, Item name, Quantity and price.
- (a) Display item no, name, filled list for net price > 5000.
- (b) Display item name.
3. Create a form using wizard for customer database with the following details.
Customer code, Customer name, Address, Mobile number, Email-ID.
4. Report preparation

B.Com/B.Com (CA)/BBA (CA)
Semester II
Part III - Core IV- Principles of Marketing
217B04/217R04/217V04

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To provide a comprehensive understanding of the marketing concepts.
- To impart knowledge on marketing functions.
- To identify the marketing mix components.
- To provide knowledge on promotion mix activities.
- To understand the exchange process in the market.

Unit I

Marketing- Objectives – importance of modern marketing concept – Marketing mix.

Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales.

(13 Hours)

Unit II

Functions of Physical Supply: Transportation: functions – classification of transport – merits – choice of mode of transportation. Storage – advantages. Warehousing: functions – kinds. Standardization and Grading: types. Marketing finance: kinds of finance. Marketing risk: causes – methods of handling risk.

(13 Hours)

Unit III

Product– Product Life Cycle — New product planning – steps in new product planning.

Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing.

(13 Hours)

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections.

(13 Hours)

Unit V

Channels of Distribution: importance – types – classification of middlemen – Agent middlemen- Wholesaler, Retailer: Kinds - services rendered – elimination of middlemen.

(13 Hours)

Book for Study		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
R.S.N. Pillai and Bagavathi	Modern Marketing Principles and Practice	S. Chand and Company, New Delhi. Ed. 2013.

Book for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr. N. Rajan Nair and Sanjith R. Nair	Marketing	Sultan Chand and sons, New Delhi, Ed. 2016

SEMESTER – III

Part III – Core V – Business Organisation and Production Management

317V05

(For the Candidates admitted from the academic year 2017-18 Onwards)

Course Objectives:

(65 Hours)

- To impart knowledge on plant location and layout.
- To educate on the production system and quality control.
- To provide the knowledge on the material handling system.
- To acquaint the students on work study

Unit I

Plant location – concept – importance – factors - selection of site location - rural, country, town and sub-urban. Plant layout: introduction- objectives – principles - advantages of good layout – types of layout - product layout - process layout - comparison of layouts-*flow patterns-types*. (13 Hours)

Unit II

Production-introduction-production system-types of production – continuous production – batch production – job production. Production planning and control: importance-functions-routing-procedures-scheduling-objectives-factors affecting scheduling-types of schedules-scheduling devices- Despatching - despatching procedures- *maintenance –objectives – importance – types - relative advantages. (13 Hours)

Unit III

Materials management – objectives - integrated materials management-concepts-advantages of integrated materials management. Materials handling: introduction-importance-advantages of good material handling system-*types of material handling equipments. Purchasing: Duties and functions of purchasing department-purchasing Procedures (13Hours)

Unit IV

Inventory: functions-importance-inventory control - objectives and importance of inventory control - tools of inventory control - Economic Order Quantity, ABC, VED, FSN, XYZ, Kaizen Production Technique-reorder point-safety stock-lead time. Work study-introduction -importance-method study-meaning-objectives-procedures-selection of job – recording methods – charts and diagrams-work measurement-uses – time study – introduction – procedure. (13 Hours)

Unit V

Quality control- introduction-quality control techniques-Just-In-Time-quality at the source-inspection, statistical quality control (SQC).Total quality management-elements of TQM-quality circles(QC)-ISO 9000:concept-ISO 9000 standards-benefits. (13 Hours)

Note: starred and underlined portions are for self study

Books for study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.B.S.Goel	Production & operations management	Pragati Prakeshan, Meerut. 2014 Edition
O.P.Khanna	Industrial engineering & management	Dhanpat rai publication (p)ltd. 2015 edition
T.R.Banga, N.K.Agarwal, Sharma	Industrial engineering & management science	Khanna Publishers, 2003

Books for reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.K.Aswathappa	Essentials of production management	Himalaya publishing house, Mumbai 2 nd Edition, 2016
M.M.Varma	Materials management	S.chand & sons 4th Edition, 2012

SEMESTER – III**Part III – Core VIII– Human Resource Management****317V08****(For the Candidates admitted from the academic year 2017-18 Onwards)****Course Objectives:****(52 Hours)**

- To demonstrate the knowledge and skills needed to effectively manage human resources
- To develop the employability skills of the students by inculcating knowledge on training and development
- To impart knowledge on identifying the human resources needs of an organization.

Unit I

Human Resource: Significance – Human Resource Management: Concept – Features – Significance – Functions – Organizing HRM Functions- Difference between Personnel Management and HRM. HR Policy: Objectives – Characteristics of HR Manager. (10 Hours)

Unit II

Procurement of Personnel – Job Analysis - Job Description – Job Specification – Man Power Planning – Objectives – Process – Recruitment and Selection. Sources: Selection Techniques – Placement–Induction. (11 Hours)

Unit III

Performance Management – introduction – Purpose – Appraisal Methods – Appraisal of Managers Limitations of methods. Job Change – Promotion – Advantages – Merit based Promotion and Seniority Promotion – demotion – transfer – Types – Separation: *Lay off – Retrenchment, Retirement, Resignation, Absenteeism – turnover – Reduction of Labour turnover* (10 Hours)

Unit IV

Training and Development – Need – Objectives – Evaluating Training Needs – Training methods – Management Development Programme. Job Evaluation – Methods – Limitations, Incentive Compensation. Advantages – Kinds of Incentive Plans. (11 Hours)

Unit V

Career Planning and Development – Welfare and Safety (Concept only) – Discipline – Causes for Indiscipline – Maintaining Disciplines. Grievances: meaning - characteristics – causes – Redressal of grievances – Grievance procedure. (10 Hours)

Note: starred and underlined portions are for self study

Book for Study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
P.C.Tripathy	Personnel Management and Industrial Relations	Sultan chand & Sons, New Delhi, Twenty Second edition (2013)

Books for Reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
L.M.Prasad	Human Resource Management	Sultan chand & Sons, New Delhi 2014 Revised Edition
C.B.Mamoria	Personnel Management	Himalaya Publishing House, Mumbai, 2003

Part IV-Non Major Elective – Principles of Advertising

317NAD

(For the Candidates admitted from the academic year 2017-18 Onwards)

Course Objectives: (25 Hours)

- To educate the students to identify the basic principles and forms of advertising
- To illuminate the students on the different job functions and responsibilities of those employed in advertising

Unit I

Advertising-introduction-attributes of advertising - Structure of Ad industry-role of advertising-draw backs of advertising. Forms of advertising. (5 Hours)

Unit II

Ad budget – introduction - ad appropriations – Printer guide to allocation – Factors influencing the size – Methods of preparation. (5 Hours)

Unit III

Visualization: process-qualities-ad theme –ad copy: objectives - attributes-types. Ad layout: functions – types - principles of good layout. (5 Hours)

Unit IV

Ad agency – Introduction – Features – Elements of agency service – functions – agency relations. Advertising appeals – meaning-essentials of good appeal – ad appeal and buying motives. (5 Hours)

Unit V

Advertising planning-steps- Media of advertising: indoor, outdoor, direct advertising, display advertising – e-advertising - choice of media. Ad testing – Need – advertising In India. (5 Hours)

Book for study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
C.N. Sontakki	Advertising	Kalyani Publishers, New Delhi 2012.

Book for reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
S.A Chunawalla	Advertising theory & practice	Himalaya publishing house, Mumbai 2013.

SEMESTER – III**Part IV- Skill Enhancement Course I – Principles of Banking****317VS1****(For the Candidates admitted from the academic year 2017-18 Onwards)****Course Objectives: (38 Hours)**

- To acquaint the students with the conceptual knowledge of central banking and commercial banking
- To educate the students on types of negotiable instruments and endorsement
- To inculcate knowledge among the students on crossing of cheques

Unit I

Commercial banking: An Overview – introduction to banking – classification of banks - banking system – commercial banking – functions – role of banks in economic development.
(8 Hours)

Unit II

Central banking - need for central banking – principles of central banking – functions of RBI.
(8 Hours)

Unit III

Negotiable instruments: introduction – characteristics – nature – features – types.
(7 Hours)

Unit IV

Crossing – need for crossing – types of crossing – Consequences of crossing – marking of cheque.
(8 Hours)

Unit V

Endorsement – types of endorsement – effect of endorsement – rules regarding endorsement.
(7 Hours)

Book for study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.S.Gurusamy	Banking Theory Law and practice	Vijay Nicole Imprints Private Ltd, Chennai. reprint – 2014

Book for reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
S.Natarajan & R.Parameswaran	Indian banking	S.Chand & Co Ltd, New Delhi Revised Edition 2013

SEMESTER – IV**Part III- Core X - Organizational Behaviour****417V10****(For the Candidates admitted from the academic year 2017-18 Onwards)****Course Objectives: (52 Hours)**

- To educate students to gain a solid understanding of human behaviour in the workplace from an individual, group, and organizational perspective
- To make them understand the personality aspects of individuals

- To provide them with knowledge about motivation and Leadership
- To make them solve conflicts by understanding Group dynamics

Unit I

Organizational Behaviour: concept – Nature and scope – role – disciplines contributing OB – Hawthorne Experiments – Human Behaviour Approach – OB Models - *Emerging challenges and opportunities for Organizational Behaviour – Nature of human behaviour: Process of behaviour – Individual differences – Factors. (10 Hours)

Unit II

Personality: Concept – Theories of personality – determinants of personality – Personality and behaviour – organizational applications of personality. Perception – concept – Managerial applications of personality. (10 Hours)

Unit III

Attitude: Concept – factors in attitude formation – attitude change. Motivation: Concept – nature – Motivation and behaviour – theories of Motivation: X, Y and Z theories, Maslow's need hierarchy theory, Herzberg's theory, Vroom's Expectance theory - *Financial and non financial Motivation. (11 Hours)

Unit IV

Job Satisfaction: Determinants – effects of Job Satisfaction. Group Dynamics: Concept: Types of Groups – group Norms – Factors influencing Norms – Group Cohesiveness – Factors affecting Group Cohesiveness. Organizational Conflict: Concept – Stages of Conflict – Types – Merits and Demerits of Conflict – Conflict Management. (11 Hours)

Unit V

Leadership: Concept – Functions - *Importance – Qualities of a good leader – Leadership styles – theories of leadership: Trait theory, Managerial Grid, Fiedler's Contingency model. Organizational Culture and Climate – Importance – Features. (10 Hours)

Note: Starred and Underlined portions are for self-study.

Book for study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
L.M.Prasad	Organizational Behaviour	Sultan chand & Sons, New Delhi. 2014 Edition

Books for reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
V.S.P.Rao, P.S.Narayanan	Organizational Theory and Behaviour	Konark Publishers Pvt Ltd, 2009
Dr. K. Aswathappa	Organizational Behaviour	Himalaya Publishing House, 12 th Revised Edition 2016

SEMESTER –IV

Part III - Core XII – Advertising and Marketing Research

417V12

(For the Candidates admitted from the academic year 2017-18 Onwards)

Course Objectives:

(52 Hours)

- To impart knowledge on marketing research.
- To educate the students about the sampling techniques for marketing research.
- To make the students know about various areas of research in marketing.

- To educate the students to identify the basic principles and forms of advertising

Unit I

Marketing research – nature – scope – objectives – role – types of research – marketing research methodology. (10 Hours)

Unit II

Sampling techniques for marketing research: probability – non- probability – random – stratified – area – quota. Data collection: primary and secondary data – observation – questionnaire – interview technique. (10 Hours)

Unit III

Motivation research – consumer research – sales control research – product research – preparation of report and communicating research findings. (10 Hours)

Unit IV

Introduction to advertising – nature – structure of advertising industry - *role of advertising in modern business – types of advertising – advertising planning – advertising objectives – influence of advertising in consumer welfare and protection - *ethic in advertising – organization and functions of advertising department – advertising agencies: functions – organization of advertising agency – advertising budget: methods of preparation. (11 Hours)

Unit V

Visualisaion – advertising theme – advertising copy: objectives – essentials – types – structure – keying the advertising – structuring – poster, radio and television copy. Advertisement Layout: types – principle of good layout – Media research - *role of advertising media - choice of media – media mix. Advertising appeals: classification – Advertising campaigns – advertising scheduling – testing advertising effectiveness – *methods- advertising regulations – need for regulation – ASCI. (11 Hours)

Note: Starred and Underlined portions are for self-study.

Books for study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
C.N.Sontakki	Advertising	Kalyani publishers,2012
D.D.Sharma	Marketing Research	Sultan chand & sons,2011

Books for reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Chunawalla,Reddy,Appannaiah	Advertising and Marketing Research	Himalaya publishing house 2013 Edition
Boyd & Others	Marketing research Text and cases	Aitbs Publishers and distributors 7th edition 2014

SEMESTER – IV

Part IV- Skill Enhancement Course II-Basic Banking Operations

417VS2

(For the Candidates admitted from the academic year 2017-18 Onwards)

Course Objectives:

(38 Hours)

- To acquaint the students about the types of bank customers
- To familiarize the students about opening of bank accounts
- To educate the students about paying banker and collecting banker

Unit I

Bank customer – relationship – special types of customer. (8 Hours)

Unit II

Opening bank accounts – types of account – steps in opening accounts – disclosure of information. (7 Hours)

Unit III

Paying banker – introduction - banker's duty – precautions by a paying banker – Dishonoring customer's cheque – discourage of paying banker – material alteration – statutory protection – refusal of cheque payment. (8 Hours)

Unit IV

Collecting banker – collecting banker's role – statutory protection – payment in due course – collecting banker's duty. (7 Hours)

Unit V

Bank lending – significance of bank lending – lending sources – bank lending principles – forms of lending – securities for lending – factors influence bank lending. (8 Hours)

Book for study:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.S.Gurusamy	Banking Theory Law and practice	Vijay Nicole Imprints Private Ltd, Chennai. reprint – 2014

Book for reference:

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
S.Natarajan & R.Parameswaran	Indian banking	S.Chand & Co Ltd, New Delhi Revised Edition 2013

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Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
115BT1/ 115MY1/ 115HD1/1 15FR1	Semester I Part I-Language I	6	3	25	75	100	4
115EN1	Part II- English I	6	3	25	75	100	4
115V01	Part III Core I- Business Organisation	5	3	25	50	75	3
115B02/ 115R02/ 115N02/ 115V02	Core II- Business Management	5	3	25	75	100	4
115AB1/1 15AR1/11 5AN1/115 AV1/	Allied I –Office Automation Tools- Practical	6	3	40	60	100	4
115EVS	Part IV-Environmental Studies	2	2	50	--	50	2
215BT2/ 215MY2/ 215HD2/ 215FR2	Semester II Part I-Language II	6	3	25	75	100	4
215EN2	Part II- English II	6	3	25	75	100	4
215V03	Part III Core III - Programming in C	3	3	25	50	75	3
215VP1	Core Practical I- Programming in C	2	3	20	30	50	2
215B04/ 215R04/ 215N04/ 215V04	Core IV- Marketing	5	3	25	75	100	4
215AV2	Allied II –Principles of Accountancy	6	3	25	75	100	4
215VEC	Part IV-Value Education	2	2	50	--	50	2

315V05	Semester III Part III Core V- Production and Materials Management	4	3	25	50	75	3
315B06/ 315V06	Core VI– Commercial Law	5	3	25	75	100	4
315V07	Core VII- Programming in C++	4	3	25	50	75	3
315VP2	Core Practical II- Programming in C++	2	3	20	30	50	2
315V08	Core VIII – Human Resource Management	4	3	25	50	75	3
315AV3	Allied III- Mathematical Techniques	6	3	25	75	100	4
315NAD	Part IV-Non Major Elective Course I- Advertising	2	2	50	--	50	3
315VS1	Skill Based Course I-Principles of Banking	3	3	75	--	75	3
415B09/ 415R09/ 415N09/ 415V09	Semester IV Part III Core IX – Business Communication	5	3	25	75	100	4
415B10/ 415R10/ 415N10/ 415V10/	Core X– Cost Accounting	5	3	25	75	100	4
415V11	Core XI- Visual Basic	3	3	25	50	75	3
415VP3	Core Practical III- Visual Basic	2	3	20	30	50	2
415V12	Core XII - Advertising and Marketing Research	4	3	25	50	75	3
415AV4	Allied IV –Business Environment	6	3	25	75	100	4
415NGA	Part IV Non Major Elective Course II -General Awareness (Online)	--	1	50	--	50	2
415VS2	Skill Based Course II-Banking Operations	3	3	75	--	75	3
415GIS	Information Security	2	2	50	--	Grade	Grade

415ALV	Advanced Learners Course I- Management thoughts in Thirukkural	--	3	--	100	100	3*
515B13/ 515RP5/ 515N13/ 515V13/	Semester V Part III Core XIII- E-Accounting	6	3	40	60	100	4
515B14/ 515R14/ 515N14/ 515V14/	Core XIV –Income Tax	6	3	25	75	100	4
515B15/ 515R15/ 515N15/ 515V15/	Core XV – Business Finance	5	3	25	75	100	4
515V16	Core XVI- Organizational Behaviour	4	3	25	50	75	3
515VE1	Elective I- Services Marketing	6	3	25	75	100	4
515BS3/ 515VS3	Part IV- Skill Based Course III- Business Data Analytics using EXCEL	3	3	75	--	75	3
615B17/ 615R17/ 615N17/ 615V17/	Semester VI Part III Core XVII-Management Accounting	6	3	25	75	100	4
615V18	Core XVIII –Strategic Management	4	3	25	50	75	3
615V19	Core XIX- RDBMS and Oracle Programming	3	3	25	50	75	3
615VP4	Core Practical IV - RDBMS and Oracle Programming	2	3	20	30	50	2
615VE2	Elective II- Entrepreneurship and Project Management	6	3	25	75	100	3
615VE3	Elective III- Global Business Management	6	3	25	75	100	4
615VS4	Part IV Skill Based Course IV- Principles of Insurance	3	3	75	--	75	3
615EX1/ 615EX2/ 615EX3/6 15EX4/61 5EX5	Part V-Extension Activity	--	--	50	--	50	2
615ALV	Advanced Learners Course II- ISO 9000 and TQM	--	3	--	100	100	3*
TOTAL						3500	140

*Starred credits are to be treated as additional credits which are optional

2015 -2016

SEMESTER – I

Part III – Core I –Business Organisation

115V01

(For the students admitted from the academic year 2015-16 onwards)

Preamble:

65 Hours

- To acquaint the students with fundamentals of business organization.
- To impart knowledge about trade association and chamber of commerce.

Unit I

Business: Concept - Definition – profession and employment – objectives of business – Business organizations forms of business organizations – sole trader, partnership. (13 Hours)

Unit II

Forms of business organizations – Joint stock company – incorporation of company – co-operatives – public utilities – public enterprises. (13 Hours)

Unit III

Size of business – Plant, Firm and Industry – measurement of size- factors affecting size – Economics of scale – survival of small firms – concept of optimum firm - factors determining optimum size – industrial estates and district industries centre. (13 Hours)

Unit IV

Business Combinations – types – benefits – evils. Trade associations – Chamber of Commerce -Stock Exchange- Functions - – types of speculators – functions of SEBI. Social Responsibilities of Business. (13 Hours)

Unit V

Sources of finance – Shares, Debentures, Financial Institutions (IDBI, ICICI, IFCI SFC), Bank credit and Trade credit – Relative merits and demerits (13 Hours)

Book for study:

1. Fundamentals of Business Organisation and Management – Y.K.Bhushan
Sultan Chand & Sons, 2009 edition, New Delhi.

Books for reference:

1. Principles of Business Organisation and Management – P. N. Reddy & S.S.Gulshan
Eurasia Publishing House (P) Ltd, New Delhi. Edition 2009(Reprint)

B.Com/B.Com (CA)/B.Com(e-Commerce)/BBA(CA)

SEMESTER- I

Part III - Core II - Business Management

115B02/115R02/115N02/115V02

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

65 Hours

- To gain knowledge on concepts of management.
- To familiarize with the managerial skills.

Unit I

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk.

Definition of Management – Nature and Scope of Management - Contribution of F.W. Taylor, Henry Fayol- Functions of Management. (13 Hours)

Unit II

Planning –Nature and Importance of planning – Advantages and Limitations – Steps in planning – Decision making – Decision making process. (13 Hours)

Unit III

Organising – Meaning, Nature and importance -Principles of Organisation– Classification of Organisation – Span of Control – Types of Organisation: Line, Functional, Line and Staff.
(13 Hours)

Unit IV

Staffing: Definition –Functions-Recruitment - selection-promotion.

Directing: characteristics - techniques. (13 Hours)

Unit V

Leadership – Meaning – Importance of Leadership – Functions of a Leader– Qualities of a Leader – Types of Leadership.

Controlling: – Steps in Control Process – Techniques of Control. (13 Hours)

Book for study

Principles of Management : T. Ramasamy,
Himalaya Publishing House, New Delhi. 6th Ed 2014.

Books for Reference

Principles of Management : Dinkar Pagare,
Sultan Chand and Sons, New Delhi. 5th Ed 2008.

Business Organization and Office Management : R.K.Sharma and Shashi, K.Gupta,
Kalyani Publishers, Ludhiana, 3rd Ed. 2013.

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)

SEMESTER- I

Allied I – Office Automation Tools – Practical

115AB1/115AR1/115AN1/115AV1

(For the students admitted from the academic year 2015-2016 onwards)

List of Practical

75 Hours

Ms Word

1. Preparation of a Curriculum Vita.
2. Design: Cheque Leaf for a Bank
- Preparation of Invoice
3. Send an Invitation to various colleges for the workshop using Mail Merge.
4. Preparation of Advertisement Copy.

Ms Access

5. Prepare a Student Database.
6. Create an Employee Database.
7. Prepare a Customer Database.

Ms PowerPoint:

8. Prepare a Slide Show for organising a Seminar.
9. Prepare a Slide show for Paper Presentation.
10. Demonstrate a product using Custom Animation.

SEMESTER II

Part III - Core IV- Marketing

215B04/215R04/215N04/215V04

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

65 Hours

The objectives of this course are

- to impart the knowledge on various aspects of marketing functions.
- to give a comprehensive understanding of the marketing concepts.

Unit I

Marketing: meaning – objectives – importance of modern marketing concept – Marketing mix.

Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales.

(13 Hours)

Unit II

Functions of physical supply – Transportation: functions – classification of transport – merits – choice of mode of transportation. Storage – advantages – Warehousing: functions – kinds -Standardization and Grading: types. Marketing finance: kinds of business finance. Marketing risk: causes – methods of handling risk.

(13 Hours)

Unit III

Product– Product Life Cycle — New product planning – steps in New Product Planning.

Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing.

(13 Hours)

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections.

(13 Hours)

Unit V

Channels of distribution: importance – types – Classification of middlemen – Agent middlemen- Wholesaler – Retailer – kinds – services rendered – elimination of middlemen.

(13 Hours)

Book for Study

Modern Marketing : R.S.N. Pillai and Bagavathi
Principles and practice S. Chand and company, New Delhi. Ed. 2013.

Books for reference

Marketing : Dr. N. Rajan Nair and Sanjith R. Nair
Sultan Chand and sons, New Delhi, Ed. 2010

BBA (CA)

SEMESTER –II

Part – III – Allied II- Principles of Accountancy

215AV2

(For the students admitted from the academic year 2015-16 onwards)

Preamble:

75 hours

- To provide the knowledge on recording, classifying, summarizing and interpreting the accounting transactions.
- To educate the students on various methods of depreciation.
- To make the students know about the maintenance of accounts in Non trading concerns.
- To impart the knowledge on the accounting methods in case of Bill of Exchange and Bank reconciliation statement.

Unit I

Basic principles of Accounting – Journals – Subsidiary books including Petty cash book – Ledger – Trial balance.

(18 Hours)

Unit II

Preparation of final accounts of a sole trader (Simple Adjustments)

(18 Hours)

Unit III

Depreciation accounting – Meaning – Objectives – Causes – Methods of depreciation (**Straight line and Written down balance method-Only Problems**)(13 Hours)

Unit IV

Accounting of non trading concerns – Receipts and payments accounts – Income and Expenditure account and Balance sheet. (13 Hours)

Unit V

Bank reconciliation statement – Single entry System (Net worth method). (13 Hours)

Note: Distribution of marks between problems and theory shall be 80% and 20% respectively.

Book for study:

1. Principles of Accountancy: N.Vinayakam & others, Sultan chand & Co, New Delhi. 2009
2. Financial Accounting :B.Charumathi & N.Vinayakam ,Sultan chand & Co, New Delhi

Book for reference:

1. Introduction to Accounting: T.S.Grewal, Sultan chand & Co, New Delhi
2. Advanced Accountancy: R.L.Gupta and M.Ramasamy Sultan chand & Co, New Delhi

SEMESTER – III

Part III –Core VIII– Human Resource Management 315V08 (For the students admitted from the academic year 2015-16 onwards)

Preamble:

52 hours

- To impart knowledge on fundamentals of Human Resource Management.
- To make the students to know the modes of selection, performance appraisal.
- To impart knowledge of various training and organizational development method.

Unit I

Human Resource: Significance – Human Resource Management: Concept – Features – Significance – Functions – Organizing HRM Functions- Difference between Personnel Management and HRM. HR Policy: Objectives – Characteristics of HR Manager. (10Hours)

Unit II

Procurement of Personnel – Job Analysis - Job Description – Job Specification – Man Power Planning – Objectives – Process – Recruitment and Selection. Sources: Selection Techniques – Placement–Induction. (11Hours)

Unit III

Performance Management – Meaning – Purpose – Appraisal Methods – Appraisal of Managers Limitations of methods. Job Change – Promotion – Advantages – Merit based Promotion and Seniority Promotion – demotion – transfer – Types – Separation: *Lay off – Retrenchment, Retirement, Resignation, Absenteeism – turnover – Reduction of Labour turnover* (10 Hours)

Unit IV

Training and Development – Need – Objectives – Evaluating Training Needs – Training methods – Management Development Programme. Job Evaluation – Methods – Limitations, Incentive Compensation. Advantages – Kinds of Incentive Plans. (11 Hours)

Unit V

Career Planning and Development – Welfare and Safety (Concept only) – Discipline – Causes for Indiscipline – Maintaining Disciplines. Grievances: meaning - characteristics – causes – Redressal of grievances – Grievance procedure. (10Hours)

Note: starred and underlined portions are for self study

Book for Study:

1. Personnel Management and Industrial Relations: P.C.Tripathy, Sultan chand & Sons, New Delhi. 2010 Edition

Books for Reference:

1. Human Resource Management: L.M.Prasad, Sultan chand & Sons, New Delhi.
2. Personnel Management: C.B.Mamoria, Himalaya Publishing House, Mumbai.

SEMESTER-III**Part IV-Non Major Elective Course I– Advertising 315NAD**
(For the students admitted from the academic year 2015-16 onwards)**Preamble: 25 hours**

- This paper enables the students to learn about advertising.
- To make the students know about the role of advertising in business
- To impart knowledge of visualization ad agency and ad budget.

Unit I

Advertising-meaning-attributes of advertising - Structure of ad industry-role of advertising-draw backs of advertising. Forms of advertising. (5Hours)

Unit II

Ad budget – meaning - ad appropriations – Printer guide to allocation – Factors influencing the size – Methods of preparation. (5Hours)

Unit III

Visualisation: process-qualities-ad theme –ad copy: objectives - attributes-types. Ad layout: functions – types - principles of good layout. (5Hours)

Unit IV

Ad agency – meaning – Features – Elements of agency service – functions – agency relations. Advertising appeals – meaning-essentials of good appeal – ad appeal and buying motives. (5Hours)

Unit V

Advertising planning-steps- Media of advertising: indoor, outdoor, direct advertising, display advertising – e-advertising - choice of media. Ad testing – Need – advertising In India. (5Hours)

Book for study :

1. Advertising - C.N. Sontakki, 3 rd edition reprint 2008 Kalyani Publishers, new delhi.

Book for reference:

1. Advertising theory & practice-S.A Chunawalla, 2004 Himalaya publishing house, Mumbai
2. Advertising management-Sherlekar, victor and Nirmala Prasad

SEMESTER – III**Part IV- Skill Based Course I – Principles of Banking 315VS1**
(For the students admitted from the academic year 2015-16 onwards)**Preamble: 38 hours**

- To acquaint the students with the banking concepts and principles.

Unit I

Commercial banking – definition – bank – banking system – commercial banking – functions – role of banks in economic development. (8 Hours)

Unit II

Central banking - need – principles – functions of RBI. (8 Hours)

Unit III

Negotiable instruments: meaning – characteristics – nature – features – types.
(8 Hours)

Unit IV

Crossing – definition – need for crossing – types of crossing – Consequences of crossing – marking of a cheque.
(7 Hours)

Unit V

Endorsement – definition – types of endorsement – effect of endorsement – rules regarding endorsement.
(7 Hours)

Books for study:

1. Banking Theory Law and practice – Dr.S.Gurusamy, reprint – 2009, Vijay Nicole Imprints Private Ltd, Chennai.

Books for reference:

1. Indian banking – S.Natarajan & R.Parameswaran, S.Chand & Co Ltd, New Delhi, Reprint – 2013
2. Banking principles and operations – M.N.Gopinath, First Edition August 2008, Snow White Publications Private Ltd, Mumbai.

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA) **SEMESTER IV**

Part III - Core IX– Business Communication

415B09/415R09/415N09/415V09

(For the students admitted from the academic year 2015-2016 onwards)

Preamble: **65 Hours**

The objectives of this course are

- to develop the communicative abilities of the students.
- to train the student in drafting effective business letters on matters relevant to day to day business operations with special emphasis on quality of presentation.

Unit I

Communication - Meaning –Communication cycle- Importance- objectives – media – Types of Communication: formal and informal – Barriers of communication- Principles of Communication.
(13 Hours)

Unit II

Business Letters: Need, functions and kinds of business letters – Planning business messages and layout- Enquiries and Replies - Orders and execution.
(13Hours)

Unit III

Credit and Status enquiries – Complaints and Adjustments.
(13 Hours)

Unit IV

Collection letters – Sales letters – Circular letters
(13 Hours)

Unit V

Report – qualities of good report – types of report- Report by Individuals.
Application Letters.
(13 Hours)

Book for Study

Essentials of Business Communication : Rajendra Paul and J.S.Korlahalli,
S Chand and Sons, New Delhi, Ed..2012

Books for Reference

Business Communication and Customer Relations : Dr. C.B. Gupta,
Sultan Chand and Sons, New Delhi. Ed 2010.
Business Communication : Dr.V.K.Jain and Dr.Omprakash Biyani,
Sultan Chand and Sons, New Delhi-2013

SEMESTER - IV

Part III – Core XII – Advertising and Marketing Research 415V12
(For the students admitted from the academic year 2015-16 onwards)

Preamble: 52 hours

- To impart knowledge on marketing research.
- To educate the students about the sampling techniques.
- To make the students know about various areas of research in marketing.
- To provide knowledge on advertising.

Unit I

Marketing research – definition – nature – scope – objectives – role – types of research – marketing research methodology. (10 Hours)

Unit II

Sampling techniques: probability – non- probability – random – stratified – area – quota.
Data collection: primary and secondary data – observation – questionnaire – interview technique.
(10 Hours)

Unit III

Motivation research – consumer research – sales control research – product research – preparation of report and communicating research findings. (10 Hours)

Unit IV

Introduction to advertising – nature – structure of advertising industry - *role of advertising in modern business – types of advertising – advertising planning – advertising objectives – influence of advertising in consumer welfare and protection - *ethic in advertising – organization and functions of advertising department – advertising agencies: functions – organization of advertising agency – advertising budget: methods of preparation. (11 Hours)

Unit V

Visualisation – advertising theme – advertising copy: objectives – essentials – types – structure – keying the advertising – structuring – poster, radio and television copy. Advertisement Layout: types – principle of good layout – Media research - *role of advertising media - choice of media – media mix. Advertising appeals: classification – Advertising campaigns – advertising scheduling – testing advertising effectiveness – *methods - advertising regulations – need for regulation – ASCI. (11 Hours)

Note: Starred and Underlined portions are for self-study.

Book for study:

1. Advertising : C.N.Sontakki, 2008 Kalyani publishers
2. Marketing Research : D.D.Sharma, 2010 Sultan chand & sons

Books for reference:

1. Advertising and Marketing Research : Chunawalla, Reddy, Appannaiah
Himalaya publishing house.
2. Marketing research : Boyd & Westfall, Sultan chand & sons

SEMESTER – IV

Part IV- Skill Based Course II – Banking Operations 415VS2
(For the students admitted from the academic year 2015-16 onwards)

Preamble: 38 hours

To familiarise the students with banking operations and e-banking.

Unit I

Bank customer – relationship – special types of customer. - Opening bank accounts – types of account – steps in opening accounts – disclosure of information. (8 Hours)

Unit II

Paying banker – meaning – banker's duty – precautions by a paying banker – Dishonoring customer's cheque – discourage of paying banker. Collecting banker – meaning – collecting banker's role – collecting banker's duty. (8Hours)

Unit III

Bank lending – significance of bank lending – lending sources – bank lending principles – forms of lending. E-banking – meaning – services of E-banking - benefits – initiatives and opportunities. (8 Hours)

Unit IV

Internet banking Vs traditional banking – mechanics of internet banking – major issues of internet banking – drawbacks. Mobile banking: meaning – definition – features – registration services – security issues. (7 Hours)

Unit V

ATM – concept – features – ATM types – mechanism. Electronic fund transfer system: steps – benefits. INFINET – factors responsible for launch – benefits. (7 Hours)

Books for study:

1. Banking Theory Law and practice – Dr.S.Gurusamy, reprint – 2009,
Vijay Nicole Imprints Private Ltd, Chennai.

Books for reference:

1. Indian banking – S.Natarajan & R.Parameswaran, S.Chand & Co Ltd, New Delhi,
Reprint – 2007
2. Banking principles and operations – M.N.Gopinath, First Edition August 2008,
Snow White Publications Private Ltd, Mumbai

SEMESTER -V

Part III –Core XIII –E Accounting

515B13/515RP5/515N13/515V13

(For the students admitted from the academic year 2015-2016 onwards)

List of Practicals

75 Hours

- 1) Creation of Company in Tally and Enabling Accounting Features
- 2) Group Creation and Alteration (single and multiple)
- 3) Ledger Creation and Alteration (single and multiple)
- 4) Entering transactions in accounting vouchers.
- 5) Display of list of accounts, books.
- 6) Report display: Trial Balance, Profit and Loss Account and Balance Sheet
- 7) Altering Inventory, Statutory, Taxation Features.
- 8) Measures of units, Stock Group, Stock Item creation and alteration Display of Stock summary.
- 9) Cost center creation and alteration.
- 10) Creation of Tax Masters.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

SEMESTER - V

Part III - Core XIV – Income Tax

515B14/515R14/515N14/515V14

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(75 Hours)

The objectives of this course are:

- To provide an in-depth knowledge of Income Tax Provisions.
- To impart practical knowledge about Income Tax calculation.

Unit I

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Residential Status – Exempted Income. (15 Hours)

Unit II

Income from Salaries. (15 Hours)

Unit III

Income from House Property – Income from Other Sources. (15 Hours)

Unit IV

Profit and Gains of Business or Profession. (15 Hours)

Unit V

Capital Gains – Deductions from Gross Total Income with respect to payments only. (15 Hours)

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Book for Study

Income Tax Law and Practice : V.P. Gaur and D.B. Narang,
Kalyani Publishers, Ludhiana.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

SEMESTER - V

Part III - Core XV – Business Finance

515B15/515R15/515N15/515V15

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65 Hours)

- To familiarize the students with the techniques of financial management.
- To impart knowledge on concepts relating to financial planning.

Unit I

Business Finance: Definition - Importance - Finance function: Approaches: - aim - Scope - relationship of finance with other business functions - objectives - measuring shareholders value creation – financial decisions - functional areas of financial management – functions of a finance manager. (13 Hours)

Unit II

Financial Plan: objectives – principles – considerations in formulating financial plan – steps in financial planning – estimating long-term and short-term financial needs – assessment of fixed capital requirements – Working capital-limitations of financial planning.

Capitalisation: definition – basis of capitalization – over-capitalisation – under-capitalisations. (13 Hours)

Unit III

Sources of Finance: kinds of ownership securities – creditorship securities – internal financing – loan financing. (13 Hours)

Unit IV

Capital Structure: Patterns of Capital Structure – importance – Theories of Capital Structure: NI, NOI, Traditional, MM Approach - Factors Determining Capital Structure – principles of Capital Structure decisions . (13 Hours)

Unit V

Cost of capital: significance – classification of cost - determination of Cost of Capital - Computation of Cost of capital: Debt, Preference Share capital, Equity Share capital, Retained Earnings . (13 Hours)

Note: Theory only.

Book for Study
Business Finance

: Shashi.K.Gupta and R.K.Sharma
Kalyani Publishers, New Delhi Ed. 2005,
10th Ed. 2013

Book for reference

Financial Management : S.N. Maheswari
Principles and practice Sultan Chand and Sons, New Delhi Ed.2014.
Course Designed By : Dr. N.Lakshmi
Course Reviewed By : Dr. R. Parameswari
Checked By : Dr. K. Punithavalli

**BBA (CA)
SEMESTER – V**

**Part III – Core XVI – Organizational Behaviour 515V16
(For the students admitted from the academic year 2015-16 onwards)**

Preamble: 52 hours

- To acquaint the students with the individual and Organizational Behaviour
- To make them understand the personality aspects of individuals
- To provide them with knowledge about motivation and Leadership
- To make them solve conflicts by understanding Group dynamics

Unit I

Organizational Behaviour: concept – Nature and scope – role – disciplines contributing OB – Hawthorne Experiments – Human Behaviour Approach – OB Models - *Emerging challenges and opportunities for Organizational Behaviour – Nature of human behaviour: Process of behaviour – Individual differences – Factors. (10 Hours)

Unit II

Personality: Concept – Theories of personality – determinants of personality – Personality and behaviour – organizational applications of personality. Perception – concept – Managerial applications of personality. (10 Hours)

Unit III

Attitude: Concept – factors in attitude formation – attitude change. Motivation: Concept – nature – Motivation and behaviour – theories of Motivation: X, Y and Z theories, Maslow's need hierarchy theory, Herzberg's theory, Vroom's Expectance theory - *Financial and non financial Motivation. (11 Hours)

Unit IV

Job Satisfaction: Determinants – effects of Job Satisfaction. Group Dynamics: Concept: Types of Groups – group Norms – Factors influencing Norms – Group Cohesiveness – Factors affecting Group Cohesiveness. Organizational Conflict: Concept – Stages of Conflict – Types – Merits and Demerits of Conflict – Conflict Management. (11 Hours)

Unit V

Leadership: Concept – Functions - *Importance – Qualities of a good leader – Leadership styles – theories of leadership: Trait theory, Managerial Grid, Fiedler's Contingency model. Organizational Culture and Climate – Meaning – Importance – Features. (10 Hours)

Note: Starred and Underlined portions are for self-study.

Book for study:

1. Organizational Behaviour: L.M.Prasad, Sultan chand & Sons, New Delhi.2010 Edition

Books for reference:

1. Organizational Theory and Behaviour: V.S.P.Rao, P.S.Narayanan,
Konark Publishers Pvt. Ltd.

2. Organizational Behaviour: Dr. K. Aswathappa Himalaya Publishing House.

SEMESTER - V

Part IV- Skill Based Course III –Business Data Analytics using EXCEL

515BS3/515VS3

(For the students admitted from the academic year 2015-2016 onwards)

List of Practicals

(35 Hours)

1. Sort data in ascending and descending order.
2. Prepare employee payroll.
3. Design Mark Sheet.
4. Prepare chart for analysing students result.
5. Summarise and present data using pivot table.
6. Calculate mean, median and standard deviation.
7. Analyse the data using correlation.
8. Analyse the data using regression.
9. Calculate Time Value of money - NPV, IRR, ROI, using FV, NPER, PMT, PV, TYPE functions.
10. Calculate interest using financial functions.

Part III – Core XVIII– Strategic Management

615V18

(For the students admitted from the academic year 2015-16 onwards)

Preamble:

52 hours

- To impart knowledge on business policy and strategic planning.
- To throw light on modes of scanning the environment.
- To make them to know about various strategic choices.
- To provide knowledge on strategic implementation and techniques.

Unit I

Business Policy – Definition – Scope – Strategy – Definition – Levels of Strategy – Corporate Planning and Strategic Planning – Strategic Management: Process – Role of Strategists – Corporate mission – Vision – Objectives – Business – Ethics – Social Responsibility of Strategic Management. (10 Hours)

Unit II

Dynamic Environmental Appraisal – External and Internal Environment* – components of Environment* – Environmental Scanning* – Organizational Appraisal: Methods and Techniques – Corporate Analysis – Industry Competitor – and SWOT Analysis.

(10 Hours)

Unit III

Strategic Alternatives – Grand Strategies – Modernization Strategies – Diversification and Integration Strategies – Merger, Takeover and Joint Venture Strategies – Turn Around, Divestment and Liquidation Strategies –Strategic Choice: Process – Corporate Portfolio Analysis. (11 Hours)

Unit IV

Strategy Implementation – Resource Allocation – Implementation through Integrated Functional Plans and Policies – Organizational Structures and Strategies – Organizational change and Design – Implementing Strategy through Leadership, Culture and Rewards. (10 Hours)

Unit V

Strategic Evolution and Control – Nature – Importance – Barriers – Strategic Control: Types – Operational Control - Techniques of Strategic Evaluation and Control - *Role of Organizational Systems in Evolution. (11 Hours)

Note: Starred and Underlined portions are for self-study.

Book for Study:

1. Business Policy and Strategic Management: L.M. Prasad, 2009,
Sultan chand & Sons, New Delhi.
2. Business Policy and Strategic Management: Azar kazmi, 2010,
Tata mcGraw Hill Publications Co. Ltd., New Delhi.

Book for Reference:

1. Strategic Management Strategic Formulation and Implementation: John A.Pearce and Richard, Publishers and Distributions, New Delhi.

Part III – Elective II –Entrepreneurship and Project Management 615VE2 **(For the students admitted from the academic year 2015-16 onwards)**

Preamble: 75 hours

- To impart knowledge on entrepreneurship culture and make them to undertake projects successfully.
- To make them aware of various assistance and training programme available.
- To throw light on small enterprises and Government's assistance for promoting SSI units.
- To acquaint students with the knowledge of project identification, formulation and appraisal methods.

Unit I

Entrepreneur: Concept - characteristics - Entrepreneurs and managers - Functions of an Entrepreneur - types of entrepreneurs - Intrapreneur - Entrepreneurship: concept - growth - role of entrepreneurship in economic development. (16Hours)

Unit II

Factors affecting entrepreneurial growth - Entrepreneurial Development Programme (EDP): need - objectives - phases - evaluation - Institutional finance to entrepreneurs. *Successful Women Entrepreneurs. (16 Hours)

Unit III

Small enterprises - Concept -Characteristics - Objectives - Scope- Role -*Steps to be taken for starting a small scale industry - Institutional Support to small scale industry (15 Hours)

Unit IV

Project identification and selection: meaning - classification - project identification - project selection - Project formulation: Meaning - Significance - contents - formulation. Networking techniques: PERT - CPM (Theory only). (14 Hours)

Unit V

Project Appraisal - Concept - Methods: Pay Back period - Average rate of return - Net present value - Internal rate of return - Benefit cost Ratio (Theory only). (14 Hours)

Note: Starred and Underlined portions are for self-study.

Book for Study:

1. Entrepreneurial Development: S.S.Khanka, Sultan Chand & Co. Ltd., New Delhi. 2011 Edition.

Books for Reference:

1. Entrepreneurial Development: C.B.Gupta, N.P.Srinivasan, Sultan Chand & Co. Ltd., New Delhi. 2010 Edition.

BBA (CA)**SEMESTER – VI****Part III – Elective III – Global Business Management 615VE3
(For the students admitted from the academic year 2015-16 onwards)****Preamble: 75 hours**

- To acquaint about Global business management strategies.
- To make the students know about international agencies governing global trade.
- To educate about various export promotion schemes and procedures.

Unit I

International trade: Nature – Problems – Orientation of International Business – Stages: Domestic, International, Multinational, Global - *Domestic Vs International Trade – Tariff – and non-Tariff Barriers – Globalization: Meaning – Essentials – conditions – Factors Favoring Globalization – *Strategies – Obstacles of Globalization. *Pattern of India's Foreign Trade (Import and Export). (15 Hours)

Unit II

Regulations of International Trade – India's EXIM policy – IMF – SAARC – UNCTD – GATT – WTO – IBRD – International Development Association (IDA) – International Finance Corporation (IFC) (Concepts only). (15 Hours)

Unit III

Export Finance – Internal and External Sources – Terms of Credit in Export Trade – Instruments used in Financing Export Trade: Letter of Credit – Draft or Bill of Exchange – Counter Trade – EXIM bank – ECGC – Financial Guarantee: Packing Credit – Post Shipment Finance. (15 Hours)

Unit IV

Export Procedure – Offer and Receipt of Confirmed Orders – Producing the Goods - Shipment Banking Procedure – Negotiation – Documentation system - *Export incentives. (15 Hours)

Unit V

Export Promotion Measures – Infrastructure setup and Aids – Export Promotion Councils, Commodity Boards – Boards of Trade, ITPO FIEO, IIFO, Indian Council of Arbitration, STC, Export houses, FTZ's and EOU's – Trade Fairs and Exhibitions, Trading Houses and Star Trading Houses. (15 Hours)

Note: Starred and Underlined portions are for self-study.

Books for Study:

1. Export Marketing: R.S.Rathor & J.S.Rathor, 2010 Himalaya Publishing House, 1997 Edition.
2. Export Management: T.A.S. Balagopal, 2010, Himalaya Publishing House, 2001 Edition.

Books for Reference:

1. International Business: Francis Cherunilam Wheller Publishing House, 2007 Edition.
2. International Business: K. Aswathappa, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 2003 Edition.
3. Export Management : P.K.Khurana, Galgotia Publishing Company, New Delhi, 2006 Edition

BBA (CA)
SEMESTER – VI
Part IV- Skill Based Course IV - Principles of Insurance

615VS4

(For the students admitted from the academic year 2015-16 onwards)

Course Objectives:

(38 Hours)

- To provide basic knowledge of insurance business.
- To enhance employability of students in insurance sector.

Unit I

Risk: Classification of Risks – Methods of Handling Risks. Risk insurance management – Introduction – Scope – Principles. (7 Hours)

Unit II

Insurance –Characteristics of insurance contract- Functions – Benefits of insurance. Insurance Contract: Essential elements of Insurance Contract – Insurance Documents. (8 Hours)

Unit III

Life Insurance - Essential Features of life assurance – Classification of Policies – Assignment of life policy - Nomination-Surrender value - payment of claims. (8 Hours)

Unit IV

Marine Insurance – Characteristics – essential elements – Double Insurance - Kinds of marine policies –Marine losses and abandonment. (8 Hours)

Unit V

Fire Insurance – principles – types of fire policies. Property insurance - Motor Vehicle Insurance – Health Insurance. (7 Hours)

Book for Study

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr. P. Periasamy	Principles and Practice of Insurance	Himalaya Publishing House, New Delhi, 2015 Edition

Book for Reference

Author	Title	Publisher, Place of Publication, Edition, Year of Publication
M.N. Mishra and Dr. S.B. Mishra	Insurance Principles and Practice	S.chand and Company Ltd, New Delhi 10 th Edition

DEPARTMENT OF BBM (CA)
SEMESTER WISE DISTRIBUTION WITH SCHEME OF EXAMINATION
For candidates admitted from (2012-13 only)

Sem	Course	Credit	Duration of Exam Hours (ESE)	Marks		Total
				CIA	ESE	
I	Part I-Language I	3	3	25	75	100
	Part II- English I	3	3	25	75	100
	Part III- Core I- Business Organization	3	3	25	75	100
	Part III- Core II- Principles of Management	3	3	25	75	100
	Part III-Core Practical I-MS-Office	5	3	30	45	75
	Part III-Allied I –Mathematics for management	5	3	25	75	100
	Part IV-Environmental Studies	2	-	50	--	50
II	Part I-Language II	3	3	25	75	100
	Part II- English II	3	3	25	75	100
	Part III- Core III-Programming in C	3	3	25	75	100
	Part III-Core IV -Principles of Accountancy	3	3	25	75	100
	Part III- Core Practical - II Programming in C	3	3	30	45	75
	Part III-Allied II –Mathematical Techniques	5	3	25	75	100
	Part III-Advanced Learner's Course -I-Management thoughts in Thirukkural	3*	3	--	100	100
	Part IV-Value Education	2	-	50	100	50
III	Part III- Core V- Business Economics	3	3	25	75	100
	Part III-Core VI Business Communication	3	3	25	75	100
	Part III-Core VII- Production and Materials Management	3	3	25	75	100
	Part III-Core VIII- Programming in C++	4	3	20	55	75
	Part III-Core Practical III- Programming in C++	3	3	30	45	75
	Part III-Allied III –Taxation	5	3	25	75	100
	Part IV-Non Major Elective	2	3	75	--	75

	Part IV-Skill Based Course I- Principles of Banking	3	--	100	--	100
IV	Part III- Core IX- Cost and Management Accounting	3	3	25	75	100
	Part III-Core X – Visual Basic	4	3	20	55	75
	Part III-Core Practical IV- Visual Basic	3	3	30	45	75
	Elective –I- Human Resource Management	5	3	25	75	100
	Allied IV –Mercantile Law	5	3	25	75	100
	Part III-Advanced Learner's Course II- Business Environment	3*	3	--	100	100
	Part IV-General awareness	2	--	75	--	75
	Part IV-Skill Based Course II- Basic Banking Operations	3	--	100	--	100
	Part V-Extension Activity	1	--	50	--	50
V	Part III- Core XI-Marketing Management	3	3	20	55	75
	Part III-Core XII –Organizational Behaviour	3	3	25	75	100
	Part III-Core XIII – Global Business Management	3	3	25	75	100
	Part III-Core XIV – Java Programming	2	3	20	55	75
	Part III-Core Practical V- Java Programming	3	3	30	45	75
	Part III-Elective –II- Entrepreneurship and Project Management	5	3	20	55	75
	Part IV-Skill Based Course III-E-Banking	3	--	100	--	100

VI	Part III- Core XV- Financial Management	3	3	25	75	100
	Part III-Core XVI –Strategic Management	3	3	25	75	100
	Part III-Core XVII- Advertising and Marketing Research	3	3	20	55	75
	Part III-Elective –III- Computerized Accounting Tally Project and Vivavoce	5	3	30	45	75
	Part III-Advanced Learner's Course III- ISO 9000&TQM	3*	3	--	100	100
	Part IV-Skill Based Course IV- Banking Practicals	3	--	100	--	100

- ***Starred credits are to be treated as additional credits which are optional**
- **Non major elective course offered: Advertising**
- **30% of the syllabus in each subject should be taught using OHP LCD and SEMINARS**

2013 – 2014

BBM (CA) SEMESTER I

Part III – Core I –Business Organization

For the candidates admitted from 2012-2013 onwards

QP Code:112U01

38 hours

Preamble:

To acquaint the students with fundamentals of business organization.

To impart knowledge about trade association and chamber of commerce.

Module I:

Nature and scope of business – profession and employment – objectives of business – Business organizations forms of business organizations – sole trader, partnership. (8 hrs)

Module II:

Forms of business organizations – Joint stock company – incorporation of company – co-operatives – public utilities – public enterprises. (8 hrs)

Module III:

Size of business – Plant, Firm and Industry – measurement of size- factors affecting size – Economics of scale – survival of small firms – concept of optimum firm - factors determining optimum size – industrial estates and district industries centre. (8 hrs)

Module IV:

Business Combinations – types – benefits – evils. Trade associations – Chamber of Commerce - Stock Exchange- Functions - - types of speculators – functions of SEBI. Social Responsibilities of Business. (7 Hrs)

Module V:

Sources of finance – Shares, Debentures, Financial Institutions (IDBI, ICICI, IFCI SFC), Bank credit and Trade credit – Relative merits and demerits (7 hrs)

Book for study:

1. Fundamentals of Business Organisation and Management – Y.K.Bhushan Sultan Chand & Sons, 2009 edition, New Delhi.

Books for reference:

1. Principles of Business Organisation and Management – P. N. Reddy & S.S.Gulshan
Eurasia Publishing House (P) Ltd, New Delhi. Edition 2009(Reprint)

Course designed by : P.Kavitha
Course reviewed by : PL.Amirtham
Course checked by : B.Umamaheswari

BBM (CA) SEMESTER I

Part III – Core II –Principles of Management

For the candidates admitted from 2012-2013 onwards

QP Code: 112U02

38 hours

Preamble:

To acquaint the students with fundamentals of management.

To make them know about the process of planning and decision making.

Module I

Management – nature – scope – process – management and administration – is management a science or an art – is management a profession – elements of Taylor's scientific management – Fayol's principles of management – levels of management – managerial skills – systems approach to management – functions of management. (8 hours)

Module II

Planning – Meaning – Nature – Importance – Steps in planning – Types of planning – Types of plans – Objectives, policies, procedures, rules, strategies, programmes and budgets – Management by Objectives. Decision making – Types – Steps. (8 hours)

Module III

Organising –Nature – Significance – Principles of Organization – Formal and Informal Organizations –Organization Structure – Factors Affecting Organizational Structure – Types Of Organization Structure – Line, Line and Staff, Functional, Project, Matrix and Committees – Line And Staff Conflict. (8 hours)

Module IV

Organization Chart – Types of charts – Authority – Concept – Authority and power – Delegation of authority – Centralisation and Decentralisation – Span of Management. Staffing : Meaning –Significance – Manpower planning –Process – Recruitment- Sources of Recruitment – Selection –Stages in selection procedure (7 hours)

Module V

Controlling – Meaning – Nature – Importance – Control process – Types of control – Techniques of control – Co-ordination – Need – Techniques of co-ordination. (7 hours)

Books for study :

Business Organisation and Management – B.P.Singh & T.N.Chhabra Dhanpat Rai & Co (P) Ltd, Delhi 2007 Edition

Books for Reference:

1. Principles of Management – Dinkar pagare Sultan Chand & Sons, New Delhi. 2007 Edition
2. Principles of Management – L.M.Prasad Sultan Chand & Sons, New Delhi.
- 3 Principles and Practice of Management – T.N Chhabra, Dhanpat Rai &Co

Course designed by : B.Umamaheswari
Course reviewed by : P.Kavitha
Course checked by : B.Umamaheswari

BBM (CA) SEMESTER I
Part III – Core practical I – MS Office

For the candidates admitted from 2012-2013 onwards

QP Code: 112UP1

75 hours

List of Programs

I. MS Word

8. Type a paragraph and perform the following changes:
 - Font size
 - Font style
 - Line spacing
 - Page setup (margin)
 - Text color
 - Center heading
 - Under line a text
 - Bullets/numbering
9. Type a document and perform the following:
 - Insert page number using footers
 - Insert header
 - Find and replace
 - Cut copy and paste
 - Change case
10. Prepare an advertisement for a product.
11. Send an application to many companies for suitable job using mail merge option.
12. Resume wizard.
13. Prepare a class timetable using a table menu.
14. Design an invoice by using drawing tool bar, clip art, word art, symbols, borders and shading, charts.

II MS Excel

5. Prepare a mark list of your class (minimum of 5 subjects) and perform the following operations:
 - Data entry, Total Average, Result by using Arithmetic and Logical functions and sorting.
6. Prepare payroll for the employers.
7. Compute mathematics of finance.
 - Simple interest
 - Compound interest
 - Net present value
 - Annuity of a future value(sinking fund method)
8. Draw the different type of charts(line,pie,bar) to illustrate year wise Performance of sales, purchase, profit of a company by using chart Wizard.

III-Power Point

1. Design presentation slide for a product of your choice. The slides must include name, type of product, characteristics, special features, price, special offer ect..
2. Design slides for the headlines news of a popular TV Channel. Make use of slide transition.
3. Design presentation slides for the seminar/Lecture presentation using animation effects.
4. Prepare an organization chart for a company.

IV MS-Access

1. Create a student mark database
 - (a) Retrieve the student's details according to the highest marks.
 - (b) Display the Query showing marks >75 and Total > 400.
2. Create a item table with the following constraints Item No, Item name, Quantity and price.
 - (a) Display item no, name, filled list for net price > 5000.
 - (b) Display item name.
3. Create a form using wizard for customer database with the following Details.
Customer code, Customer name, Address, Mobile number, Email-ID.
4. Report preparation

BBM (CA) – Semester –II

Part – III – Core III – Programming in C

For the candidates admitted from 2012-2013 onwards

QP Code: 212U03

38 hours

Preamble :

- C has emerged as the language of choice for most applications due to speed, portability and compactness of code.
- This course enables the students to enhance their programming development skills.
- Most of the companies use this language, studying this paper provides job opportunity to the students.

Module –I

Overview of C – Constants, Variables and data types – Operators and Expressions
(Chapters 1,2,3)

(8 hrs)

Module –II

Managing input and output operators -_ Decision making and branching -decision making and looping.(Chapter 4,5,6)

(8 Hrs)

Module – III

Arrays – Character Arrays and Strings(Chapter 7,8)

(8 Hrs)

Module –IV

User Defined Function- Structures and unions .(Chapter 9,10)

(7 Hrs)

Module – V

Pointers -File management in C (Chapter 11,12)

(7 Hrs)

Book for study :

Programming in ANSI C: E.Balagurusamy, Tata Mc Graw Hill publishing co . Ltd,
V Edition, Copy Right 2007, 2011 New Delhi

Book for reference :

“The spirit of C” – An Introduction to modern programming – Hendry Mullish and
Herbert.L.Cooper Jaico publishing house, 1996

BBM (CA) – Semester –II

Part – III – Core Practical II – Programming in C

For the candidates admitted from 2012-2013 onwards

QP Code: 212UP2

52 hours

List of programs

1. Program to find Biggest of three numbers.
2. Program to check whether the given number is Prime or Not.
3. Solve a quadratic equation for all types of roots.

4. Finding the standard deviation and variance.
5. Program to Construct a pyramids of digits and reverse the pyramids.
6. Finding the number of Vowels, Consonants and white spaces in a String.
7. Program to check whether the given number is Armstrong.
8. Program to reverse the order of a given integer number.
9. Program to find the Sum of Digits of a given integer number.
10. Program to convert decimal to binary.
11. Program to perform String calculation
12. a. Finding the factorial of a given number.
b. Program to generate a Fibonacci series
13. Program to check for a palindrome.
14. Program to find Simple Interest.
15. Program to illustrate arrays within structures.

BBM [CA] Semester – III

Part IV- Skill Based Course I – Principles of banking
For the candidates admitted from 2011 – 2012 onwards

QP code: 311US1
38 hours

Preamble

To acquaint the students with the banking concepts and principles.

Module I:

Commercial banking – definition – bank – banking system – commercial banking – functions – role of banks in economic development. (8 Hrs)

Module II:

Central banking - need – principles – central banking functions – functions of RBI. (8 Hrs)

Module III:

Negotiable instruments: meaning – characteristics – nature – features – types. (8 Hrs)

Module IV:

Crossing – definition – need for crossing – types of crossing – Consequences of crossing – marking of a cheque. (7 Hrs)

Module V:

Endorsement – definition – types of endorsement – effect of endorsement – rules regarding endorsement. (7 Hrs)

Books for study:

Banking Theory Law and practice – Dr.S.Gurusamy, reprint – 2009, Vijay Nicole Imprints Private Ltd, Chennai.

Books for reference:

1. Indian banking – S.Natarajan & R.Parameswaran, S.Chand & Co Ltd, New Delhi, Reprint – 2007
2. Banking principles and operations – M.N.Gopinath, First Edition August 2008, Snow White Publications Private Ltd, Mumbai.

BBM (CA) Semester III

Part III – Core VIII – Programming in C++
(2011-2012 Batch)

QP Code:311U08/312U08

Preamble:

- C++ has emerged as the language of choice for most applications due to the speed portability and compactness of code.
- To inculcate an indepth programming ability in OOPS.

Module I:

Principles of Object oriented programming : Object oriented programming paradigm- Basic concepts of OOPS– Benefits of OOPS – object oriented language – application of oops. Beginning with C++:What is C++- Applications of C++ - structure of C++ program – Compiling and Linking-*Tokens , expression, control structures. (Chapters 1,2,3) (15 Hrs)

Module II:

Functions in C++: Main functions – function prototyping – call by reference - return by reference –Inline Functions- function overloading – friend and virtual function – classes and object. (Chapter 4,5) (15 hrs)

Module III:

Constructors and Destructors-Operator overloading and type conversions – Inheritance: Single inheritance – multiple inheritances – hierarchical inheritance.(Chapter 6,7,8) (15 hrs)

Module IV:

Pointers – virtual function and polymorphism – managing console I/O operations – Manipulating Strings(Chapter 9,10,15) (15 Hrs)

Module V:

Working with files – Templates-Exception Handling.(Chapter 11,12,13) (15 hrs)

Book for study:

Object oriented programming with C++: E.Balagurusamy, Tata McGraw
Hill Publishing co.ltd.IV Edition2008

Books for reference:

Object oriented programming in Turbo C++ : Robert Lafore
Galgotia Publications.2001.

Course Designed by : Ms.L.Sankara Maheswari

Course Reviewed by : Ms.B.Sreemathi

Course Checked by : Ms.B.Uma Maheswari

BBM(CA)-Semester-III

Part III – Core Practical III -Programming In C++
(2011-2012 Batch)

QP Code:311UP3/312UP3

List of Programs

1.(Friend Function)create two classes DM and BD which stores the value of distances.DM stores distances in meters and centimeters and DB in feet and inches .write a program that can read values for the class objects and add one object on with the other object DB.Use a friend function to carry out the addition operation and store the result in two object in their respective units.

2.(Derived Class) create a base class called SHAPE's. Use This Class to store two double type values that could be used to compute the area of figures.Derive two specific classes called TRIANGLE&RECTANGLE from the base class SHAPE.Add to the base class member. Function get_data () to initialize base class data members and another member function display _area () as a virtual function and redefine this function in the derived classes to suit their requirements.using these classes design a program that will accept dimensions of a triangle or rectangle interactively and displays the area. Remember the two values given as input will be treated as lengths of two sides in the case of rectangle and as base and height in the case of triangles and used as follows.

Area of rectangle= x*y

Area of triangle =1/2*x*y

3.a.(Overloading operators) create a class FLOAT that contains one float data member overload all four arithmetic operators so that they can operate on the objects of FLOAT.

b. (Function Overloading) Over load add(),sub() and multiply () to handle different data types using function overloading.

4. Write a program for performing string manipulations.

5. Write a program using constructors and destructors.

6. Create a program using single inheritance.

7. Payroll processing using both multiple and multilevel inheritance .

8. Write a function called bit stream for occurrence of a specified pattern of bits inside an integer. The main program should read a decimal integer and convert it into binary and then use the above function to check whether the given pattern is present or not.

9. Assume that a bank maintains two kinds of accounts for customers, one called as interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed. Create a class account that stores customer number and type of accounts. Derive the classes cur_acc to make functions in order to achieve the following task.

a) Accept deposit from customer and update the balance

b) Display the balance

c) Permit withdrawal and update the balance

d) Cheque for the minimum balance, add penalty if necessary and update the balance. Do not use any constructors. Use member functions to initialize class members

10. Write a program to sort an array of n numbers using function templates.

BBM(CA)-Semester-III
Part III-Allied III-Taxation
(2011-2012 Batch)

QP Code:311AU03/312AU03

Preamble:

- To make the students conversant with taxation system.
- To acquaint the students about TNGST Act and CST act.
- This paper helps to compute the income under various heads.
- It helps to know the deductions under various heads.

Module –I

Tax-Kinds of tax-Direct and indirect tax-single and multi point tax system-Proportional, Progressive, Regressive and Degressive taxation – Definition of income-Assessment year – previous year-scope of income - charge of tax- Residential status-Exempted income (Theory only) (20 Hrs)

Module –II

Heads of income- salary- computation of salary income – Income from house property – computation of income from house property.

(20hrs)

Module – III

Profits and Gains of Business or Profession- Capital Gains (20 hrs)

Module IV

Advalorem and Specific duty-value added tax-objectives of taxation-effects of taxation on production , distribution and consumption.

TNGST:Important terms-Definition-Basis of charge-Registration of dealers-procedure of assessment-sales tax authorities. (15hrs)

Module V

Central sales tax : important term-definition-Registration of dealers – Levy and collection (15 Hrs)

Note: This Paper consist of 60% theory and 40% Problems.

Books for study:

Business taxation : Dinkar pagare Sultan chand &sons New Delhi

Income tax law and practice :V.P.Guar and Narang kalyani publishers Newdelhi

Books for reference:

Indirect taxes law&practice:V.S.Datey,Taxmann publications pvt Ltd New Delhi

Income tax law and practice: Bhagawathy prasad

BBM(CA) – Semester – IV

Part III – Elective I – Human Resource Management

For the candidates admitted from 2011-2012 onwards

QP Code:411UE1

65 hours

Preamble:

- To impart knowledge on fundamentals of Human Resource Management.
- To make the students to know the modes of selection, performance appraisal.
- To impart knowledge of various training and organizational development method.

Module I

Human Resource: Significance – Human Resource Management: Concept – Features – Significance – Functions – Organizing HRM Functions- Difference between Personnel Management and HRM. HR Policy: Objectives – Characteristics of HR Manager. (13Hrs)

Module II

Procurement of Personnel – Job Analysis Job Description – Job Specification – Man Power Planning – Objectives – Process – Recruitment and Selection. Sources: Selection Techniques – Placement–Induction. (13Hrs)

Module III

Performance Management – Meaning – Purpose – Appraisal Methods – Appraisal of Managers Limitations of methods. Job Change – Promotion – Advantages – Merit based Promotion and Seniority Promotion – demotion – transfer – Types – Separation: *Lay off – Retrenchment, Retirement, Resignation, Absenteeism – turnover – Reduction of Labour turnover* (13 Hrs)

Module IV

Training and Development – Need – Objectives – Evaluating Training Needs – Training methods – Management Development Programme. Job Evaluation – Methods – Limitations, Incentive Compensation. Advantages – Kinds of Incentive Plans. (13Hrs)

Module V

Career Planning and Development – Welfare and Safety (Concept only) – Discipline – Causes for Indiscipline – Maintaining Disciplines. Grievances: meaning - characteristics – causes – Redressal of grievances – Grievance procedure. (13Hrs)

Book for Study:

Personnel Management and Industrial Relations: P.C.Tripathy,2010 Sultan chand & Sons, New Delhi.

Books for Reference:

3. Human Resource Management: L.M.Prasad, Sultan chand & Sons, New Delhi.
4. Personnel Management: C.B.Mamoria, Himilaya Publishing House, Mumbai.

BBM [CA] Semester – IV
Part III – Core X – Visual Basic
(2011-2012 Batch)

QP Code:411U10/412U10

Preamble:

- Visual basic is one of the popular programming language for windows based Application and games.
- This is Faster,more powerful and easy to use.
- VB suits more for application developing program.
- VB is enough powerful to suit all the application programming needs.

Module I

Initial Visual Basic Screen – Tool bars – Variables, data type, constants, strings, and numbers -Statements in VB: The comment and the end statement. (Book 1:Chapter 2,5)(12 Hrs)

Module II

First in building the user interface: The tool box – Creating controls – The name property – Properties of command button – Simple event procedure for command buttons – Access keys – Image controls – Text boxes - Labels – Navigating between controls – Message boxes. The grid – picture box – rich text box. (Book 1:Chapter4,6) (12 Hrs)

Module III

Organizing information via controls: Control arrays – List and combo boxes – Flex grid controls – controlling program flow: Determination loops – Indeterminate loops-Making decision – Select case nested if then else – The GOTO statement (Book 1:Chapter 7,11)(12 Hrs)

Module IV

BUILT IN FUNCTIONS: String functions – Numeric functions – Date and Time functions – Financial functions – Function and procedure: Function procedure and sub procedure. (Book 1:Chapter8,9) (12 Hrs)

Module V

The tool box revisited: Frames – Option buttons – Check options – Scroll bars – Timers – Microsoft windows common controls 6.0: Image list control – List view control – Progress bar control – slider control- Status bar control – menus – MDI Forms – Data bases: Using DAO, RDO, ADO((Book 1:Chapter14,Book 2:Chapter 24) (12 Hrs)

Book for study

1. Visual Basic 6 from the ground up: Gary Cornell, Tata McGraw hill BPB Publications 2006

2. Visual Basic 6 Programming black book: Steven Holzner, Dreamtech press

Book for reference

1. “Visual Basic 6 .0” : Steve brown, BPB Publications.
 2. “Visual Basic 6 Programming Bible”,Eric A.Smith, Valor Whisler and Hank Marquis2005
- Course Designed by : Ms.L.Sankara Maheswari
Course Reviewed by : Ms.B.Sreemathi
Course Checked by : Ms.B.Uma Maheswari

BBM [CA] Semester – IV
Part III – Core Practical IV – Visual Basic
(2011-2012 Batch)

QP Code: 411UP4/412UP4

List of programs

1. Design a form for simple arithmetic calculation.
2. Design a form to change font size, font name, back color and fore color of content in the text box.
3. Design a form by drawing a line, rectangle and circle and change their colors styles and sizes.
4. Design a form as a simple calculator.
5. Design a form for currency conversion.
6. Create a program for loading a picture using drive, directory, file list box controls.
7. Make a simple editor with the following menus and options.

File	Edit
New	Cut
Open	Copy
Save	Paste
8. Design a form to create a banking system containing current account, Fixed account and savings account.
(Do the above process with help of menu editor & data control consider Ms- Access as back end)
9. Prepare a mark list using DAO Control.
10. Design a form for employee payroll using link from database.

BBM [CA] Semester – IV
Part IV- Skill Based Course II – Basic Banking Operations
For the candidates admitted from 2011 – 2012 onwards
QP Code: 411US2
38 hours

Preamble:

To familiarise the students with basic banking operations.

Module I:

Bank customer – relationship – special types of customer. (8 Hrs)

Module II:

Opening bank accounts – types of account – steps in opening accounts – disclosure of information. (8Hrs)

Module III:

Paying banker – meaning – banker's duty – precautions by a paying banker – Dishonoring customer's cheque – discourage of paying banker – material alteration – statutory protection – refusal of cheque payment. (8 Hrs)

Module IV:

Collecting banker – meaning – collecting banker's role – statutory protection – payment in due course – collecting banker's duty. (7 Hrs)

Module V:

Bank lending – significance of bank lending – lending sources – bank lending principles – forms of lending – securities for lending – factors influencing bank lending. (7 Hrs)

Books for study:

Banking Theory Law and practice – Dr.S.Gurusamy, reprint – 2009, Vijay Nicole Imprints Private Ltd, Chennai.

Books for reference:

1. Indian banking – S.Natarajan & R.Parameswaran, S.Chand & Co Ltd, New Delhi, Reprint – 2007
2. Banking principles and operations – M.N.Gopinath, First Edition August 2008, Snow White Publications Private Ltd, Mumbai.

BBM(CA) – Semester – V

Part III – Core XI/ XII – Organizational Behaviour
For the candidates admitted from 2010-2011 onwards

QP Code:510U11/511U12
65 hours

Preamble:

- To acquaint the students with the individual and Organizational Behaviour
- To make them understand the personality aspects of individuals
- To provide them with knowledge about motivation and Leadership
- To make them solve conflicts by understanding Group dynamics

Module I

Organizational Behaviour: concept – Nature and scope – role – disciplines contributing OB – Hawthorne Experiments – Human Behaviour Approach – OB Models - *Emerging challenges and opportunities for Organizational Behaviour – Nature of human behaviour: Process of behaviour – Individual differences – Factors. (13 Hrs)

Module II

Personality: Concept – Theories of personality – determinants of personality – Personality and behaviour – organizational applications of personality. Perception – concept – Managerial applications of personality. (13 Hrs)

Module III

Attitude: Concept – factors in attitude formation – attitude change. Motivation: Concept – nature – Motivation and behaviour – theories of Motivation: Carrot and Stick Approach, X, Y and Z theories, Maslow's need hierarchy theory, Herzberg's theory, McClelland's achievement theory, Alderfer's ERG theory, Vroom's Expectance theory - *Financial and non financial Motivation. (13 Hrs)

Module IV

Job Satisfaction: Determinants – effects of Job Satisfaction. Group Dynamics: Concept: Types of Groups – group Norms – Factors influencing Norms – Group Cohesiveness – Factors affecting Group Cohesiveness. Group Decision Making: Decision Making Process – Factors – Techniques - *Positive and negative aspects of Group Decision-making – Organizational Conflict: Concept – Stages of Conflict – Types – Merits and Demerits of Conflict – Conflict Management. (13 Hrs)

Module V

Leadership: Concept – Functions - *Importance – Qualities of a good leader – Leadership styles – theories of leadership: Trait theory, Managerial Grid, Fiedler's Contingency model, Transformational and Transactional Leadership. Organizational Culture and Climate – Meaning – Importance – Features. (13 Hrs)

Book for study:

Organizational Behaviour: L.M.Prasad, Sultan chand & Sons, New Delhi. 2010 Edition

Books for reference:

3. Organizational Theory and Behaviour: V.S.P.Rao, P.S.Narayanan, Konark Publishers Pvt. Ltd.
4. Organizational Behaviour: Dr. K. Aswathappa Himalaya Publishing House.

BBM(CA) – Semester – V

Part III – Core XII/XIII – Global Business Management

For the candidates admitted from 2010-2011 onwards

QP Code:510U12/511U13

65 hours

Preamble:

- To acquaint about Global business management strategies.
- To make the students know about international agencies governing global trade.
- To educate about various export promotion schemes and procedures.

Module I

International trade: Nature – Problems – Orientation of International Business – Stages: Domestic, International, Multinational, Global - *Domestic Vs International Trade – Tariff – and non-Tariff Barriers – Globalization: Meaning – Essentials – conditions – Factors Favoring Globalization – *Strategies – Obstacles of Globalization. *Pattern of India's Foreign Trade (Import and Export) (13 Hrs)

Module II

Regulations of International Trade – India's EXIM policy – IMF – SAARC – UNCTD – GATT – WTO – IBRD – International Development Association (IDA) – International Finance Corporation (IFC). (13 Hrs)

Module III

Export Finance – Internal and External Sources – Terms of Credit in Export Trade – Instruments used in Financing Export Trade: Letter of Credit – Draft or Bill of Exchange – Counter Trade – EXIM bank – ECGC – Financial Guarantee: Packing Credit – Post Shipment Finance. (13 Hrs)

Module IV

Export Procedure – Offer and Receipt of Confirmed Orders – Producing the Goods - Shipment Banking Procedure – Negotiation – Documentation system - *Export incentives. (13 Hrs)

Module V

Export Promotion Measures – Infrastructure setup and Aids – Export Promotion Councils, Commodity Boards – Boards of Trade, ITPO FIEO, IIFO, Indian Council of Arbitration, STC, Export houses, FTZ's and EOU's – Trade Fairs and Exhibitions, Trading Houses and Star Trading Houses. (13 Hrs)

Note: Starred and Underlined portions are for self-study.

Books for Study:

3. Export Marketing: R.S.Rathor & J.S.Rathor, 2010 Himalaya Publishing House, 1997 Edition.
4. Export Management: T.A.S. Balagopal, 2010, Himalaya Publishing House, 2001 Edition.

Books for Reference:

4. International Business: Francis Cherunilam Wheller Publishing House, 2007 Edition.
5. International Business: K. Aswathappa, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 2003 Edition.
6. Export Management : P.K.Khurana, Galgotia Publishing Company, New Delhi, 2006 Edition

BBM(CA) – Semester – V
Part III – Elective II – Entrepreneurship and Project Management
For the candidates admitted from 2010-2011 onwards
QP Code: 510UE2/511UE2
65 hours

Preamble:

- To impart knowledge on entrepreneurship culture and make them to undertake projects successfully.
- To make them aware of various assistance and training programme available.
- To throw light on small enterprises and Government's assistance for promoting SSI units.
- To acquaint students with the knowledge of project identification, formulation and appraisal methods.

Module I

Entrepreneurship: Concept – Characteristics – Entrepreneurship and managers - *Traits of an Entrepreneur – types of Entrepreneurs – functions of an Entrepreneur – Entrepreneur. (13Hrs)

Module II

Factors affecting Entrepreneurial growth – Entrepreneurial Development Programme (EDP) – Need – Objectives – Phases – Institutional finance to Entrepreneurs. *Successful Women Entrepreneurs. (13 Hrs)

Module III

Small enterprises – Concept – Characteristics – Institutional support to small Entrepreneurs – Steps to be taken for starting a small industry – Government support to Small Scale Industry (during Five Year Plan). (13 Hrs)

Module IV

Project Management: Project – Concept – Classification – Project life cycle – Project Identification – Project Selection – Project Formulation – Feasibility Analysis Report – Elements – Project Report – Contents and Formulation. Networking Techniques: PERT-CPM (Theory Only) (13 Hrs)

Module V

Project Appraisal – Pay Back Period – Average rate of return – Net Present Value – Internal Rate of Return – Benefit Cost Ratio (Theory only). Network Techniques: PERT – CPM. (13 Hrs)

Note: Starred and Underlined portions are for self-study.

Book for Study:

Entrepreneurial Development: S.S.Khanka, Sultan Chand & Co. Ltd., New Delhi. 2011 Edition.

Books for Reference:

Entrepreneurial Development: C.B.Gupta, N.P.Srinivasan, Sultan Chand & Co. Ltd., New Delhi. 2010 Edition.

Course designed by	: PL.Amirtham
Course reviewed by	: S.Manju
Course checked by	: B.Umamaheswari

BBM [CA] Semester – V

Part IV- Skill Based Course III – E-Banking

For the candidates admitted from 2010 – 2011 onwards

QP Code: 510US3/511US3

38 hours

Preamble:

To equip the students with the operational aspects of E-banking products and services.

Module I:

E-banking – meaning – services of E-banking - E-banking and financial services – benefits – initiatives and opportunities – risk management for E-banking – types of risks - meaning risks. (8 Hrs)

Module II:

Internet banking Vs traditional banking – mechanics of internet banking – major issues of internet banking – drawbacks – Indian scenario – future outlook. (8 Hrs)

Module III:

Mobile banking: meaning – definition – features – registration services – security issues. Telephone banking: meaning – definition – features – mechanism – banking facilities – Telephone banking system – drawbacks – Call centers. (8 Hrs)

Module IV:

ATM – concept – features – ATM types – mechanism – ATM functions. (7 Hrs)

Module V:

Electronic fund transfer system: steps – benefits. Electronic payment system – methods of payment. INFINET – factors responsible for launch – benefits – application of INFINET. (7 Hrs)

Books for study:

Banking Theory Law and practice – Dr.S.Gurusamy, reprint – 2009, Vijay Nicole Imprints Private Ltd, Chennai.

Books for reference:

1. Indian banking – S.Natarajan & R.Parameswaran, S.Chand & Co Ltd, New Delhi, Reprint – 2007
2. Banking principles and operations – M.N.Gopinath, First Edition August 2008, Snow White Publications Private Ltd, Mumbai.

BBM(CA) – Semester – VI

Part III – Core XV/XVI – Strategic Management

For the candidates admitted from 2010-2011 onwards

QP Code:610U15/611U16

75 hours

Preamble:

- To impart knowledge on business policy and strategic planning.
- To throw light on modes of scanning the environment.
- To make them to know about various strategic choices.
- To provide knowledge on strategic implementation and techniques.

Module I

Business Policy – Definition – Scope – Strategy – Definition – Levels of Strategy – Corporate Planning and Strategic Planning – Strategic Decision Making – Strategic Management: Process – Role of Strategists – Corporate mission – Vision – Objectives – Business – Ethics – Social Responsibility of Strategic Management. (15 Hrs)

Module II

Dynamic Environmental Appraisal – External and Internal Environment – components of Environment – Environmental Scanning – Organizational Appraisal: Methods and Techniques – Corporate Analysis – Industry Competitor – and SWOT Analysis. (15 Hrs)

Module III

Strategic Alternatives – Grand Strategies – Modernization Strategies – Diversification and Integration Strategies – Merger, Takeover and Joint Venture Strategies – Turn Around, Divestment and Liquidation Strategies – Evaluation of Strategic Alternatives – Strategic Choice: Process – Corporate Portfolio Analysis. (15 Hrs)

Module IV

Strategy Implementation – Resource Allocation – Implementation through Integrated Functional Plans and Policies – Organizational Structures and Strategies – Organizational change and Design – Implementing Strategy through Leadership, Culture and Rewards. (15 Hrs)

Module V

Strategic Evolution and Control – Nature – Importance – Barriers – Strategic Control: Types – Operational Control - Techniques of Strategic Evaluation and Control - *Role of Organizational Systems in Evolution. (15 Hrs)

Note: Starred and Underlined portions are for self-study.

Book for Study:

3. Business Policy and Strategic Management: L.M. Prasad, 2009, Sultan chand & Sons, New Delhi.
4. Business Policy and Strategic Management: Azar kazmi, 2010, TataMcGraw Hill Publications Co. Ltd., New Delhi.

Book for Reference:

Strategic Management Strategic Formulation and Implementation: John A.Pearce and Richard, Publishers and Distributions, New Delhi.

BBM [CA] Semester – VI

Part III – Elective III – Computerized Accounting Tally

For the candidates admitted from 2010-2011 onwards

QP Code:610UE3/611UE3
75 hours

Preamble:

This Programme has Four Levels which have been classified according to the following organisation types:

- Service, Trading, Manufacturing, Financial Analysis

Level I: Tally's accounting features: Basics of Accounting – Accounting Principles – Concepts – Conventions – Double Entry system- Financial statements – Business organisations – service organisations - Tally Fundamentals – Features of Tally – F11& F12 Features – Ledgers & Groups – Vouchers – Recording transactions – Backup – Security control – Purchase & sale invoices – Depreciation entries- Adjustment entries- Provision entries.

Level II: Financial reports – Balance Sheet – P&L Account , Trial Balance – Cash book , Bank books ,Ledgers ,Group summary ,Group Vouchers , Journal registers – Day book – List of accounts – Second year entry. Trading organisations - Tally's basic inventory related features: Transactions involving purchases and sale of goods, bills receivables and bills payable – Value Added Tax(VAT) – Sales tax – Voucher type creation.

Level III: Stock group & Item , unit of measure cost centers – cost category – Cheque printing – Interest calculation – Inventory Voucher. Bank Reconciliation Statement (BRS)- Multiple price level- Discount – Point of Sale (POS) - learn to setup related accounts and

prepare financial statements. Manufacturing organisations : Advanced inventory related features : Transactions involve purchase of raw material, Manufacturing Journal – Multi currency – TDS – TCS – Service tax – Tally audit – Reports - Out standings - Receivables & Payables – Age-wise analysis.

Level IV : CST reports – TDS Reports – Service tax report – Process Industry (Conversion of material into work-in-process)- Job Work – By Products - Multiple finished goods from single Raw prepare related financial statements. The financial and cost features. Prepare budgets, develop forecasts, perform ratio analysis- Costing system – Cost Accounting – Overhead allocation – Variance analysis – Management control systems – Management structure.

Level V: Ratio Analysis – Financial Ratio, Profitability ratio – Activity ratio – Investments return and market performance – Cash flow - Fund flow statements – Inventory cost – Stock Valuation methods in Tally – Age-wise analysis of Inventory – Reorder Level – Movement analysis – System administration and other utilities- and prepare financial reports.

2017-2018
Curriculum Design
SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of B.Com (Computer Applications)
B.Com (Computer Applications)
Scheme of Examination – CBCS Pattern
(For the students admitted from the academic year 2017-2018 onwards)

Course Code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	TOTAL Marks	
117BT1/ 117MY1/ 117HD1/ 117FR1	Semester – I Part I – Language – I	6	3	25	75	100	4
117EN1	Part II – English – I	6	3	25	75	100	4
117B01/ 117R01/ 117N01	Part III – Core I- Financial Accounting - I	5	3	25	75	100	4
117B02/ 117R02	Core II- Business Organisation	5	3	25	75	100	4
117AR1	Allied I – Computer Application Tools – Practical I	6	3	40	60	100	4
117EVS	Part IV – Environmental Studies	2	2	50	-	50	2
217BT2/ 217MY2/ 217HD2/ 217FR2	Semester – II Part I – Language - II	6	3	25	75	100	4
217EN2	Part II – English – II	6	3	25	75	100	4
217B03/ 217R03/ 217N03	Part III – Core III – Financial Accounting – II	5	3	25	75	100	4
217B04/ 217R04/ 217V04	Core IV –Principles of Marketing	5	3	25	75	100	4
217AR2	Allied II – C Programming and Web Designing – Practical II	6	3	40	60	100	4
217VEC	Part IV – Value Education	2	2	50	-	50	2
317B05/ 317R05/ 317N05	Semester – III Part III- Core V–Corporate Accounting	5	3	25	75	100	4
317R06	Core VI - Object Oriented Programming with C++	5	3	25	50	75	3
317R07	Core VII- C++ Programming- Practical III	4	3	40	60	100	4
317R08	Core VIII- Enterprise Resource	5	3	25	75	100	4

	Planning						
317AB3/ 317AR3/ 317AN3	Allied III – Mathematics in Business	6	3	25	75	100	4
317NMM	Part IV – Non Major Elective - Materials Management	2	2	50	-	50	2
317RS1	Part IV-Skill Enhancement Course I - Principles of Insurance	3	3	75	-	75	3
417R09	Semester – IV Part III- Core IX- Relational Database Management System	5	3	25	50	75	3
417B10/ 417R10/ 417N10/	Core X - Cost Accounting	5	3	25	75	100	4
417B11/ 417R11	Core XI - Banking Law and Practice	5	3	25	75	100	4
417R12	Core XII- MySQL Programming – Practical IV	4	3	40	60	100	4
417AB4/ 417AR4/ 417AN4	Allied IV- Statistics	6	3	25	75	100	4
417NGA	Part IV – General Awareness	-	1	50	-	50	2
417RS2	Part IV – Skill Enhancement Course II- Life Insurance	3	3	75	-	75	3
417GIS	Information Security - Level – II	2	2	50	-	Grade	Grade
417ALR	Advanced Learners Course I- Management Information System	-	-	-	100	100	4*

B.Com/B.Com(CA)/B.Com(e-Commerce)

Semester I

Part III - Core I - Financial Accounting I 117B01/117R01/117N01

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To provide knowledge of accounting concepts, principles and practices of financial statements.
- To equip the skills for recording business transactions.
- To familiarize with preparation of Bank Reconciliation statement.
- To understand the methods of preparing single entry system of book keeping
- To develop knowledge on methods of providing depreciation.
- To understand the method of preparing accounts for non- trading organisation.

Unit I

Accounting concepts and conventions –Journal – Ledger – Preparation of Trail balance.

(13 Hours)

Unit II

Preparation of final accounts of a sole trader-Rectification of errors.

(13 Hours)

Unit III

Single Entry System: Meaning and Features-Statement of Affairs Method and Conversion Method – Bank Reconciliation Statement. **(13 Hours)**

Unit IV

Depreciation: Meaning- Methods: straight line method-written down value method-annuity method-depreciation fund method-insurance policy method-revaluation method-depletion method-Machine hour Method-Reserves and Provisions. **(13 Hours)**

Unit V

Accounts of Non - Trading Concerns: Receipts and Payments account – Income and Expenditure account- Balance Sheet. **(13 Hours)**

Note: Distribution of marks for Theory and Problem shall be 20% and 80% respectively.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I – V	S.P.Jain and K.L.Narang	Advanced Accountancy	Kalyani Publishers, New Delhi, Ed. 2015.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
T.S.Reddy and A.Murthy	Financial Accounting	Margham Publishers, Chennai, Ed. 2017
R.S.N.Pillai and Bagavathi	Advanced Accountancy	Konark Publishers Pvt.Ltd. Delhi.Ed. 2015

Part III - Core II –Business Organisation 117B02/117R02 **(For the students admitted from the academic year 2017-2018 onwards)**

Course Objectives

(65 Hours)

- To understand the basic concepts in business organisation.
- To impart knowledge on forms of organisation.
- To provide knowledge on privatisation.
- To understand optimum size and location of a business.
- To understand the features of modern business combination.

Unit I

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk – business ethics. **(13 Hours)**

Unit II

Forms of organisation: Sole Proprietorship: Characteristics – Advantages – Disadvantages. Partnership: Characteristics – Kinds – Registration of Partnership – Partnership Deed – Advantages – Disadvantages – Rights and Obligations of Partners – Dissolution of a partnership firm. **(13 Hours)**

Unit III

Joint Stock Company: Characteristics – Kinds – shares-debentures-merits – demerits. Co-operatives: Characteristics – Types. Public Enterprises: Characteristics – Objectives – Forms – Problems of Public Enterprises. Privatisation: Rationale. Public Utilities: Characteristics and Forms. **(13Hours)**

Unit IV

Location of a business unit - Theories of location –factors influencing location – Localisation Vs Delocalisation. Size of a unit and scale of operations- measuring size of a unit – Factors determining size – Optimum Firm-factors determining optimum size. (13 Hours)

Unit V

Business Combinations: Causes-Types-Forms-Advantages-Disadvantages. Concentration of economic power: Causes-Consequences-Measures-Combination movement in India.

(13 Hours)

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I - V	R.K.Sharma and Shashi, K.Gupta	Business Organisation and Office Management	Kalyani Publishers, NewDelhi, 3 rd Edition, Re-Print 2015.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Y.K .Bhusan	Fundamentals of Business Organisation and Management	Sultan Chand and Sons, New Delhi, Edition –X, 2013
S.A Sherlekar	Modern Business Organisation and Management	Himalaya Publishing House, New Delhi, 2017

Allied I – Computer Application Tools – Practical I 117AR1 (For the students admitted from the academic year 2017-2018 onwards)

Course Objectives (75 Hours)

- To impart knowledge on various applications of computers in office automation.
- To develop skills in word processing and presentation.
- To expose the students with the knowledge on usage of computer applications in office automation.

List of Practicals

Ms Word

1. Type a paragraph and perform the following changes:

Font size
Font style
Line spacing
Page setup (Margin)
Text color
Center Heading

Underline a Text
Bullets / Numbering
Insert page numbers using footer
Insert header
Find & Replace

Cut, Copy & Paste

Change Case

2. Preparation of a Curriculum Vita
3. Prepare a Class Time Table
4. Design: Cheque Leaf for a Bank
5. Preparation of Invoice
6. Send an Invitation to various colleges for the workshop using Mail Merge
7. Preparation of Advertisement Copy

MS-Excel

8. Prepare a mark list of your class (minimum of 5 subjects) and perform the Following operations (Total, Average, Result by using arithmetic and logical functions and sorting).
9. Prepare a Payroll for an enterprise.
10. Draw the different type of charts.
11. Calculation of Mean, Median, Mode and Standard Deviation.

Ms PowerPoint

12. Design presentation slides for a product of your choice.
13. Design slides for the headlines News of a popular TV Channel. Make use of slide transition.
14. Design presentation slides for the Seminar/Lecture Presentation using animation effects. .

Ms Access

15. Prepare a Student Database.
16. Create an Employee Database.
17. Prepare a Customer Database.

B.Com (CA)

Semester II

Part III – Core III- Financial Accounting II 217B03/217R03/217N03

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To familiarise with the process involved in hire purchase and installment system.
- To acquaint knowledge on branch and departmental accounting.
- To understand the accounting rules applicable for partnership firm.

Unit I

Hire Purchase and Installment Purchase System – Hire Purchase trading account.
(13 Hours)

Unit II

Branch Accounting (excluding foreign branches) – Departmental Accounts.
(13 Hours)

Unit III

Partnership Accounts-Division of profits-Fixed and Fluctuating capital-Past adjustments and guarantee of profits.
(13 Hours)

Unit IV

Admission of a partner – Calculation of new profit sharing ratio –Revaluation of assets and liabilities – Valuation of goodwill - Treatment of Goodwill – Distribution of undistributed profits and losses – Proportionate capital adjustments.
(13 Hours)

Unit V

Retirement of partner – Revaluation of assets and liabilities – Death of a partner.
(13 Hours)

Note: Distribution of marks for Theory and Problem shall be 20% and 80% respectively.

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I – V	S.P.Jain and K.L.Narang	Advanced Accountancy	Kalyani Publishers, New Delhi, Ed. 2015.

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
T.S.Reddy and A.Murthy	Financial Accounting	Margham Publishers, Chennai, Ed. 2017
R.S.N.Pillai and Bagavathi	Advanced Accountancy	Konark Publishers Pvt.Ltd. Delhi.Ed. 2015

B.Com (CA)

Semester II

Part III - Core IV- Principles of Marketing 217B04/217R04/217V04 (For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To provide a comprehensive understanding of the marketing concepts.
- To impart knowledge on marketing functions.
- To identify the marketing mix components.
- To provide knowledge on promotion mix activities.
- To understand the exchange process in the market.

Unit I

Marketing- Objectives – importance of modern marketing concept – Marketing mix.

Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales. **(13 Hours)**

Unit II

Functions of Physical Supply: Transportation: functions – classification of transport – merits – choice of mode of transportation. Storage – advantages. Warehousing: functions – kinds. Standardization and Grading: types. Marketing finance: kinds of finance. Marketing risk: causes – methods of handling risk. **(13 Hours)**

Unit III

Product– Product Life Cycle — New product planning – steps in new product planning.

Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing. **(13 Hours)**

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections. **(13 Hours)**

Unit V

Channels of Distribution: importance – types – classification of middlemen – Agent middlemen- Wholesaler, Retailer: Kinds - services rendered – elimination of middlemen. **(13 Hours)**

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I – V	R.S.N. Pillai and Bagavathi	Modern Marketing Principles and Practice	S. Chand and Company, New Delhi. Ed. 2013.

Book for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr. N. Rajan Nair and Sanjith R. Nair	Marketing	Sultan Chand and sons, New Delhi, Ed. 2016

Part III - Allied II – C Programming and Web Designing – Practical II **217AR2**
(For the students admitted during the academic year 2017-2018 onwards)
(75 Hours)

Course Objectives

- To expose with programming skills using the fundamentals and basics of C language.
- To motivate the students to develop web pages.

List of Practical Programs

Programming in C

1. Write a Program to find Simple and Compound Interest.
2. Write a Program to display Fibonacci series.
3. Write a Program to find the roots of a given quadratic equation.
4. Write a program to use Pointers in arithmetic operations.
5. Write a program to swap two lines.
6. Write a program to find out sum of 'n' numbers.
7. Write a program to calculate salary of a person.
8. Program to convert decimal to binary.
9. Program to find NCR value using functions.
10. Write a Program to read the name of students of a class in alphabetical order, assign roll numbers and write them in another file.

Web Designing

1. Design a web page for a product advertisement using basic tags and formatting tags.
2. Create webpage using frames and hyperlink for ordered list and unordered list.
3. Design Web page to zoom the small image to big image using alignment tags.
4. Design an invoice.
5. Design application form for B.Com (CA) degree.

2016-2017
Curriculum Design
SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of B.Com (Computer Applications)
B.Com (Computer Applications)
Scheme of Examination – CBCS Pattern
(For the students admitted during the academic year 2016-2017 only)

Course Code	Course Title	Ins. Hrs /week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	SEMESTER-I						
115BT1/ 115MY1/ 115HD1/ 115FR1	Part I- Language I	6	3	25	75	100	4
115EN1	Part II- English I	6	3	25	75	100	4
115B01/ 115R01/ 115N01	Part III- Core I – Financial Accounting	5	3	25	75	100	4
115B02/ 115R02/ 115N02/ 115V02	Core II – Business Management	5	3	25	75	100	4
115AB1/ 115AR1/ 115AN1/ 115AV1	Allied I - Office Automation Tools- Practical I	6	3	40	60	100	4
115EVS	Part IV- Environmental Studies	2	2	50	--	50	2
	SEMESTER- II						
215BT2/ 215MY2/ 215HD2/ 215FR2	Part I- Language II	6	3	25	75	100	4
215EN2	Part II- English II	6	3	25	75	100	4
215B03/ 215R03/ 215N03	Part III- Core III – Company Law	5	3	25	75	100	4
215B04/ 215R04/ 215N04/ 215V04	Core IV – Marketing	5	3	25	75	100	4
216AR2	Allied II – C Programming and Web Designing– Practical II	6	3	40	60	100	4
215VEC	Part IV- Value Education	2	2	50	--	50	2

Course Code	Course Title	Ins. Hrs /week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	SEMESTER - III						
315B05/ 315R05/ 315N05	Part III - Core V – Higher Financial Accounting	5	3	25	75	100	4
315R06	Core VI – C++	5	3	25	50	75	3
315R07	Core VII– C++ – Practical III	4	3	40	60	100	4
315R08	Core VIII – Enterprise Resource Planning	5	3	25	50	75	3
315AB3/ 315AR3/ 315AN3	Allied III - Mathematics in Business	6	3	25	75	100	4
315NBT	Part IV-Non Major Elective Course I – Basics of Accounting and Inventory in Tally. ERP 9	2	2	50	--	50	2
315RS1	Part IV-Skill Based Course I - Principles of Insurance	3	3	75	--	75	3
	SEMESTER - IV						
415B09/ 415R09/ 415N09/ 415V09	Part III- Core IX – Business Communication	5	3	25	75	100	4
415B10/ 415R10/ 415N10/ 415V10	Core X – Cost Accounting	5	3	25	75	100	4
415R11	Core XI - Relational Database Management System	5	3	25	75	100	4
415R12	Core XII - RDBMS– Practical IV	4	3	40	60	100	4
415AB4/ 415AR4/ 415AN4	Allied IV- Statistics for Business	6	3	25	75	100	4
415NGA	Part IV- General Awareness (Online)	--	1	50	--	50	2
415RS2	Part IV – Skill Based Course II- Life Insurance Products	3	3	75	--	75	3
415GIS	Part IV - Information Security	2	2	50	--	Grade	Grade
415ALR	Advanced Learner's Course I- Subject Viva-Voce	--	--	--	100	100	4*

Course Code	Course Title	Ins. Hrs /week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	SEMESTER- V						
515B13/ 515R13/ 515N13/ 515V13	Part III- Core XIII - E-Accounting - Practical V	6	3	40	60	100	4
515B14/ 515R14/ 515N14/ 515V14	Core XIV - Income Tax	6	3	25	75	100	4
515B15/ 515R15/ 515N15/ 515V15	Core XV – Business Finance	5	3	25	75	100	4
515B16/ 515R16/ 515N16	Core XVI – Higher Corporate Accounting	5	3	25	75	100	4
515RE1	Elective I – Banking Law and Practice	5	3	25	75	100	4
515RS3	Part IV – Skill Based Course III - Non-Life Insurance Products	3	3	75	--	75	3
	SEMESTER- VI						
615B17/ 615R17/ 615N17/ 615V17	Part III- Core XVII – Management Accounting	6	3	25	75	100	4
615B18/ 615R18/ 615N18	Core XVIII – E- Commerce	6	3	25	75	100	4
615R19	Core XIX – Visual Basic	5	3	25	75	100	4
615RE2	Elective II– Visual Basic– Practical VI	4	3	40	60	100	4
615BE3/ 615RE3/ 615NE3	Elective III – Financial Services	6	3	25	75	100	4
615RS4	Part IV – Skill Based Course IV- Data Analytics with Excel	3	3	75	--	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V– Extension Activity	--	--	50	--	50	2
6 15ALR	Advanced Learner’s Course II - Subject Viva-Voce		--	--	100	100	4*

B.Com/B.Com(CA)/B.Com(e-Commerce)

Semester I

Part III - Core I - Financial Accounting

115B01/115R01/115N01

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objectives of this course are:

- To provide an in-depth knowledge of accounting concepts and conventions.
- To acquaint with the methods of applying accounting principles.

Unit I

Accounting concepts and conventions – Preparation of final accounts of a Sole trader.

(13 Hours)

Unit II

Depreciation: meaning- methods - reserves and provisions.

(13 Hours)

Unit III

Bill of exchange including accommodation bill.

(13 Hours)

Unit IV

Accounts of Non - Trading Concerns: Receipts and Payments a/c – Income and Expenditure a/c- Balance Sheet.

(13 Hours)

Unit V

Single Entry System – Net worth method- Conversion Method.

(13 Hours)

Note: Distribution of marks for Theory and Problem shall be 20% and 80% respectively.

Book for Study

Advanced Accountancy : S.P.Jain and K.L.Narang,
Kalyani Publishers, New Delhi, Ed. 2013.

Books for Reference

Financial Accounting : T.S.Reddy and A.Murthy,
Margham Publishers, Chennai, Ed. 2013

Advanced Accountancy : R.S.N.Pillai and Bagavathi,
Konark Publishers Pvt.Ltd. Delhi. Ed. 2013

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester I

Part III - Core II - Business Management

115B02/115R02/115N02/115V02

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objectives of this course are:

- To gain knowledge on concepts of management.
- To familiarise with the managerial skills.

Unit I

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk.

Definition of Management – Nature and Scope of Management - Contribution of F.W. Taylor, Henry Fayol - Functions of Management.

(13 Hours)

Unit II

Planning – Nature and Importance of planning – Advantages and Limitations – Steps in planning – Decision making – Decision making process.

(13 Hours)

Unit III

Organising – Meaning, Nature and importance -Principles of Organisation– Classification of Organisation – Span of Control – Types of Organisation: Line, Functional, Line and Staff.

(13 Hours)

Unit IV

Staffing: Definition –Functions-Recruitment – selection-promotion.

Directing: characteristics - techniques.

(13 Hours)

Unit V

Leadership – Meaning – Importance of Leadership – Functions of a Leader – Qualities of a Leader – Types of Leadership.

Controlling: Steps in Control Process – Techniques of Control.

(13 Hours)

Book for study

Principles of Management : T. Ramasamy,
Himalaya Publishing House, New Delhi. 6th Ed 2014.

Books for Reference

Principles of Management : Dinkar Pagare,
Sultan Chand and Sons, New Delhi. 5th Ed 2008.

Business Organization and Office Management : R.K.Sharma and Shashi, K.Gupta,
Kalyani Publishers, Ludhiana, 3rd Ed. 2013.

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)

Semester I

Part III - Allied I – Office Automation Tools – Practical I

115AB1/115AR1/115AN1/115AV1

(For the students admitted from the academic year 2015-2016 onwards)

List of Practical

(75Hours)

Ms Word

1. Preparation of a Curriculum Vita.
2. Design: Cheque Leaf for a Bank
- Preparation of Invoice
3. Send an Invitation to various colleges for the workshop using Mail Merge.
4. Preparation of Advertisement Copy.

Ms Access

5. Prepare a Student Database.
6. Create an Employee Database.
7. Prepare a Customer Database.

Ms PowerPoint:

8. Prepare a Slide Show for organising a Seminar.
9. Prepare a Slide show for Paper Presentation.
10. Demonstrate a product using Custom Animation.

B.Com/B.Com(CA)/B.Com(e-Commerce)

Semester II

Part III - Core III – Company Law

215B03/215R03/215N03

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objective of this course is:

- To impart the basic principles of Company Law.

Unit I

Company – Definition and Features – kinds of companies– Incorporation of company – Certificate of Incorporation – Certificate of Commencement.

(13 Hours)

Unit II

Memorandum of Association: Contents, Alteration.

Articles of Association - Contents - alteration - Doctrine of Ultra Virus – Constructive notice of Memorandum and Articles - Doctrine of indoor Management. (13 Hours)

Unit III

Prospectus: Definition –Matters to be stated in prospectus – Red herring prospectus – Shelf prospectus- Public offer and Private placement- Invitation for subscription of securities on private placement - Liability for Misstatement in prospectus. (13 Hours)

Unit IV

Company Meetings – Statutory Meeting - Annual General Meeting –Extraordinary General Meetings and Board Meetings – Resolutions, Minutes, Quorum and Proxy. (13 Hours)

Unit V

Company Management - Board of Directors: Appointment, Qualification, Powers, duties, liabilities, and position of directors. (13 Hours)

Book for Study

Elements of Company Law : N.D. Kapoor,
Sultan Chand and Sons, New Delhi, 29th Ed2013.

Books for Reference

Company Law : Dr.N.Premavathy
Sri Vishnu Publication.,Chennai.,Ed 2009
Company Law : Dr.M.R.Sreenivasan
Margham Publication.,Chennai.,Ed 2013

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester II

Part III - Core IV- Marketing 215B04/215R04/215N04/215V04

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65Hours)

The objectives of this course are:

- To impart the knowledge on various aspects of marketing functions.
- To give a comprehensive understanding of the marketing concepts.

Unit I

Marketing: meaning – objectives – importance of modern marketing concept – Marketing mix.

Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales. (13 Hours)

Unit II

Functions of physical supply – Transportation: functions – classification of transport – merits – choice of mode of transportation.Storage – advantages – Warehousing: functions – kinds. Standardization and Grading: types. Marketing finance: kinds of business finance. Marketing risk: causes – methods of handling risk. (13 Hours)

Unit III

Product– Product Life Cycle — New product planning – steps in New Product Planning.

Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing. (13 Hours)

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections. (13 Hours)

Unit V

Channels of distribution: importance – types – Classification of middlemen – Agent middlemen- Wholesaler – Retailer – kinds – services rendered – elimination of middlemen.

(13 Hours)

Book for Study

Modern Marketing : R.S.N. Pillai and Bagavathi
Principles and practice S. Chand and company, New Delhi. Ed. 2013.

Books for reference

Marketing : Dr. N. Rajan Nair and Sanjith R. Nair
Sultan Chand and sons, New Delhi, Ed. 2010

B.Com (Computer Applications)

Semester II

Part III-Allied II – C Programming and Web Designing – Practical II

216AR2

(For the students admitted during the academic year 2016-2017 only)

(75 Hours)

List of Practical Programs

C Programming

1. Write a Program to find Simple and Compound Interest.
2. Write a Program to display Fibonacci series.
3. Write a Program to find the roots of a given quadratic equation.
4. Write a program to use Pointers in arithmetic operations.
5. Write a program to swap two lines.
6. Write a program to find out sum of n numbers.
7. Write a program to calculate salary of a person.

Web Designing

1. Design a web page for a product advertisement using basic tags and formatting tags.
2. Create webpage using frames and hyperlink for ordered list and unordered list.
3. Design Web page to zoom the small image to big image using alignment tags.
4. Create a Resume.
5. Create e-mail id account.

B.Com/B.Com (CA)/B.Com (e-Commerce)

Semester III

Part III - Core V – Higher Financial Accounting

315B05/315R05/315N05

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objectives of this course are:

- To make students conversant with the accounting principles applicable for partnership form of organization.
- To expose the students to the basic concepts in corporate accounting.

Unit I

Partnership Accounts– Fixed and Fluctuating Capital – Past adjustments and guarantee of profits. Valuation of Goodwill - Treatment of Goodwill.

(13 Hours)

Unit II

Admission of a partner – Calculation of new profit sharing ratio – Revaluation of Assets and Liabilities – Distribution of undistributed Profits and Losses – Proportionate Capital adjustments. (13 Hours)

Unit III

Retirement of a partner – Revaluation of Assets and Liabilities – Death of a partner – Joint Life Policy. (13 Hours)

Unit IV

Amalgamation of firms – Sale of firm to a company.

Dissolution – Realisation of Assets – Settlement of liabilities. (13 Hours)

Unit V

Insolvency of a Partner – Rule in Garner Vs Murray – Insolvency of all partners – Piecemeal distribution – Proportionate Capital Method – Maximum possible loss method.

(13 Hours)

Note: Distribution of marks for Theory and Problem shall be 20% and 80% respectively.

Book for Study

Advanced Accountancy : S.P. Jain and K.L.Narang,
Kalyani Publishers, New Delhi. Ed. 2013

Book for Reference

Financial Accounting : T.S. Reddy and A. Murthy,
Margham Publications, Chennai, Ed. 2013

B.Com (Computer Applications)

Semester III

Part III - Core VI - C++

315R06

(For the students admitted from the academic year 2015 – 2016 onwards)

(65 Hours)

Preamble :

The course is designed to

- enable the student enhance the programming knowledge,
- provide an exposure about the various oops concepts and
- impart knowledge about the programming languages.

Unit I

Principles of OOPS: Basic concepts of OOPS- Benefits of OOPS – Object oriented languages - Applications of OOPS. Structure of C++ program. (13 Hours)

Unit II

Tokens, Expressions and Control Structure – Functions in C++. (13 Hours)

Unit III

Classes and objects – Constructors and Destructors. (13 Hours)

Unit IV

Operator overloading – Inheritance. (13 Hours)

Unit V

Pointers – Virtual functions - Working with files. (13 Hours)

Books for Study:

1. Object oriented programming with C++ - E.Balaguruswamy, 3rd edition,
TataMcGraw-Hill Publishing Co.,

Books for Reference:

1. Mastering C++ - K.R Venugopal, T.Ravishankar,
Rajkumar,
Tata Mc Graw Hill, Publishing Co.,

2. The C++ Programming Languages - Bjarne Stroustrup, 4th edition,
Pearson Education Pvt.LtdNewDelhi
3. Spoken Tutorial Project (C++) as e-Resource for Learning- IIT, Mumbai under
National Mission on Education through ICT,MHRD,Govt. of India

**B.Com (Computer Applications)
Semester III**

Part III- Core VII– C++ – Practical III **315R07**
(For the students admitted from the academic year 2015 – 2016 onwards)
(52 Hours)

List of Practical Programs

- 1) Write a program to design a Pyramid using For loop.
- 2) Write a program to generate the Mark sheet and declare the Result of the student.
- 3) Write a program to calculate the Electricity Bill.
- 4) Write a program to reverse the String using Static Members.
- 5) Write a program to calculate the Break- Even Point.
- 6) Write a program to calculate the Economic Ordering Quantity.
- 7) Write a program to Compare and concatenate two strings.
- 8) Write a program to prepare the Payroll of Employee.
- 9) Write a program to simulate a simple banking system using Constructor member function.
- 10) Write a program to compute simple interest and compound interest
- 11) Write a program for multiplying two matrices.
- 12) Write a program to check whether a given number is Prime or Not.
- 13) Write a program to find Factorial of a given number.
- 14) Write a program to using operator Overloading function.
- 15) Develop an program to process shopping list

**B.Com (Computer Applications)
Semester III**

Part III– Core VIII – Enterprise Resource Planning **315R08**
(For the students admitted from the academic year 2015 – 2016 onwards)
Preamble: **(65 Hours)**

This course is designed to

- acquaint the basic knowledge about Enterprise Recourse Planning and
- Develop an understanding on ERP Modules.

Unit I

Introduction to ERP: Common ERP Myths-History-Evolution-Reasons for the growth of ERP market-Advantages-The future of ERP. **(13 Hours)**

Unit II

ERP and related technologies: Introduction-Business Process Re-engineering(BPR)- Data Warehousing-Data Mining-Online Analytical Processing (OLAP)-Product Life Cycle Management(PLM)- Supply Chain Management(SCM)-Customer Relationship Management(CRM)-Geographical Information System(GIS)-Intranets and Extranets.

Business Intelligence (BI): Introduction-Reasons-Benefits-Factors Influencing Business Intelligence. **(13 Hours)**

Unit III

ERP Modules: Finance-Manufacturing-Plant Maintenance. **(13 Hours)**

Unit IV

ERP Modules: Human Resources-Materials Management-Quality Management-Marketing-Sales, Distribution and services. **(13 Hours)**

Unit V

ERP Implementation Life Cycle: Introduction-Objectives-Different Phases of ERP implementation. **(13 Hours)**

Book for Study:

Enterprise Resource Planning - Alexis Leon, Second Edition,
Tata McGraw Hill Publishing Company.

Books for Reference:

Enterprise Resource Planning - Mahadeo Jaiswal & Ganesh Vanapalli
Macmillan India Ltd, 2005 Edition
ERP A Managerial Perspective - S.Sadagopan,TATA Mc Graw Hill Publishing
House,2011 Edition.

B.Com (Computer Applications)

Semester – III

Part IV- Skill Based Course I - Principles of Insurance 315RS1
(For the students admitted from the academic year 2015 – 2016 onwards)
(38 Hours)

Preamble:

The Course aims to

- Provide knowledge to basic concepts and importance of insurance and
- Impart knowledge on the various insurance legislations.

Unit I

Nature and scope of risk management: Introduction-Meaning-Definition-Classification of risks. Methods of handling risks: Introduction-Methods. **(7 Hours)**

Unit II

Nature of Insurance business: Meaning-Definition-Characteristics of Insurance Contract-Difference between Insurance contract and wagering Agreement-Functions-Importance-Benefits-Kinds of Insurance Organization. **(8 Hours)**

Unit III

Evolution of Insurance: Kinds of Insurance-Insurance organization in India-Life Insurance Act 1938. **(8 Hours)**

Unit IV

The Actuarial Science: Characteristics of Actuarial Science –Actuarial Education – Actuarial Research – IRDA Act 1999.**(Note: Theory only)** **(8 Hours)**

Unit V

Role of Development officer- Role of Insurance Agent. **(7 Hours)**

SKILL DEVELOPMENT:

1. Understand the procedure involved in evaluation of a proposal.
2. Visit any branch of LIC and familiarize with loan facilities available to policy holders.
3. Examine the Life insurance as a means of tax planning and risk coverage.

Books for Study:

1. Principles and Practice of Insurance **(Unit I, II & V)** - Dr.P.Periasamy(Edition 2013)
Himalaya Publishing House,
New Delhi.

2. Insurance Principles and Practice (**Unit III & IV**) - M.N.Mishra & Dr.S.B.Mishra
(Edition 2012),
S.Chand & Company,
New Delhi.

Books for Reference:

1. Insurance Theory and Practice - B.D.Bhargava,
Pearl Books, New Delhi 2008.
2. Insurance Principles and Practice - Inderjit Singh & Rakesh Kartyal
Kalyani Publishers, New Delhi 2003.

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)
Semester IV

Part III - Core IX– Business Communication 415B09/415R09/415N09/415V09
(For the students admitted from the academic year 2015-2016 onwards)

Preamble: (65 Hours)

The objectives of this course are:

- To develop the communicative abilities of the students.
- To train the student in drafting effective business letters on matters relevant to day to day business operations with special emphasis on quality of presentation.

Unit I

Communication - Meaning –Communication cycle- Importance- objectives – media – Types of Communication: formal and informal – Barriers of communication - Principles of Communication. **(13 Hours)**

Unit II

Business Letters: Need, functions and kinds of business letters – Planning business messages and layout- Enquiries and Replies - Orders and execution. **(13 Hours)**

Unit III

Credit and Status enquiries – Complaints and Adjustments. **(13 Hours)**

Unit IV

Collection letters – Sales letters – Circular letters. **(13 Hours)**

Unit V

Report – qualities of good report – types of report- Report by Individuals.
Application Letters. **(13 Hours)**

Book for Study

Essentials of Business Communication : Rajendra Paul and J.S.Korlahalli,
S Chand and Sons, New Delhi, Ed..2012

Books for Reference

Business Communication and : Dr. C.B. Gupta,
Customer Relations Sultan Chand and Sons, New Delhi. Ed 2010.
Business Communication : Dr.V.K.Jain and Dr.Omprakash Biyani,
Sultan Chand and Sons, New Delhi-2013

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)
Semester IV

Part III – Core X – Cost Accounting 415B10/415R10/415N10/415V10
(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65 Hours)

The objectives of this course are:

- To impart knowledge about various methods of costing.

- To keep the students conversant with the frontiers of cost accounting.

Unit I

Cost Accounting – Meaning and Scope – Concept and classification – costing an aid to Management – Elements of cost – Types and methods of cost – Preparation of cost sheet.

(13 Hours)

Unit II

Material Control: Levels of material Control – Purchases and Stores Control: Purchasing of Materials – Procedure and documentation involved in purchasing - Stores Control – Perpetual inventory - Economic Order Quantity – ABC analysis - Methods of valuing material issue: FIFO, LIFO, Simple Average and Weighted Average.

(13 Hours)

Unit III

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover.

Overhead – Classification of overhead – allocation and absorption of overhead- Calculation of Machine Hour Rate.

(13 Hours)

Unit IV

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production).

(13 Hours)

Unit V

Operating Costing – Contract costing – Reconciliation of Cost and Financial accounts.

(13 Hours)

Note: Distribution of marks between theory and problem shall be 40% and 60% respectively.

Book for Study

Cost Accounting : S.P. Jain and K.L. Narang
Kalyani Publishers, New Delhi. Ed. 2013

Book for Reference

Cost Accounting : T.S.Reddy and Y.Hari Prasad Reddy
Margham Publications ,Chennai, Reprint 2015

B.Com (Computer Applications)

Semester IV

Part III - Core XII - RDBMS– Practical IV

415R12

(For the students admitted from the academic year 2015 – 2016 onwards)

(52 Hours)

List of Practical Programs

1. Data Definition Language

Table: Student

Regno	number(5)primary key
Studentname	varchar2(15)
Gender	char(6)
Deptname	char(15)
Address	char(25)
Percentage	number(4,2)

Queries:

- To create a table
- To Describe a table
- To alter a table

- d) To drop a table
- e) To truncate a table

2. Data Manipulation Language

Table: Student

Regno	number(5)primary key
Studentname	varchar2(15)
Gender	char(6)
Deptname	char(15)
Address	char(25)
Percentage	number(4,2)

Queries:

- a) To insert values
- b) To retrieve records
- c) To update records
- d) To delete records

3. Create an Employee table with following field.

Eno	number(5)primary key
Ename	varchar2(20)not null
Deptno	number(5) not null
Desig	char(20)not null
Sal	number(9,2) not null
Comm	number(7,2)null

Queries:

- a) Insert values and display the records
- b) Display sum, maximum amount of basic pay
- c) List the name of the checks working in the department 20
- d) Display name that begins with 'G'
- e) List the name having 'I' as the second character
- f) List the names of employees whose designation are 'Analyst and 'Salesman'
- g) List the different designation available in the Employee table without duplication(distinct)

4. Create a student table with the following fields

Stuno	number(5)primary key
Stuname	varchar2(20)
Age	number(5)
Mark1	number(5)
Mark2	number(5)
Mark3	number(5)

Queries:

- a) Insert values and display the records
- b) List the names and age of the student whose age is more than 18
- c) Display total and average of marks
- d) Display the names of the maximum total & minimum total student
- e) List the names of the student that ends with 'A'
- f) List the names of student whose names have exactly 5 characters

5. Create a table “Product” with the following fields and insert the values:

Prodno number(5)
Prodname varchar2(20)
Unitof measure varchar2(20)
Qty number(6,4)
Totamt number(6,2)

Queries:

- Using update statement calculate the total amount and then select the record
- Select the records whose unit of measure is “Kg”
- Select the records whose quantity is greater than 10 and less than or equal to 20.
- Calculate the entire total amount by using sum operation.
- Calculate the number of records whose unit price is greater than 50 with count operation.

6. Create the table PAYROLL with the following fields and insert the values:

Empno number(8)
Empname varchar2(8)
Dept varchar2(10)
Basicpay number(8,2)
HRA number(6,2)
DA number(6,2)
PF number(6,2)
Netpay number(8,2)

Queries:

- Update the records to calculate the netpay
- Arrange the records of the employee in ascending order of their net pay
- Display the details of the employee whose department is “Sales”
- Select the details of employees whose HRA \geq 1000 and DA \leq 900
- Select the records in descending order

7. Create a Table Publisher and Book with the following fields:

Table: Publisher

Pubcode varchar2(5)
Pubname varchar2(10)
Pubcity varchar2(10)
PubState varchar2(10)
Bookcode varchar2(5)

Table:Book

Booktitle varchar2(15)
Bookcode varchar2(5)
Bookprice varchar2(5)

Queries:

- Insert the records into the table publisher and book
- Describe the structure of the tables
- Show the details of the book with the title “DBMS”
- Show the details of the book with price $>$ 300
- Show the details of the book with publisher name “Kalyani”
- Select the book code, book title and publisher city is “Delhi”
- Select the book code, book title and sort by book price

- h) Count the number of books of publisher starts with “Sultan Chand”
 - i) Find the name of the publisher starting with “S”
8. Create a table Deposit and loan with the following fields

Table:Deposit

Accno number(15)
 Account varchar2(15)
 Branchname varchar2(15)
 Custname varchar2(20)
 Balanceamt varchar2(15)

Table:Loan

Loanno number(15)
 Branchname varchar2(15)
 Custname varchar2(20)
 Balanceamt varchar2(15)

Queries:

- a) Insert the records into the table
 - b) Describe the structure of the tables
 - c) Display the records of Deposit and Loan
 - d) Find the number of loans with amount between 10000 and 50000
 - e) List in the alphabetical order the names of all the customer who have a loan at the Coimabtores Branch
 - f) Find the average account balance at the Coimabtores Branch
 - g) Update deposits to add interest at 5% to the balance
 - h) Arrange the records in descending order of the loan amount
 - i) Find the total amount of deposit in “Erode” Branch
9. Create the course and batch table with following fields

Table : Course

Courseno number(5)primary key
 Coursename varchar2(20)
 Syllabus varchar2(20)

Table:Batch

Batchno number(5)primary key
 Courseno number(5)foreign key
 Startingdt date
 Duration varchar2(20)
 Income number(5)

Queries:

- a) Insert values and display the records
 - b) Display the records from batch tables whose courseno is ‘9’
 - c) Display the Courseno, Coursename for the batch starting from ‘25 June 2014’
 - d) List Batchno for the batch starting before ‘30 June 2014’ and after ‘December 2014’
 - e) List the details of the batch who have joined before the end of ‘September 2014’
10. Create Library with the following fields
- Bookno number(5)
 Booknam varchar2(20)

Authorname varchar2(20)
Price number(5,2)
Status varchar2(5)
Category varchar2(5)

Queries:

- a) Display the author name, price of tax book
- b) Display the price of book banking
- c) Display the count of category commerce
- d) List the book details in ascending order of price(order by)
- e) List the book details in descending order of bookno and price(order by)

11. Create Hospital details with the following fields

Pid number(5)primary key
Pnm varchar2(20)not null
Wardno number(5)
Doa date
Dod date
Disease varchar2(30)
Fees number(9,2)

Queries:

- a) Insert values into the table
- b) Append patient name and disease
- c) Capitalise the first character of patient name to convert into upper and lower case
- d) Display the records having phonetic representation like 'Jai'
- e) Select four characters from the third position of patient name
- f) Display the current date
- g) Display date of discharge and add 7 months to it and deduct 7 months from it
- h) To calculate number of days patients admitted
- i) Display corresponding day of discharge of patient

12. Write a PL/SQL block to print the natural numbers.

13. Write a PL/SQL block to check whether a given number is even or not.

14. Write a PL/SQL block to find the electricity bill.

15. Write a program for student mark list using PL/SQL block.

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)

Semester V

Part III –Core XIII – E -Accounting

515B13/515R13/515N13/515V13

(For the students admitted from the academic year 2015-2016 onwards)

List of Practical

(75 Hours)

- 1) Creation of Company in Tally and Enabling Accounting Features.
- 2) Group Creation and Alteration (single and multiple).
- 3) Ledger Creation and Alteration (single and multiple).
- 4) Entering transactions in accounting vouchers.
- 5) Display of list of accounts, books.
- 6) Report display: Trial Balance, Profit and Loss Account and Balance Sheet.
- 7) Altering Inventory, Statutory, Taxation Features.
- 8) Measures of units, Stock Group, Stock Item creation and alterationDisplay of Stock summary.

- 9) Cost center creation and alteration.
- 10) Creation of Tax Masters.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester V

Part III - Core XIV – Income Tax

515B14/515R14/515N14/515V14

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(75 Hours)

The objectives of this course are:

- To provide an in-depth knowledge of Income Tax Provisions.
- To impart practical knowledge about Income Tax calculation.

Unit I

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Residential Status – Exempted Income. **(15 Hours)**

Unit II

Income from Salaries. **(15 Hours)**

Unit III

Income from House Property – Income from Other Sources. **(15 Hours)**

Unit IV

Profit and Gains of Business or Profession. **(15 Hours)**

Unit V

Capital Gains – Deductions from Gross Total Income with respect to payments only. **(15 Hours)**

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Book for Study

Income Tax Law and Practice : V.P. Gaur and D.B. Narang,
Kalyani Publishers, Ludhiana.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester V

Part III - Core XV – Business Finance

515B15/515R15/515N15/515V15

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objective of this course is:

- To familiarize the students with the techniques of financial management.
- To impart knowledge on concepts relating to financial planning.

Unit I

Business Finance: Definition - Importance - Finance function - Approaches - aim - Scope - relationship of finance with other business functions - objectives - measuring shareholders value creation – financial decisions - functional areas of financial management – functions of a finance manager. **(13 Hours)**

Unit II

Financial Plan: objectives – principles – considerations in formulating financial plan – steps in financial planning – estimating long-term and short-term financial needs – assessment of fixed capital requirements – Working capital-limitations of financial planning. Capitalisation: definition – basis of capitalization – over-capitalisation – under-capitalisations. **(13 Hours)**

Unit III

Sources of Finance: kinds of ownership securities – creditorship securities – internal financing – loan financing. **(13 Hours)**

Unit IV

Capital Structure: Patterns of Capital Structure –importance – Theories of Capital Structure: NI, NOI, Traditional, MM Approach- Factors Determining Capital Structure – principles of Capital Structure decisions .
(13 Hours)

Unit V

Cost of capital: significance – classification of cost - determination of Cost of Capital - Computation of Cost of capital: Debt, Preference Share capital, Equity Share capital, Retained Earnings .
(13 Hours)

Note: Theory only.

Book for Study

Business Finance : Shashi.K.Gupta and R.K.Sharma
Kalyani Publishers, New Delhi Ed. 2005, 10th Ed. 2013

Book for Reference

Financial Management : S.N. Maheswari
Principles and practice Sultan Chand and Sons, New Delhi Ed.2014.

B.Com/B.Com(CA)/B.Com(e-Commerce)

Semester VI

Part III - Core XVIII – E-Commerce 615B18/615R18/615N18

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (75 Hours)

The objectives of this course are:

- To impart knowledge on various facets of electronic commerce.
- To provide knowledge about applications of e-Commerce.

Unit I

E-Commerce: Definition– E-Commerce Vs Traditional Commerce – Advantages– Factors Stressing the Need for E-Business. Evolution and Growth:– Driving Forces. (15 Hours)

Unit II

E-Commerce : Classification– E-Commerce Frame Work - Application of E-Commerce in Various Industries:– Anatomy of E-Commerce Application. E-Commerce: Planning and Essentials - E-Business Strategy – Essentials– E-Business Infrastructure – E-Commerce Manager.
(15 Hours)

Unit III

Electronic Data Interchange: Process of EDI – EDI Components – Benefits of EDI – EDI Standards – Internet Based EDI – Value Added Networks – EDI Implementation. Online Shopping : Advantages - Disadvantages– Advise to Online Merchants – Advise to Online Shoppers – Mercantile Process Model – Mercantile Model from the Customers Perspective – Electronic Contracts – Elements of E-Commerce Contracts.
(15 Hours)

Unit IV

E-Payment: Benefits– Components of Electronic Systems – Electronic Fund Transfer – Electronic Payment Methods – Security Schemes in Electronic Payment Systems – Online Transaction Protocols.
(15 Hours)

Unit V

E-Marketing and E-Advertising: Advantages– Market Segmentation-E-Marketing Mix – Marketing Strategies – E-Marketing Plan. E-Advertising – Format for Web Advertising – Intelligent Agents –E-Customer Relationship Management – Phases of E-CRM – E- CRM Work Model.
(15Hours)

Book for Study

E-Commerce : Dr.K.Abirami Devi and Dr. M.Alagammai
 Margham Publications, Chennai, Reprint 2014.

Book for Reference

E-Commerce E-Business : Dr.C.S. Rayudu
 Himalaya Publishing House, Delhi.Ed.2012
 Electronic Commerce : Bharat Bhasker
 Tata Mc Graw Hill Education Pvt Ltd., New Delhi
 Reprint 2012

B.Com (Computer Applications)**Semester VI****Part III - Core XIX – Visual Basic****615R19****(For the students admitted from the academic year 2015 – 2016 onwards)****Preamble:****(65 Hours)**

This paper is designed to help the students

- to develop their programming skills in windows applications through this paper and
- to provide practical knowledge in programming using VB for various applications.

Unit I

VB fundamentals- Getting started _ The VB environments _ Customizing form _ first step in programming: The code window, Variables, data types, constants, Strings, numbers. Statements in VB: The comment and the end statement. **(13 Hours)**

Unit II

First steps in building the user interface : The tool box – Creating controls – The name property – Properties of command button – Simple event procedure for command buttons – Access keys – Image controls – Text boxes – Labels – Navigating between controls – Message boxes . The grid – Picture box – Rich text box - Organizing information via control: Control arrays - list and combo boxes – Flex grid controls. **(13 Hours)**

Unit III

Controlling program flow: Determinant loops – Making decisions – select case – Nested if then else – The GOTO statements - BUILT IN FUNCTIONS: String function - Numeric functions – Date and time function – Financial function. **(13 Hours)**

Unit IV

Function and procedure: Functions procedure and sub procedure. Microsoft windows common controls 6.0: Image list control – list view control – Progress bar control – Slider control – Status bar control – Menus – MDI forms. **(13 Hours)**

Unit V

The Chart control – Adding a chart control to a program – Adding data to a chart control – Creating pie chart – Creating 2D and 3D Line charts - Creating 2D and 3D Bar charts - Database Creation using data control – Data Report - Building your own ActiveX Control. **(13 Hours)**

Book for Study:

1. Visual Basic 6.0 from ground up - Gary Cornell, Tata Mc Graw Hill Publication, Reprint 2010.
2. Visual Basic 6.0 Programming - Steven Holzner, Dreamtech Press- Aug 2007
 Black Book (Unit-V – (Chart Control))

Books for Reference:

1. Visual Basic 6.0 - Steven Brown, BPB publications, 2000 Edition
2. Visual Basic 6 complete - BPB publications, 1999 Edition.

B.Com (Computer Applications)
Semester VI
Part III - Elective II– Visual Basic-Practical VI **615RE2**
(For the students admitted from the academic year 2015 – 2016 onwards)
(52 Hours)

List of Practical Programs

1. Design a form as a simple calculator.
2. Design a form for a depreciation calculator.
3. Design a form to add and remove item in list box and combo box.
4. Design a form to calculate Break Even Point.
5. Design a form for Comparison and Concatenation of Strings.
6. Design a form to add data's using Flex Grid Control.
7. Design a form using drive list box, directory list box and file list box.
8. Design a form to change font size, font name, back color and fore color of content in the Text box.
9. Design a form by drawing a line, rectangle and circle and change their colors Styles and Sizes.
10. Design a form for currency conversion.
11. Make simple Menu editor with the following Menus and options.

File	Edit
-New	-Cut
-Open	-Copy
-Save	-Paste
12. Design a form using combo box, option button – student's details including marks and grades.
13. Design a form using Tree view & List view.
14. Design a form to create a chart in VB.
15. Design a form for employee payroll using link from database.

B.Com (Computer Applications)
Semester – III
Part IV- Skill Based Course I - Principles of Insurance **315RS1**
(For the students admitted from the academic year 2015 – 2016 onwards)
(38 Hours)

Preamble:

The Course aims to

- Provide knowledge to basic concepts and importance of insurance and
- Impart knowledge on the various insurance legislations.

Unit I

Nature and scope of risk management: Introduction-Meaning-Definition-Classification of risks. Methods of handling risks: Introduction-Methods. **(7 Hours)**

Unit II

Nature of Insurance business: Meaning-Definition-Characteristics of Insurance Contract-Difference between Insurance contract and wagering Agreement-Functions-Importance-Benefits-Kinds of Insurance Organization. **(8 Hours)**

Unit III

Evolution of Insurance: Kinds of Insurance-Insurance organization in India-Life Insurance Act 1938. **(8 Hours)**

Unit IV

The Actuarial Science: Characteristics of Actuarial Science –Actuarial Education – Actuarial Research – IRDA Act 1999.(Note: Theory only) **(8 Hours)**

Unit V

Role of Development officer- Role of Insurance Agent. **(7 Hours)**

SKILL DEVELOPMENT:

1. Understand the procedure involved in evaluation of a proposal.
2. Visit any branch of LIC and familiarize with loan facilities available to policy holders.
3. Examine the Life insurance as a means of tax planning and risk coverage.

Books for Study:

1. Principles and Practice of Insurance (**Unit I, II & V**) - Dr.P.Periasamy(Edition 2013)
Himalaya Publishing House,
New Delhi.
2. Insurance Principles and Practice (**Unit III & IV**) - M.N.Mishra & Dr.S.B.Mishra
(Edition 2012),
S.Chand & Company,
New Delhi.

Books for Reference:

3. Insurance Theory and Practice - B.D.Bhargava,
Pearl Books,New Delhi 2008.
4. Insurance Principles and Practice - Inderjit Singh & Rakesh Kartyal
Kalyani Publishers,New Delhi 2003.

B.Com (Computer Applications)

Semester IV

Part IV- Skill Based Course II – Life Insurance Products

415RS2

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

(38 Hours)

The Course aims to provide

- To expose students to an overview of the working of life insurance business.
- To impart to students relevant skills for handling major functions of life insurance business.

Unit I

Essentials of Life Insurance: Meaning and Definition of Life Insurance-Difference between Insurance and Assurance-Essential feature of Life Assurance. Classification of Life Insurance Policies: Objectives of Life Insurance Policies-Classification of Policies-Policies according to the duration-Group Insurance schemes. **(8 Hours)**

Unit II

Assignment of Life Policies: Meaning and Procedure-Nomination of life policy-Surrender value-Paid up value-Difference between Surrender value and Paid up value-Days of Grace-Payment of claims. **(7 Hours)**

Unit III

Life Insurance Corporation of India: Introduction-Aim of LIC-Organisational Structure-Life Insurance Administration-Advantages of Life Insurance-Important functions-Role of LIC in National Economy-Progress of Life Business of LIC-Highlights the performance of LIC-IRDA

Guidelines for Investment of LIC's Funds-Identification of various types of Investments-Progress of LIC's Investment in various sectors. **(8 Hours)**

Unit IV

Marketing of Life Insurance: Introduction-Definition of Services-Characteristics-Objectives of Life Insurance Marketing-Life Insurance Marketing Mix-Elements-Importance-Scope. World Life Insurance Market: Introduction-Share of World Insurance Market-Insurance Operations in the U.S.A-Life Insurance in Japan-Other Asian Countries-Performance of Global Life Insurance. **(7 Hours)**

Unit V

Financial Services: Introduction-Points in Favour-Drawbacks-LIC Housing Finance Ltd-Introduction-Objectives-Housing Scheme Loans. LIC Mutual Funds Schemes: Introduction-Meaning and Definition-Classification of Mutual Funds-Mutual Funds in India-Importance-Types-Progress in LIC Mutual Funds-Factors determine the Mutual Funds. Information Technology in LIC: Introduction-Meaning-Characteristics-IT Revolution in India-Information Technology in LIC-Objectives-Moduling Systems-Advantages. **(8 Hours)**

SKILL DEVELOPMENT:

1. Visit any branch of LIC and understand various policies offered with benefit and elements.
2. Understand the procedure involved in evaluation of a proposal form and final issue of policy.

Books for Study:

1. Principles and Practice of Insurance - Dr.P.Periasamy(Edition 2013)
Himalaya Publishing House,
New Delhi

Books for Reference:

1. Insurance Principles and Practice - Inderjit Singh & Rakesh Kartyal
Kalyani Publishers, New Delhi 2003.
2. Life Insurance in India - R. Haridas,
New Century Publications, 2011

B.Com (Computer Applications)

Semester V

Part IV- Skill Based Course III – Non - Life Insurance Products 515RS3

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: (38 Hours)

The Objectives of this course are:

- To understand the basic concepts of General Insurance.
- To learn the principles, practices, procedures and treatment of General Insurance Products.

Unit I

General Insurance Business and Role of GIC: Introduction-General Insurance Business Nationalization Act 1972-Objectives-Establishment of General Insurance Corporation of India (GIC)-Source of Funds-Organizational Structure-Progress of General Insurance Business-Business Growth in GIC-Performance of Public Sector and Private Sector Insurers-Performance of Major Business Segments. Nature of Marine Insurance Contract: Definition-Characteristics-Elements-Double Insurance-Reinsurance in Marine Insurance Schemes-Mutual Insurance. **(8 Hours)**

Unit II

Kinds of Marine Insurance Policies-Various Kinds of Marine policy. Important Clauses in Marine Policy: Clauses Incorporated in Marine Policy-Important Clauses. **(7 Hours)**

Unit III

Marine Losses and Abandonment: Introduction-Kinds of Marine Losses-Abandonment-Notice of Abandonment-York-Antwerp Rules.

Nature of Fire Insurance Contract: Introduction-Definition-Subject Matter of Fire Insurance-Fundamental Principles of Fire Insurance-Fire policy-The Risk. **(7 Hours)**

Unit IV

Types of Fire Policies: More Common Types of Fire policies-Double Insurance in Fire Policy-Assignment of Fire policy-Rights of Insurer. Fire Insurance Claims: Introduction-Types of losses-Steps in the Preparation of Claim under Loss of Profits. **(8 Hours)**

Unit V

Miscellaneous Insurance: Personal Accident Insurance: Definition- Classification of Occupation-Claims. National Agricultural Insurance Scheme: Crop Insurance Scheme-Features-Objective- Horticulture/Plantation (Input) Insurance-Hut Insurance Individual. Property Insurance-Meaning- Burglary Insurance-Types of Policies. Motor Vehicle Insurance: Definition-Classification-Kinds of Policies-Procedure for Motor Vehicle Insurance-Settlement of Claims Under Motor Vehicle Insurance. **(8 Hours)**

SKILL DEVELOPMENT:

1. Visit any branch of General Insurance establishment and familiarise with the features of policies offered.

Books for Study:

1. Principles and Practice of Insurance - Dr.P.Periasamy(Edition 2013)
Himalaya Publishing House, New Delhi.

Books for Reference:

1. Insurance Principles and Practice - M.N.Mishra & Dr.S.B.Mishra
(Edition 2012),S.Chand & Company,
New Delhi.
2. Insurance Principles and Practice - Inderjit Singh & Rakesh Kartyal
Kalyani Publishers,New Delhi 2003.

B.Com (Computer Applications)

Semester –VI

Part IV-Skill Based Course IV - Data Analytics with Excel **615RS4**
(For the students admitted from the academic year 2015 – 2016 onwards)
(38 Hours)

List of Practical Programs

1. Prepare employees payroll.
2. Design Mark Sheet.
3. Prepare the chart for analysing students result.
4. Calculation of Simple Correlation Co-efficient.
5. Calculation of Arithmetic mean, median and mode.
6. Calculation of Co-efficient of Variation and Standard Deviation.
7. Calculate Time Value of money - NPV, IRR, ROI, using FV, NPER, PMT, PV, TYPE functions.
8. Calculate loan, annuity and investment analysis using financial functions.
9. Calculation of Linear Regression Analysis.
10. Calculation of Pivot table and Chart.

2015-2016
SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of B.Com (Computer Applications)
B.Com (Computer Applications)
Scheme of Examination – CBCS Pattern
(For the students admitted from the academic year 2015 – 2016 onwards)

Course Code	Course Title	Ins. Hrs /week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	SEMESTER-I						
115BT1/ 115MY1/ 115HD1/ 115FR1	Part I- Language I	6	3	25	75	100	4
115EN1	Part II- English I	6	3	25	75	100	4
115B01/ 115R01/ 115N01	Part III- Core I – Financial Accounting	5	3	25	75	100	4
115B02/ 115R02/ 115N02/ 115V02	Core II – Business Management	5	3	25	75	100	4
115AB1/ 115AR1/ 115AN1/ 115AV1	Allied I - Office Automation Tools- Practical I	6	3	40	60	100	4
115EVS	Part IV- Environmental Studies	2	2	50	--	50	2
	SEMESTER- II						
215BT2/ 215MY2/ 215HD2/ 215FR2	Part I- Language II	6	3	25	75	100	4
215EN2	Part II- English II	6	3	25	75	100	4
215B03/ 215R03/ 215N03	Part III- Core III – Company Law	5	3	25	75	100	4
215B04/ 215R04/ 215N04/ 215V04	Core IV - Marketing	5	3	25	75	100	4
215AR2	Allied II - HTML, Photoshop and Page Maker– Practical II	6	3	40	60	100	4
215VEC	Part IV- Value Education	2	2	50	--	50	2

Course Code	Course Title	Ins. Hrs /week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	SEMESTER - III						
315B05/ 315R05/ 315N05	Part III - Core V – Higher Financial Accounting	5	3	25	75	100	4
315R06	Core VI – C++	5	3	25	50	75	3
315R07	Core VII– C++ – Practical III	4	3	40	60	100	4
315R08	Core VIII – Enterprise Resource Planning	5	3	25	50	75	3
315AB3/ 315AR3/ 315AN3	Allied III - Mathematics in Business	6	3	25	75	100	4
315NBT	Part IV-Non Major Elective Course I – Basics of Accounting and Inventory in Tally. ERP 9	2	2	50	--	50	2
315RS1	Part IV-Skill Based Course I - Principles of Insurance	3	3	75	--	75	3
	SEMESTER - IV						
415B09/ 415R09/ 415N09/ 415V09	Part III- Core IX – Business Communication	5	3	25	75	100	4
415B10/ 415R10/ 415N10/ 415V10	Core X – Cost Accounting	5	3	25	75	100	4
415R11	Core XI - Relational Database Management System	5	3	25	75	100	4
415R12	Core XII - RDBMS– Practical IV	4	3	40	60	100	4
415AB4/ 415AR4/ 415AN4	Allied IV- Statistics for Business	6	3	25	75	100	4
415NGA	Part IV- General Awareness (Online- Self Study)	--	1	50	--	50	2
415RS2	Part IV – Skill Based Course II- Life Insurance Products	3	3	75	--	75	3
415GIS	Part IV - Information Security	2	2	50	--	Grade	Grade
415ALR	Advanced Learner’s Course I- Subject Viva-Voce	--	--	--	100	100	3*

Course Code	Course Title	Ins. Hrs /week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	SEMESTER- V						
515B13/ 515R13/ 515N13/ 515V13	Part III- Core XIII - E-Accounting - Practical V	6	3	40	60	100	4
515B14/ 515R14/ 515N14/ 515V14	Core XIV - Income Tax	6	3	25	75	100	4
515B15/ 515R15/ 515N15/ 515V15	Core XV – Business Finance	5	3	25	75	100	4
515B16/ 515R16/ 515N16	Core XVI – Higher Corporate Accounting	5	3	25	75	100	4
515RE1	Elective I – Banking Law and Practice	5	3	25	75	100	4
515RS3	Part IV – Skill Based Course III - Non-Life Insurance Products	3	3	75	--	75	3
	SEMESTER- VI						
615B17/ 615R17/ 615N17/ 615V17	Part III- Core XVII – Management Accounting	6	3	25	75	100	4
615B18/ 615R18/ 615N18	Core XVIII – E- Commerce	6	3	25	75	100	4
615R19	Core XIX – Visual Basic	5	3	25	75	100	4
615RE2	Elective II– Visual Basic– Practical VI	4	3	40	60	100	4
615BE3/ 615RE3/ 615NE3	Elective III – Financial Services	6	3	25	75	100	4
615RS4	Part IV – Skill Based Course IV- Data Analytics with Excel	3	3	75	--	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V– Extension Activity	--	--	50	--	50	2
615ALR	Advanced Learner’s Course II - Subject Viva-Voce		--	--	100	100	3*

B.Com (Computer Applications)

Semester II

Part III-Allied II - HTML, Photoshop and Page Maker– Practical II

215AR2

(For the students admitted from the academic year 2015 – 2016 onwards)

(75 Hours)

List of Practical Programs

HTML

2. Design a web page of a product advertisement using basic tags & formatting tags.
2. Insert frames and connect them using hyperlink.
3. Create webpage using ordered list and unordered list.
4. Create a Resume.
5. Create e-mail id.
6. Create a feedback form.

Photoshop

1. Create a ZIF transparency.
2. Design a 3D text.
3. Create a typographical style sheet.
4. Use the heal brush and make change in an image.
5. Build a glow effect with stroke path.
6. Show/hide a layers and merge two or more layers..
7. Create different layer effects.
8. Annotate files with text and audio.
9. Create an i)advertisement ii) News letter and iii) Invitation
10. Design a student ID card.

PageMaker

1. Create a program to work with layers.
2. Create a program using text tools.
3. Create an advertisement for a company.
4. Design an invitation for an Inauguration of an organization.
5. Create a program to Import Images and align the images.

2014-2015

B.COM (COMPUTER APPLICATIONS)

Semester wise distribution with scheme of Examination

(For candidates admitted during the period 2012 – 2013 Onwards)

Semester	Course	Credits	Instructional Hours	Duration of exam Hrs(ESE)	Marks CIA	Marks ESE	Total
I	Part I –Language I	3	5	3	40	60	100
	Part II –English I	3	5	3	40	60	100
	Part III- Core I-Principles of Accountancy	4	4	3	40	60	100
	Core II- Business Organization & Office Management	4	4	3	40	60	100
	Core Practical I- Ms-Office	2	4	3	40	60	100
	Allied I- Business Mathematics	5	6	3	40	60	100
	Part IV-Environmental Studies	2	2	--	40	60	100
II	Part I –Language II	3	5	3	40	60	100
	Part II –English II	3	5	3	40	60	100
	Part III- Core III- Financial Accounting	4	4	3	40	60	100
	Core IV- Programming in C	3	4	3	40	60	100
	Core Practical II- Programming in C	2	4	3	40	60	100
	Allied II – Business Statistics	5	6	3	40	60	100
	Part IV- Value Education	2	2	--	40	60	100
	Part III-Advanced Learner's Course I- Business Law	3*	--	3	--	100	100
III	Part III- Core V – Cost Accounting	4	5	3	40	60	100
	Core VI- Marketing	4	5	3	40	60	100
	Core VII- C++	3	4	3	40	60	100
	Core Practical III- C++	2	4	3	40	60	100
	Allied III- Managerial Economics	5	6	3	40	60	100
	Part IV-Non Major Elective – Enterprise Resource Planning	2	2	--	40	60	100
	Part IV-Skill based Course I - Principles of Banking.	3	3	--	40	60	100

Semester	Course	Credits	Instructional Hours	Duration of exam Hrs(ESE)	Marks CIA	Marks ESE	Total
IV	Part III- Core VIII – Management Accounting	4	5	3	40	60	100
	Core IX- Company Law	4	5	3	40	60	100
	Core X- Visual Basic	3	4	3	40	60	100
	Core Practical IV – Visual Basic	2	4	3	40	60	100
	Allied IV- Principles of Management	5	6	3	40	60	100
	Part IV-General Awareness	2	2	--	40	60	100
	Part IV – Skill based Course II – Basic Banking Operations	3	3	--	40	60	100
	Part III- Advanced Learner's Course_II –Auditing	3*	--	3	--	100	100
	Part V–Extension Activity	1					
V	Part III- Core XI- Financial Management	5	5	3	40	60	100
	Core XII- Company Accounts	5	5	3	40	60	100
	Core XIII- E-Commerce	4	5	3	40	60	100
	Elective I – Income Tax Law and Practice	5	6	3	40	60	100
	Elective II – Accounting Package –Tally	5	6	3	40	60	100
	Part IV – Skill Based Course III – E-Banking	3	3	--	40	60	100
VI	Part III-Core XIV- Relational Database Management System	4	5	3	40	60	100
	Core XV- Financial Market Operations and Services	4	6	3	40	60	100
	Core XVI –Business Communication	4	5	3	40	60	100
	Elective III–Internet and Web Designing	4	6	3	40	60	100
	Core Practical V – RDBMS & HTML	2	4	3	40	60	100
	Part IV – Skill based Course IV- Practical	3	3	--	40	60	100
	Part III-Advanced Learner's Course_III - Human Resource Management	3*	--	3	--	100	100

Starred credits are to be treated as additional credits which are optional

B.Com (Computer Applications) – Semester I
Part III - Core I –Accountancy - Sub Code: 115R01 – 65 Hrs
(For candidates admitted during the period 2015 – 2016 Onwards)

Preamble:

This course is designed to

- provide knowledge in recording, classifying, summarizing and interpreting the accounting,
- make the students know about the maintenance of accounts in Non-Trading organization.

Module I (10 Hrs)

Accounting Concepts and Conventions - Journal- Ledger- Subsidiary Books.

Module II (10 Hrs)

Trial balance- Preparation of Final accounts of a Sole Trader.

Module III (10 Hrs)

Bank Reconciliation Statement.

Module IV (10 Hrs)

Accounts of Non-Trading concerns- Receipts and payments account- Income and Expenditure account- Balance sheet.

Module V (12 Hrs)

Consignment account- Joint Venture.

Note: 20% Marks for Theory.

80% Marks for Problems.

Books for Study:

1. Advanced Accountancy (Volume I) - S.P.Jain & K.L.Narang
Kalyani Publishers, New Delhi

Books for Reference:

1. Principles of Accountancy - K.L.Nagarajan
N.Vinayagam
P.L.Mani
S.Chand&Co, New Delhi, 2004 Edition
2. Financial Accounting - T.S.Reddy & A.Murthy
Margham Publication, Chennai, 2006 Edition
3. Advanced Accountancy - R.L Gupta & Radhasamy
S.Chand&Co, New Delhi, 2004 Edition
- 4.. Advanced Accountancy - S.P.Jain & K.L.Narang
Kalyani Publishers, New Delhi,
2004Edition

B.Com (Computer Applications) – Semester II
Part III-Core II–Business Organization & Office Management-Sub Code: 112R02 – 52 Hrs
(For candidates admitted during the period 2012 – 2013 Onwards)

Preamble:

This course aims

- to acquaint students with the fundamental of business organization and
- to enable the students in applying the principles and practice of business operation.

Module I (10 Hrs)

Business:-Definition - Nature and scope of business – Objectives – *Business, Profession and employment - Requisites of a successful business - Qualities of a successful businessman. Business ethics: Need – Principles.

Module II (10 Hrs)

Forms of Business Organization: Sole Trader - Partnership Firms - Joint Stock Company and Co-operative Societies – Merits and Demerits.

Module III (10 Hrs)

Location of Plant - Factors influencing location – Localization of industries. Size of business:-Plant, firm and industry - Measures of size - Factors determining the size of a Firm - Economies of large scale -Survival of small firms.

Module IV

(10 Hrs)

Office – Nature of Office – Functions – Importance. Filing Methods and Equipments – Essentials of good filing system – importance – Methods of filing – indexing of records – methods – office machines and equipments.

Module V

(12 Hrs)

Trade association - Features – Objectives - Functions .Chamber of commerce – Functions and Services of the chambers - Trade Association Vs Chamber of commerce. Business Combination – Causes – Types (excluding forms).

Books for Study:

1. Business Organisation :Kathiresan&Dr.Radha(Edition '06)
Prasanna Publishers - Chennai
2. Business Organization & Office Management : R.K.Sharma and Shashi K. Gupta,
Kalyani Publishers, Ludhiana.

Books for Reference:

1. Principles of Business Organisation : P.N.Reddy, S.S.Gulshan, Eurasia
Publishing House (P) LTD
Reprinted with additions -2002.
2. Principles of Business Organisation : B.K.Acharaya,P.B.Gorekar,
KitMahal, Allahabad,
Seventh Edition.
- 3.Fundamentals of Business Organization &
Office Management : Y.K. Bhusan, Sultan Chand &
Sons, New Delhi.
4. Office Management : R.K.Chopra
Himalaya Publishing House.

B.Com (Computer Applications) – Semester I**Part III-Core Practical I -Ms Office - Sub Code: 112RP1****(For candidates admitted during the period 2012 – 2013 Onwards)****I-MS WORD**

1. Type a paragraph and perform the following changes:
 - Font size
 - Font style
 - Line spacing
 - Page setup(Margin)
 - Text color
 - Center Heading
 - Underline a Text
 - Bullets / Numbering
2. Type a document and perform the following :
 - Insert page numbers using footer
 - Insert header
 - Find & Replace
 - Cut ,Copy & Paste
 - Change Case
3. Prepare an advertisement for a product.
4. Send an application to many companies for a suitable job using Mail Merge Option.
5. Resume wizard.
6. Prepare a class timetable using a table menu.
7. Design an invoice by using Drawing tool bar, Clip Art, Word Art, Symbols, Borders and Shading.

II-MS-Excel

1. Prepare a mark list of your class (minimum of 5 subjects) and perform the following operations:

Data Entry, Total, Average, Result by using arithmetic and logical functions and sorting.

2. Prepare a Payroll for the employees.

3. Compute mathematics of finance.

- Simple interest
- Compound interest
- Net Present Value
- Annuity of a future value(sinking fund method)

4. Draw the different type of charts (Line, Pie, Bar) to illustrate year-wise performance of sales, purchase, profit of a company by using chart wizard.

III-POWERPOINT

1. Design presentation slides for a product of your choice. The slides must include name, brand name, type of product, characteristics, special features, price, special offer etc.

2. Design slides for the headlines News of a popular TV Channel. Make use of slide transition

3. Design presentation slides for the Seminar/Lecture Presentation using animation effects

4. Prepare an Organization Chart for a Company.

IV- MS- ACCESS

1. Create a student Marks Database

(a) Retrieve the student details according to the highest Marks.

(b) Display the query showing Marks >75 and Total >400.

2. Create an Item table with the following constraints Item No, Item Name, Quantity and Price.

(a) Display Item NO, Name, Filled list for Net price >5000.

(b) Display Item Name.

3. Create a form using form wizard for Customer Database with the following details.

Customer code, Customer Name, Address, Mobile number, e-mail id.

B.Com (Computer Applications) – Semester II

Part III - Core III– Financial Accounting - Sub Code: 212R03 – 52 Hrs

(For candidates admitted during the period 2012 – 2013 Onwards)

Preamble:

This course aims to

- Understand the principles and practice of Financial Accounting
- Learn Applications of Accounting principles in different business transactions and
- Provide knowledge on the accounting methods in partnership.

Module I

(08 Hrs)

Introduction to Accounting: Need for Accounting – Definition of Accounting – Attributes and steps of accounting – Book Keeping Vs Accounting – Objectives of Accounting – Advantages of Accounting – Limitations of Accounting – Groups interested in Accounting information – Branches of Accounting – Types of Accounts – Accounting rules – Accounting terminology.

Module II

(10 Hrs)

Branch Accounts – Debtors System – Stock and Debtors system – Departmental trading and Profit and Loss Account – Independent branch – Incorporation of branch trial balance (excluding foreign branch).

Module III

(12 Hrs)

Depreciation – Meaning – Causes – Selected methods – Straight line method – Diminishing balance method – Sinking fund and annuity method.

Module IV

(10 Hrs)

Hire purchase system – Default and repossession of assets – Hire purchase trading account – Installment system.

Module V

(12 Hrs)

Partnership Accounts: Admission – Retirement – Death.

Note: 20% Marks for Theory

80% Marks for Problems

Books for Study:

1. Financial Accounting (Module I only) - T.S. Reddy and A.Murthy
Margham Publications,
Reprint 2006.
2. Advanced Accountancy (Volume I) - S.P.Jain & K.L.Narang
Kalyani Publishers, New Delhi

Books for Reference:

1. Advanced Accountancy - R.L Gupta & Radhasamy
S.Chand&Co, New Delhi, 2004 Edition
2. Advanced Accountancy - M.C.Shukla and T.S.Grewel
S.Chand&Co, New Delhi, 2004 Edition

B.Com (Computer Applications) – Semester II**Part III - Core IV– Programming in C - Sub Code: 212R04 – 52 Hrs**

(For candidates admitted during the period 2012 – 2013 Onwards)

Preamble:

This course aims to

- enable the student enhance the programming knowledge,
- provide an exposure about the various oops concepts

Module I

(10 Hrs)

Overview of C – Constants, variables and data types.

Module II

(10 Hrs)

Operators and expressions – Input and output operations – Control statements.

Module III

(10 Hrs)

Arrays –Character Arrays and String Handling Functions - User defined functions

Module IV

(10 Hrs)

Structures and union – Pointers

Module V

(12 Hrs)

File management system in C.

Books for Study:

1. Programming in ANSI C - E.Balagurusamy
Tata McGraw Hill Publishing Company Ltd.
NewDelhi

Books for Reference:

1. The Spirit of C – An Introduction to Modern Programming - Hendry Mullish and Herbert L. Cooper
2. 2. Let us C - Yashavant Kanetkar
BPP Publications.

B.Com (Computer Applications) - Semester II
Part III– Core Practical II– Programming in C - Sub Code: 212RP2
(For candidates admitted during the period 2012 – 2013 Onwards)

7. Program to find Simple and Compound Interest.
8. Program to display Fibonacci series.
9. Program to find the roots of a given quadratic equation.
10. Program to multiply two matrices of order m x n and p x q.
11. Program to find whether a given string is Palindrome or not.
12. Arrange strings in alphabetical order using Pointers.
13. Use of Pointers in arithmetic operations.
14. Occurrence of a particular character.
15. Program to convert decimal to binary.
16. Program to find NCR value using functions.
17. Construct Pyramid of digits and Reverse Pyramid.
18. Write a program to swap two lines.
19. A program to evaluate the equation $Y = x^n$ when n is a non-negative.
20. Write a program to find out sum of n numbers.
21. Read the name of students of a class in alphabetical order, assign roll numbers and write them in another file.

B.Com (Computer Applications) - Semester III
Part III -Core V/VI – Marketing - Sub Code: 311R05/312R06 – 65 Hrs
(For candidates admitted during the period 2011 – 2012 only/ 2012-2013 Onwards)

Preamble:

This course is designed

- to familiarize the concept of marketing and its applications,
- to impart knowledge on various aspects of marketing function and
- to give a comprehensive understanding of the marketing concepts.

Module I (13 Hours)

Definition, nature, scope and importance of Marketing - Approaches to economic development- Traditional and Modern Concept of Marketing- *Functions of Marketing.
*Transportation. Storage and Warehousing.

Module II (13 Hours)

Marketing Mix: Elements. Product: Features - Classification-Product Policies-Product Life Cycle.
Pricing: Objectives- Factors- Price determination - Procedure-Kinds of pricing.

Module III (13 Hours)

Branding and Packaging: Reasons- Functions-Features - Types of Brands – Kinds – Advantages.
Promotional Activities: Need – Importance- Forms of Promotion. Sales Promotion: Importance – Objectives – Kinds – Advantages – limitations.

Module IV (13 Hours)

Advertising: Basic features – Advertising and Publicity – Objectives – Kinds of Advertising – Selection of Advertising Media.

Personal Selling: Importance – *Qualities of a good Salesman - Types – Features.

Module V (13 Hours)

Channels of Distribution: Importance – Types – Factors affecting channel of distribution.

Self Study : Underlined Portion

Books for study:

1. Modern Marketing - R.S.N.Pillai and Bhagavathi,

Sultan Chand and Sons, Edition 2004

Books for Reference:

1. Modern Marketing - Dr.Rajan Nair
Sultan Chand & Sons, New Delhi, 7th Revised Edition 2004
2. Marketing Management - Philip Kotler,
Prentice Hall of India, NewDelhi, Edition 2003
3. Marketing - Kathiresan and Dr.Radha
Meera Offset Printers, Edition 2004

B.Com (Computer Applications)-Semester III**Part III– Core VI/VII - C++ - Sub Code: 311R06/312R07 – 52 Hrs****(For candidates admitted during the period 2011 – 2012 only/ 2012-2013 Onwards)****Preamble :**

The course is designed to

- enable the student enhance the programming knowledge,
- provide an exposure about the various oops concepts and
- impart knowledge about the programming languages.

Module I**(10 Hrs)**

Principles of OOPS: Basic concepts of OOPS- Benefits of OOPS – Object oriented languages - Applications of OOPS. Structure of C++ program.

Module II**(10 Hrs)**

Tokens, Expressions and Control Structure – Functions in c++.

Module III**(10 Hrs)**

Classes and objects – Constructors and Destructors.

Module IV**(10 Hrs)**

Operator overloading – Inheritance.

Module V**(12 Hrs)**

Pointers – Virtual functions - Working with files.

Books for Study:

1. Object oriented programming with c++ - E.Balaguruswamy, 3rd edition,
TataMcGraw-Hill Publishing Co.,

Books for Reference:

2. Mastering c++ - K.R Venugopal, T.Ravishankar,
Rajkumar,
Tata Mc Graw Hill, Publishing Co.,
- 2.The C++ Programming Languages - Bjarne Stroustrup, 4th edition,
Pearson Education Pvt.LtdNewDelhi

B.Com (Computer Applications) Semester III**Part III- Core Practical III– C++ - Sub Code: 311RP3/312RP3****(For candidates admitted during the period 2011 – 2012 only/ 2012-2013 Onwards)****List of practicals**

- 16) Write a program to design a Pyramid using For loop.
- 17) Write a program to generate the Mark sheet and declare the Result of the student.
- 18) Write a program to calculate the Electricity Bill.
- 19) Write a program to reverse the String using Static Members.
- 20) Write a program to calculate the Break- Even Point.
- 21) Write a program to calculate the Economic Ordering Quantity.
- 22) Write a program to Compare and concatenate two strings.

- 23) Write a program to prepare the Payroll of Employee.
- 24) Write a program to simulate a simple banking system using Constructor member function.
- 25) Write a program to compute simple interest and compound interest
- 26) Write a program for multiplying two matrices.
- 27) Write a program to check whether a given number is Prime or Not.
- 28) Write a program to find Factorial of a given number.
- 29) Write a program to using operator Overloading function.
- 30) Develop an program to process shopping list

B.Com (Computer Applications) – Semester IV

Part III – Core VIII/IX – Company Law - Sub Code: 411R08/412R09 – 65 Hrs

(For candidates admitted during the period 2011 – 2012 only/ 2012-2013 Onwards)

Preamble:

The course aims

- to enable the students to get familiarized with the existing Company Law and secretarial practice,
- to acquaint the students regarding the procedure for different companies and
- to train the students with good knowledge on the various aspects of a secretary in a company.

Module I

(13 Hrs)

Company: - Meaning – Definition – *Characteristics – Advantages -Kinds of Companies - Special privileges of a private company .

Module II

(13 Hrs)

Formation of company: - Incorporation- Certificate of Incorporation- Effects of Registration- Promoter- Functions- Pre incorporation contracts- Provisional contracts.

Memorandum of Association: – Definition – Purpose and contents of Memorandum – Clause – Alteration.

Module III

(13 Hrs)

Articles of Association: - Definition – Forms – Contents - Procedures for alteration .

Prospectus: content – statement in lieu of prospectus.

Module IV

(13 Hrs)

Company Management: - Directors - Appointment -Qualification –Powers- Duties - Position and liabilities of Directors.

Company Secretary:- Meaning – Definition – Legal Position - Qualification - Appointment – Rights and Duties and Liabilities.

Module V

(13 Hrs)

Company Meetings: *Kinds of meeting – Notice- Agenda – minutes – quorum – – Chairman.

Winding up – Meaning - Modes of winding up.

Self Study : Underlined Portion

Book for Study:

Company Law and secretarial practice: N.D.Kapoor

Sultan Chand & Co Ltd, New Delhi.

(Reprint 2008)

Book for Reference:

1. Company Law and secretarial practice : K.Ganesan
Rainbow Publication
Coimbatore.
2. Company Law and Secretarial Practice : S.C.Kuchehal
3. Secretarial Practice : M.C.Kuchchal

B.Com (Computer Applications) – Semester IV

Part III-Core IX/X – Visual Basic - Sub Code: 411R09/412R10 – 52 Hrs

(For candidates admitted during the period 2011 – 2012 only/ 2012-2013 Onwards)

Preamble:

This paper is designed to help the students

- to develop their programming skills in windows applications through this paper and
- to provide practical knowledge in programming using VB for various applications.

Module I

(10 Hrs)

VB fundamentals- Getting started _ The VB environments _ Customizing form _ first step in programming: The code window, Variables, data types, constants, Strings, numbers. Statements in VB: The comment and the end statement

Module II

(10 Hrs)

First steps in building the user interface : The tool box – Creating controls – The name property – Properties of command button – Simple event procedure for command buttons – Access keys – Image controls – Text boxes – Labels – Navigating between controls – Message boxes . The grid – Picture box – Rich text box - Organizing information via control: Control arrays - list and combo boxes – Flex grid controls

Module III

(10 Hrs)

Controlling program flow: Determinant loops – Making decisions – select case – Nested if then else – The GOTO statements - BUILT IN FUNCTIONS: String function - Numeric functions – Date and time function – Financial function

Module IV

(10 Hrs)

Function and procedure: Functions procedure and sub procedure. Microsoft windows common controls 6.0: Image list control – list view control – Progress bar control – Slider control – Status bar control – Menus – MDI forms.

Module V

(12 Hrs)

The Chart control – Adding a chart control to a program – Adding data to a chart control – Creating pie chart – Creating 2D and 3D Line charts - Creating 2D and 3D Bar charts - Database Creation using data control – Data Report - Building your own ActiveX Control

Book for study:

1. Visual Basic 6.0 from ground up – Gray Cornell, Tata Mc Graw Hill Publication, Reprint 2005
2. Visual Basic 6.0 Programming - Steven Holzner, Dreamtech Press- Aug 2007
Black Book (Module-V – (Chart Control))

Books for Reference:

1. Visual Basic 6.0 - Steve Brown, BPB publications, 2000 Edition
2. Visual Basic 6 complete - BPB publications, 1999 Edition

B.Com (Computer Applications) – Semester IV

Part III -Core Practical IV - Visual Basic Sub Code: 411RP4/412RP4

(For candidates admitted during the period 2011 – 2012 only/ 2012-2013 Onwards)

8. Design a form as a simple calculator.
9. Design a form for a depreciation calculator.
10. Design a form for a day discoverer.
11. Design a form to calculate Break Even Point.
12. Design a form for Comparison and Concatenation of Strings.
13. Design a form to calculate Time Value of money (Present and Future Value).
14. Design a form for multiplying two matrices.

8. Design a form to change font size, font name, back color and fore color of content in the Text box.
9. Design a form by drawing a line, rectangle and circle and change their colors styles and Sizes.
10. Design a form for currency conversion.
11. Make simple editor with the following Menus and options.

File	Edit
-New	-Cut
-Open	-Copy
-Save	-Paste
12. Design a form using combo box, option button – student’s details including marks and grades.
13. Design a form using Tree view & List view.
14. Design a form to create a simple bar chart in VB.
15. Design a form for employee payroll using link from database.

Course Designed By : Mrs.Gowri

Course Reviewed By : Mrs.B.Shailaja

Checked By : Mrs.B.Shailaja

B.Com (Computer Applications) – Semester IV

Part III - Allied IV –Principles of Management - Sub Code: 411AR4 – 75 Hrs

(For candidates admitted during the period 2011 – 2012 Onwards)

Preamble:

The course is designed to

- ◆ acquaint students with the fundamentals of Business Management as a body of knowledge,
- ◆ to help the students to understand the Principles and Practice of Management and
- ◆ to give a comprehensive understanding of the management concepts.

Module I

(15 Hours)

Management: Definition – Meaning - Importance- Functions of management – Roles of a manager – Managerial skills – Management and Administration - Management a Science or an Art.

Planning:Importance- Types of plans – Steps in Planning –Limitations. MBO: Steps.

Module II

(15 Hours)

Decision Making: Meaning – Types -Steps.

Organization: Meaning - Process- Span of management – Principles of Organizing Organization Structure. Line, Staff and functional Authority – Delegation and Decentralization of Authority.

Module III

(15 Hours)

Co-ordination: Need – Requisites for excellent Co-ordination – Types – Techniques. Motivation: Nature – Determinants – Motivation theories: Maslow’s Theory, Herzberg Theory , McGregors X & Y Theory.

Module IV

(15 Hours)

Leadership: Characteristics of Leadership – Functions of a Leader- Approaches to study of Leadership- * Types of Leader- * Qualities of a Leader.

Module V

(15 Hours)

Managerial Control: Steps – Need –Essentials of effective Control system- Control Techniques.

Self Study : Underlined Portion

Book for study:

1. Principles of Management - P.N.Reddy &P.C. Tripathi,
Himalaya Publising House Delhi,

1. Principles of Management

Reprint 2008 **Starred Portions (Alone)**
- Dinkar Pagare, Sultan Chand & sons,
New Delhi, 2000 Edition

Books for Reference:

1. Essentials of Management - Reddy & Appaniah, Edition 2003
 2. Essentials of Management - SVS Murthy, 2002 Edition
- Course Designed By : Ms.J.Mahalakshmi
Course Reviewed By : Mrs.M.Devipriya
Checked By : Mrs.B.Shailaja

B.Com (Computer Applications) – Semester VI/V

**Part III- Elective III /Core X / XIII– E-Commerce - Sub Code: 510RE3/511R10/512R13 –
65 Hrs**

**(For candidates admitted during the period 2010 – 2011 only/2011-2012 only/2012-2013
Onwards)**

Preamble:

This paper aims

- to provide basic knowledge about electronic commerce and its application,
- to provide knowledge about E-Commerce, Internet and E-Mail, EDI and EPs and
- to provide knowledge about security techniques.

Module I (13 Hrs)

E-commerce- A new concept – nature- convergence – features – need – objectives – types – essential requirements for e-commerce- getting started on e-commerce – levels of e-commerce- e-commerce procedure-advantages, disadvantages of e-commerce*.

Module II (13 Hrs)

Approaches to safe e- commerce: Secure Transport Protocols: SSL - Secure HTTP (S-HTTP) – Secure electronic payment protocols (SEEP) - Process – Secure Electronic Transaction (SET).

Encryption: Digital Signatures – Digital Certificates - Conventional encryption – Public key encryption – Application of encryption – Breaking an encryption scheme.

Module III (13 Hrs)

EDI: EDI Layered architecture- EDI in action-Benefits of EDI- EDI applications in Business – EDI: Legal, security and privacy issues.

Module IV (13 Hrs)

EPS-Types of electronic payment system: Digital token based – Smart cards – Credit card based electronic payment system – Risk and electronic payment system- Designing electronic payment system.

Module V (13 Hrs)

Network security and Firewalls: Client server network security – Emerging client server security threats- Firewalls and Network Security.

Cyber Crime: Introduction- Conventional Crime- Cyber Crime- Distinction Between Conventional And Cyber Crime- Reasons For Cyber Crime- Prevention Of Cyber Crime.

Books for study:

1. Electronic Commerce and E-Business - Dr.C.S.Rayudu, IST Edition 2004.
(Module I) HimalayaPublishingHouse, New Delhi.

- | | |
|---|---|
| 2. Web Commerce Technology
(Module II) | - Daniel Minoli & Emma Minoli
Tata McGraw Hill Publishing Company Ltd.
Reprint 2008 |
| 3. Frontiers of electronic commerce
(Module III, IV & V) | - Ravi Kalakota Andrew B. Whinston.
Published by Pearson Education.
Reprint 2004 |

Books for Reference:

- | | |
|------------------------|---|
| 1. Electronic Commerce | - Elias M. Awad
Prentice-Hall of India Private Limited |
| 2. Electronic Commerce | - Bhushan Dewan, S. Chand & Co. Ltd.,
New Delhi, 1st Edition-2001. |

Course Designed By : Mrs M. Devipriya & Mrs. A. Parameswari

Course Reviewed By : Mrs. B. Shailaja

Checked By : Mrs. B. Shailaja

B.Com (Computer Applications) – Semester V

Part III- Elective I – Income Tax Law and Practice - Sub Code: 510RE1 – 75 Hrs
(For candidates admitted during the period 2010 – 2011 Onwards)

Preamble:

This course aims

- to provide basic Knowledge about Direct and Indirect Tax,
- to expose the students to the various provisions of Income Tax act and
- to equip the students in calculating the tax liability of an Individual.

Module I (12 Hrs)

Tax – Definition – Characteristics – Objectives - Canons of Taxation - *Direct and Indirect taxes. The Income Tax Act: Definition– Assessment Year – Previous Year-Income- Gross Total Income- Total Income - Residential Status – Scope of Total Income.

Module II (15 Hrs)

Exempted income - Salaries – Computation of Salary income.

Module III (16 Hrs)

House Property – Computation of House Property. Profits and gains of Business or profession.

Module IV (16 Hrs)

Capital Gains: Computation – Exempted capital Gains.

Income From Other Sources: Computation of income from other sources.

Module V (16 Hrs)

Set off and Carry Forward of losses- Deduction from Gross Total Income [Sec 80C, 80D, 80E, 80G]–Computation of Tax Liability.

Self Study : Underlined Portion

Note: 40% Marks for Theory & 60% Marks for Problems.

Books for Study:

- | | |
|--------------------------------|--|
| 1. Principles of Taxation | : R. Parameswaran, Prasanna Publishers,
Revised Edition 2005 |
| 2. Income Tax Law and Practice | : V.P. Gaur and K.L. Narang, Kalyani
Publishers, Latest Edition |

Books for Reference:

1. Income Tax Law and Practice : Dr.H.C.Mehrotra, Sathitya Bhawan, Agra, Latest Edition.
2. Direct Taxes : B.B.Lal, Konark Publishers PVT Ltd, Latest Edition.
3. Income Tax Law and Practice : Dinker Pagare, Sultan Chand & Sons, Latest Edition

Course Designed By : Mrs.M.DeviPriya

Course Reviewed By : Mrs.B.Shailaja

Checked By : Mrs. B.Shailaja

B.Com (Computer Applications) – Semester V**Part III – Elective II - Accounting Package –Tally - Sub Code: 510RE2 – 65 Hrs
(For candidates admitted during the period 2010 – 2011 Onwards)****Preamble:**

This Programme has Four Levels which have been classified according to the following organisation types:

- Service
- Trading
- Manufacturing
- Financial Analysis

Level I

(15 Hours)

Tally's accounting features: Basics of Accounting – Accounting Principles – Concepts – Conventions – Double Entry system- Financial statements – Business organisations – service organisations - Tally Fundamentals – Features of Tally – F11& F12 Features – Ledgers & Groups – Vouchers – Recording transactions – Backup – Security control – Purchase & sale invoices – Depreciation entries- Adjustment entries- Provision entries – Financial reports – Balance Sheet – P&L Account , Trial Balance – Cash book , Bank books ,Ledgers ,Group summary ,Group Vouchers , Journal registers – Day book – List of accounts – Second year entry.

Level II

(15 Hours)

Trading organisations - Tally's basic inventory related features: Transactions involving purchases and sale of goods, bills receivables and bills payable – Value Added Tax(VAT) – Sales tax – Voucher type creation – Stock group & Item , unit of measure cost centers – cost category – Cheque printing – Interest calculation – Inventory Voucher. Bank Reconciliation Statement (BRS)- Multiple price level- Discount – Point of Sale (POS) - learn to setup related accounts and prepare financial statements.

Level III

(15 Hours)

Manufacturing organisations : Advanced inventory related features :Transactions involve purchase of raw material, Manufacturing Journal – Multi currency – TDS – TCS – Service tax – Tally audit – Reports - Out standings - Receivables & Payables – Age-wise analysis – CST reports – TDS Reports – Service tax report – Process Industry (Conversion of material into work-in-process)- Job Work – By Products - Multiple finished goods from single Raw prepare related financial statements.

Level IV

(20 Hours)

The financial and cost features. Prepare budgets, develop forecasts, perform ratio analysis- Costing system – Cost Accounting – Overhead allocation – Variance analysis – Management control systems – Management structure – Ratio Analysis – Financial Ratio, Profitability ratio – Activity ratio – Investments return and market performance – Cash flow - Fund flow statements – Inventory cost – Stock Valuation methods in Tally – Age-wise analysis of Inventory – Reorder Level – Movement analysis – System administration and other utilities- and prepare financial reports.

B.Com (Computer Applications) - Semester VI**Part III – Core XIV – Relational Database Management System - Sub Code: 610R14****(For Candidates admitted during the period 2010 – 2011 Onwards)****Preamble: – 65 Hrs**

The aim of the course is

- to enable the student enhance the programming knowledge,
- to provide an exposure about the various oops concepts and
- to impart knowledge about the programming languages.

Module I

(13 Hrs)

Introduction – Purpose of database system-View of data- Data modules-*Database languages -Transaction Management – Storage Management - Database administrator -Database users.

ER Model: Basic concepts-Design issues - Mapping constraints-Keys-ER Diagram. The Relational Model: Structure of Relational databases-The Relational algebra.

Module II

(13 Hrs)

SQL-Background-Basic structure-Set operations-Aggregate function-Null values – Nested sub queries-Derived relations- views- modification of the database- joined relations – DDL - Embedded SQL - Domain constraints - Referential integrity – Assertion –Triggers-Functional dependencies.

Module III

(13 Hrs)

Relational database design- Decomposition- Normalization using functional dependencies- Normalisation using Multivalued dependencies - Normalisation using join dependencies- Domain key normal form.

Module IV

(13 Hrs)

Interactive SQL- More on SQL-SQL Performance tuning – Security Management using SQL.

Module V

(13 Hrs)

Introduction to PL/SQL – Cursors – Loops – Parameterised Cursors – Concurrency Control in Oracle – Locks – Error Handling – Exception Handlers.

Books for study:

- | | |
|-------------------------------------|---|
| 1. Database System Concepts | - Abraham Silberschatz, Henry F.Korth & S.Sudarshan , 5 th revised edition |
| 2. Oracle 7 -The Complete Reference | - Ivan Bayross
BPB publication |

3. SQL, PL/SQL, The programming Languages of Oracle - Ivan Bayross
2nd revised edition.

Books for Reference:

1. An Introduction to Database System - Bipin C.Desai
Galgotia publication Pvt Ltd., 1999
2. An Introduction to Database System -C.J.Date
Pearson Education, 7th edition,Asia,2000
3. Oracle 8 A Beginner's Guide - Michael Abbey & Michael J. Correy
Tata Mc Graw Hill Publication Ltd ,2nd Edition.

B.Com (Computer Applications) – Semester VI

Part III -Core XIII/XIII/XVI Business Communication - Sub Code: 610R13

/611R13/612R16– 75 Hrs

(For candidates admitted during the period 2010 – 2011 only/2011-2012 only/2012-2013 Onwards)

Preamble:

The aim of the course is

- to develop written communication skills of the students,
- to train the students in drafting effective letters on matters relevant to day to day business operations and
- to provide knowledge in Report writing.

Module I (15 Hrs)

Communication – Meaning - Importance of Effective Communication - Objectives - Media- Types of Communication – Barriers - Principles of Communication.

Module II (15 Hrs)

Need and functions of a Business letter- - Planning and layout - Enquiries and Replies- Orders and their Execution.

Module III (15 Hrs)

Credit and Status Enquiries- Complaints and Adjustments - Collection letters - Sales letters - Circular letters - Banking correspondence.

Module IV (15Hrs)

Agency correspondence- Insurance correspondence - Correspondence of a Company Secretary – Agenda - Minutes of Meeting.

Module V (15 Hrs)

Application letters - Report – *Characteristics of a good Report –Types – Organization of a Report - Report by Individuals and Committees

Book for Study:

1. Essentials for Business Communication - Rajendra Pal& J.S.Korlahalli

Books for Reference:

1. Effective Business English & Correspondence - .S.Ramesh & C.C. Pattenshetti
R.Chand & Co, New Delhi,
2004 Edition.
2. Business Correspondence - R.S.N.Pillai & Bagavathi
Sultan Chand & Sons,
New Delhi, 2004 Edition.

B.Com (Computer Applications) – Semester VI

Part III – Elective III – Internet and Web Designing - Sub Code: 611RE3 – 65 Hrs
(For candidates admitted during the period 2011- 2012 Onwards)

Preamble:

- ♦ To acquaint the students with the basic knowledge about Internet
- ♦ To develop the knowledge to design web pages.

Module I (13 hours)
Internet : concepts – Modems – E-mail.

Module II (13 hours)
Introduction to HTML – Lists –Adding graphics to HTML – Tables.

Module III (13 hours)
Linking document – Frames.

Module IV (13 hours)
Introduction to JavaScript – JavaScript object model.

Module V (13 hours)
Forms used by a Website - Dynamic HTML.

Books for Study:

1. Internet & Web development using HTML,DHTML and JAVASCRIPT
(Module I) Soma Dasgupta
Khanna Book Publishing co pvt ltd
- 2.Web enabled commercial application development using - HTML, DHTML,
JAVASCRIPT,PERL CGI .(Module II - V) Ivan bayross.
BPB Publications

Book for Reference:

1. Web Technology(Including HTML,CSS, XML, ASP, JavaScript, VB Script)
Ramesh Bangia
Firewall Media

B.Com (Computer Applications) - Semester VI

Part III -Core Practical V - RDBMS - Sub Code: 610RP5
(For candidates admitted during the period 2010- 2011 Only)

List of practical
RDBMS

1. Create table and write simple queries using
 - a) Comparison operator
 - b) Logical operator
 - c) Set operator
 - d) Sorting and Grouping

2. Create a table and write simple queries using
 - a) DDL command (modify, add, desc)
 - b) DML command (Update, delete)
3. Create two tables, any one column with same name and data type and join the two tables and display all the information.
4. Write a PL/SQL block to find the electricity bill.
5. Write a program for student mark list using PL/SQL block.
6. Write a recursive function to find factorial of N.
7. Write a recursive function to find Fibonacci of N.
8. Write a PL/SQL block to print the natural numbers.
9. Write a PL/SQL block to print the reverse of a number using for loop.
10. Write a PL/SQL block to check whether a given number is even or not.

B.Com (Computer Applications) - Semester VI
Part III -Core Practical V - RDBMS - Sub Code: 611RP5
(For candidates admitted during the period 2011- 2012 Onwards)

List of practical
RDBMS

1. Create table and write simple queries using
 - e) Comparison operator
 - f) Logical operator
 - g) Set operator
 - h) Sorting and Grouping
2. Create a table and write simple queries using
 - a) DDL command (modify, add, desc)
 - b) DML command (Update, delete)
3. Create two tables, any one column with same name and data type and join the two tables and display all the information.
4. Write a PL/SQL block to find the electricity bill.
5. Write a program for student mark list using PL/SQL block.
6. Write a recursive function to find factorial of N.
7. Write a recursive function to find Fibonacci of N.
8. Write a PL/SQL block to print the natural numbers.
9. Write a PL/SQL block to print the reverse of a number using for loop.
10. Write a PL/SQL block to check whether a given number is even or not.

HTML

1. Design a web page of a product advertisement using basic tags & formatting tags.
2. Insert frames and connect them using hyperlink.
3. Create webpage using ordered list and unordered list.
4. Create a Resume.
5. Create e-mail id.

B.Com (Computer Applications) – Semester III
Part IV-Skill based Course I - Principles of Banking.- Sub Code:311RS1 – 38 Hrs
(For Candidates admitted during the period 2011-2012 Onwards)

Preamble:

Knowledge of operational aspects of banking products and services are very essential to equip students on core banking system and to increase their chances of placement in banking sector.

Module I (7 Hrs)

Commercial Banking – Definition – bank – banking system – commercial banking – functions – role of banks in economic development.

Module II (7 Hrs)

Central Banking – need – principles – central banking functions – functions of RBI.

Module III (8 Hrs)

Negotiable instruments: Meaning – characteristics – nature – features – types.

Module IV (8 Hrs)

Crossing – Definition – need for crossing – types of crossing – consequences of crossing – marking of a cheque.

Module V (8 Hrs)

Endorsement – Definition – types of Endorsement – effect of Endorsement – rules regarding Endorsement.

Book for Study :

Banking theory law and practice : Dr. S.Gurusamy
Vijay Nicole Imprints Pvt Ltd, Chennai.

Book for Reference:

1. Indian Banking : S.Natarajan & R.Parameswaran
S.Chand and Co Ltd, New Delhi.
2. Banking Principles and Operations : M.N Gopinath
Snow white publication Pvt Ltd ,Mumbai.

B.Com (Computer Applications) – Semester IV**Part IV-Skill based Course II – Basic Banking Operations - Sub Code: 411RS2 – 38 Hrs**
(For Candidates admitted during the period 2011-2012 Onwards)**Module I** (7 Hrs)

Bank customer – relationship – special type of customer.

Module II (7 Hrs)

Opening bank accounts – types of accounts – steps in opening accounts – enclosure of information.

Module III (8 Hrs)

Paying banker – Meaning – bankers duty – precautions by a paying banker – dishonouring customers cheque – discharge of paying banker – material alteration – statutory protection – refusal of cheque payment.

Module IV (8 Hrs)

Collecting banker – meaning – collecting bankers role – statutory protection – payment in due course – collecting bankers duty.

Module V (8 Hrs)

Bank lending – significance of Bank lending – lending sources – bank lending principles – forms of lending – securities for lending – factors influencing Bank lending.

Book for Study :

Banking theory law and practice : Dr. S.Gurusamy
Vijay Nicole Imprints Pvt Ltd, Chennai.

Book for Reference:

1. Indian Banking : S.Natarajan & R.Parameswaran
S.Chand and Co Ltd, New Delhi.

2. Banking Principles and Operations : M.N Gopinath
Snow white publication Pvt Ltd ,Mumbai.

B.Com (Computer Applications) – Semester V

Part IV-Skill based Course III–E – Banking - Sub Code:510RS3 – 38 Hrs

(For Candidates admitted during the period 2010-2011 Onwards)

Module I (7 Hrs)

E – Banking – Meaning – services of E – Banking - E – Banking and financial services – benefits – initiatives and opportunities – risk management for E – Banking – types of risks – managing risks.

Module II (7 Hrs)

Internet banking Vs Traditional banking – mechanics of internet banking – major issues of internet banking – drawbacks – Indian scenario – future outlook.

Module III (8 Hrs)

Mobile banking: Meaning – definition – features – registration services – security issues. Telephone banking: Meaning – definition - features – mechanisms – banking facilities – telephone banking system – drawbacks – call centers.

Module IV (8 Hrs)

ATM – concepts – features – ATM types – mechanism – ATM functions.

Module V (8 Hrs)

Electronic fund transfer system: steps – benefits. ECS: Electronic payment system – methods of payment.

INFINET – Factors responsible for launch – benefits – applications of INFINET.

Book for Study :

Banking theory law and practice : Dr. S.Gurusamy
Vijay Nicole Imprints Pvt Ltd, Chennai.

Book for Reference:

1. Indian Banking : S.Natarajan & R.Parameswaran
S.Chand and Co Ltd, New Delhi.
2. Banking Principles and Operations: M.N Gopinath
Snow white publication Pvt Ltd, Mumbai.

2017-18

Curriculum Design
SRI G.V.G.VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of B.Com (e-Commerce)
Programme - B.Com (e-Commerce)
Scheme of Examination - CBCS
(For the students admitted from the academic year 2017-2018 onwards)

Course Code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	TOTAL Marks	
117BT1/ 117MY1/ 117HD1/ 117FR1	Semester – I Part I – Language – I	6	3	25	75	100	4
117EN1	Part II – English – I	6	3	25	75	100	4
117B01/ 117R01/ 117N01/	Part III Core I- Financial Accounting - I	5	3	25	75	100	4
117N02	Core II- Fundamentals of e-Commerce	5	3	25	75	100	4
117AN1	Allied I – Office Automation Tools –Practicals	6	3	40	60	100	4
117EVS	Part IV – Environmental Studies	2	2	50	-	50	2
217BT2/ 217MY2/ 217HD2/ 217FR2	Semester – II Part I – Language -II	6	3	25	75	100	4
217EN2	Part II – English – II	6	3	25	75	100	4
217B03/ 217R03/ 217N03	Part III Core III- Financial Accounting - II	5	3	25	75	100	4
217N04	Core IV – Mobile Commerce	5	3	25	75	100	4
217AN2	Allied II – Oracle and MySQL-Practicals	6	3	40	60	100	4
217VEC	Part IV – Value Education	2	2	50	-	50	2
317B05/ 317R05/ 317N05	Semester – III Part III-Core V.– Corporate Accounting	5	3	25	75	100	4
317N06	Core VI – Visual Programming	4	3	25	50	75	3

317B07/ 317N07	Core VII- Principles of Management	5	3	25	75	100	4
317N08	Core VIII- Applications in Visual Programming – Practicals	5	3	40	60	100	4
317AB3/ 317AR3/ 317AN3	Allied III – Mathematics in Business	6	3	25	75	100	4
317NEC	Part IV – Non Major Elective – Mobile Commerce	2	2	50	-	50	2
317BS1/ 317NS1	Part IV Skill Enhancement Course I – Business Application Tools:Image Editor-Practicals	3	3	75	-	75	3
417B09/ 417N09/	Semester – IV Part III - Core IX - Company Law	5	3	25	75	100	4
417B10/ 417R10/ 417N10/	Core X - Cost Accounting	5	3	25	75	100	4
417N11	Core XI – Web Designing	5	3	25	50	75	4
417N12	Core XII-Applications in Webpage Designing – Practicals	4	3	40	60	100	4
417AB4/ 417AR4/ 417AN4	Allied IV- Statistics for Business	6	3	25	75	100	4
417NGA	Part IV – General Awareness	-	1	50	-	50	2
417BS2/ 417NS2	Part IV Skill Enhancement Course II – Business Application Tools: Business Data Analytics using Excel –Practicals	3	3	75	-	75	3
417GIS	Information Security – Level II	2	2	50	-	Grade	Grade
417ALN	Advanced Learners Course I Management Information System	-	-	-	100	100	4*
517B13/ 517R13/ 517N13/ 517V13	Semester – V Part III – Core XIII- E - Accounting – Practicals	5	3	40	60	100	4
517B14/ 517R14/ 517N14/ 517V14	Core XIV- Income Tax	6	3	25	75	100	4
517N15	Core XV- Logistics Management	5	3	25	75	100	4
517B16/	Core XVI- Business	5	3	25	75	100	4

517R16/ 517N16/ 517V16	Communication						
517NE1/ 517BE2/ 517RE2/ 517NE2	Elective I - e-Banking/ Retail Marketing	6	3	25	75	100	4
517NS3	Part IV– Skill Enhancement Course III –Image Designing-Practicals	3	3	75	-	75	3
617B17/ 617R17/ 617N17	Semester – VI Part III-Core XVII-Management Accounting	6	3	25	75	100	4
617N18	Core XVIII – e-Commerce Technology	5	3	25	75	100	3
617N19	Core XIX – e-Commerce Application –Online Transactions	4	3	40	60	100	4
617NE3/ 617BE4/ 617RE4/ 617NE4	Elective II – e-Retailing/Service Marketing	6	3	25	75	100	4
617NE5/ 617BE6/ 617RE6/ 617NE6	Elective III- e-Business/Digital Marketing	6	3	25	75	100	4
617BS4/ 617RS4/ 617NS4	Part IV – Skill Enhancement Course IV – Business Application Tools: Business Skills– Practical	3	3	75	-	75	3
617EX1/ 617EX2/ 617EX3/ 617EX4/ 617EX5	Part V – Extension Activities	-	-	50	-	50	2
617ALN	Advanced Learners Course II – Enterprise Resource Planning	-	-	-	100	100	4*
Total						3500	140

Starred credits are treated as additional credits which are optional.

B.Com (e-Commerce)

Semester I

Part III - Core II - Fundamentals of e-Commerce

117N02

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To impart knowledge on various facets of electronic commerce.
- To provide knowledge about applications of e-Commerce.

Unit I

Computers: Definition – Importance of Computers – Computer applications in various areas of business – General applications of computers in various fields – Classification of computers – Basic Principles of operation of digital computer – Computer System. **(13 Hours)**

Unit II

Networks: Types of Networks – LAN – WAN – MAN – WLAN.

Internet: Evolution of Internet – Governing of the Internet – Transmission of Information and Resources – TCP/IP – HTTP – Services of Internet. **(13 Hours)**

Unit III

e-Commerce: Definition – Difference between electronic commerce and traditional commerce – Advantages of e-Commerce – Disadvantages of e-Commerce - Classification of e-Commerce: B2B – C2B – C2C – B2E – B2G – Intra organizational e-Commerce. **(13 Hours)**

Unit IV

Framework and applications of e-Commerce: e-Commerce Framework – Building infrastructure for e-Commerce – Anatomy of e-Commerce – e-Commerce Applications - Planning and essentials of e-Commerce – Key elements for e-Commerce. **(13 Hours)**

Unit V

EDI: Introduction – Process of EDI – Working of EDI – EDI Components – Traditional EDI and E-Commerce – Benefits of EDI – Uses of EDI in B2B Transactions – EDI Standards – EDIFACT – Internet based EDI – Value Added /networks – EDI Implementations.

Consumer Electronic Commerce: Push and Pull Factors for customers – Importance of B2C – Process in B2C – Consumer Electronic Commerce in India – Travel Industry – Non Travel Industry: E-tailing – Online Classifieds – Paid Content Subscription – Digital Downloads – Retailing Websites – Consumer Satisfaction in E-tailing. **(13 Hours)**

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
(Unit I & II)	R.Saravana Kumar, R.Parameswaran and T.Jayalakshmi,	A Text Book Of Information Technology	S.Chand and Co., New Delhi, Revised Edition 2015
(Unit III,IV & V)	Dr.K.Abirami Devi, Dr.M.Alagammai,	E-Commerce	Margham Publications, Chennai, Reprint 2015

Books For Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.C. Rayudu	E-Commerce E-Business	Himalaya Publishing House, Mumbai, Revised Edition 2014
C.S.V Murthy	E-Commerce – Concepts models strategies	Himalaya Publishing House, Mumbai, Revised Edition 2014

B.Com (e-Commerce)

Semester I

Allied I-Office Automation Tools - Practicals

117AN1

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(75 Hours)

- To impart knowledge on various usage of essential tools in office automation.
- To expose the students to the application of computers in office automation.

List of Practicals

Ms Word

- Creating and formatting a document
- Preparation of a Curriculum Vita
- Design a student's mark sheet using table.
- Preparation of Invoice
- Send an Invitation to various colleges for the workshop using Mail Merge
- Preparation of Advertisement

Ms Access

- Prepare a Product Database
- Prepare a Student Database
- Create an Employee Database
- Prepare a Customer Database

Ms PowerPoint:

- Prepare a slide Show for organizing a Seminar
- Prepare a slide show for paper presentation.
- Demonstrate a product using custom animation.
- Prepare an organization chart.
- Prepare a presentation on Sports day event using hyperlink

B.Com (e-Commerce)

Semester II

Part III – Core IV - Mobile Commerce

217N04

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives:

(65 Hours)

- To provide an overview of basic Concepts of Mobile Commerce.
- To impart the knowledge of M-Commerce technology.
- Global and Integrated view of emerging Mobile Commerce.

Unit I

Introduction to Mobile Commerce: Meaning-Scope of Mobile Commerce, Principles, Benefits, Limitations-Mobile Commerce Framework-Mobile Commerce Business Models-Comparison of e-Commerce and M-Commerce-Impact of M-Commerce. **(11 Hours)**

Unit II

Mobile Commerce Services: Types of M-Commerce Services-Location Based Services-Information Services, NIT DoCoMo I-Mode, Mobile Portal. Applications of Mobile Commerce-Financial Sector, Retail Sector, Tele Communication Sector, Entertainment Sector. Mobile Application Development-Software platforms, Software tools. **(11 Hours)**

Unit III

Mobile Commerce Technology: Wireless Communication-Wireless Service, Spectrum Allocation, Wireless System. Satellite Communication-Satellite Application. Mobile Communication System-Broad Band Technology-Wireless Broad Band Internet, Wireless Application, Practical (WAP). Digital Cellular Technology: Cellular Communication-Cellular Networks- Mobile Phone Cellular Network. **(15 Hours)**

Unit IV

Mobile Access Technology: Mobile Communication Standards. Evolution of Mobile Communication System-1G Systems-2G Systems-3G Systems-4G Systems-LTE Advanced. **(14 Hours)**

Unit V

Mobile Payments-Characteristics-Models-Type of Mobile Payments. Mobile Computing: Applications of Mobile Computing-Challenges of Mobile Computing-Business Application of Mobile Computing. **(14 Hours)**

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I - V	Karabi Bandyopadhyay,	Mobile Commerce	PHI Learning Private Ltd., Delhi,2013

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.U.S.Pandey, Er.Saurash Shukla,	E-Commerce and Mobile Commerce Technologies	S.Chand & Company Ltd, New Delhi,2011.
Puja Walia Mann & Nidhi	E-Commerce	MJP Publishers, 2011
Ravi Kalakota, Andrew B.Whinston	Frontiers of electronic commerce	Pearson Education, Inc-2011

B.Com (e-Commerce)**Semester- III****Part III - Core VI – Visual Programming****317N06****(For the students admitted from the academic year 2017 – 2018 onwards)****Course Objectives****(50 Hours)**

- To develop the programming skills of the student in windows application.
- To provide job opportunities.

Unit I

Integrated Development Environment: Menu bar, tool bar, Project Explorer, Properties Window, Tool box and Code Window. Declaring Constants, Variables, Arrays, Subroutines and Functions. Handling Strings, Operators, Date and Time, Financial Data. Looping. **(10 Hours)**

Unit II

Managing Forms: Forms, MDI Forms, Adding tool bar and Status bar to forms, working with multiple forms, opening and arranging MDI Child Windows. Creating Dialog Boxes: Message Boxes and Input Boxes. **(10 Hours)**

Unit III

Basic and Enhanced Controls: Text Boxes and Rich Text Boxes, List Boxes and Combo Boxes, Picture Boxes and Image Control, Command Button, Option Button, Check Boxes. **(11 Hours)**

Unit IV

Tree View, List View, Status bar, Progress Bars, Chart and Grid Control, Timer Control, Working with Graphics. **(10 Hours)**

Unit V

Databases: Creating and managing database with DAO. **(9 Hours)**

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I - V	Holzner(Steven)	Visual Basic 6.0	Dream Tech Press, 2013

Book for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Gary Cornell	Visual basic 6.0 from ground up	Tata McGraw Hill Publication, 2012
Sanjeev Sharma& Nandan Tripathi	Visual Basic 6	Excel Books,2009
Steve Brown	Visual Basic 6.0	BPB Publications

B.Com/B.Com (e-Commerce)

Semester III

Part III - Core VII–Principles of Management

317B07/317N07

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(65 Hours)

- To enable the students to gain knowledge on concepts of management.
- To help the students gain managerial skills.

Unit I

Management: Definition –Characteristics- Functions - Importance–Difference between Management and Administration-Functions of a Manager- Role of Manager-Principles of Management – Scientific Management- Span of Management. **(13 Hours)**

Unit II

Planning: Definition-Characteristics- Objectives-Importance – Steps in Planning- Methods of Planning- Advantages and Limitations –Management by Objectives (MBO).

Decision making: Characteristics-Decision making process-Principles of Decision making – Types of Decision. **(13 Hours)**

Unit III

Organisation: Nature and importance –Functions - Principles of Organisation– Classification of Organisation - Types of Organisation. **(13 Hours)**

Unit IV

Staffing: Functions of Staffing -Recruitment – Selection –Promotion.

Leadership: Need and Importance-Functions of a Leader- Qualities of Leadership-Types of Leadership-Leadership Styles. **(13 Hours)**

Unit V

Motivation: Nature-Importance-Types-Maslow’s Hierarchy of Needs – Motivational Techniques.

Co-ordination: Need and Importance- Principles-Techniques-Types-Problems.

Controlling: Steps in Control Process – Requirements of effective control system - Techniques of Control. **(13 Hours)**

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I – V	T. Ramasamy	Principles of Management	Himalaya Publishing House, New Delhi. 6 th Ed 2014

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dinkar Pagare	Principles of Management	Sultan Chand and Sons, New Delhi. 5 th Ed 2013.
R.K.Sharma and Shashi, K.Gupta	Business Organization and Office Management	Kalyani Publishers, Ludhiana, 3 rd Ed. 2015

B.Com (e-Commerce)

Semester-III

Part III-Core VIII –Applications in Visual Programming- Practicals 317N08
(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives (48 Hours)

- To inculcate knowledge on the usage of essential tools in visual programming
- To enhance knowledge of programming skills.

List of Practicals

- Design a form for simple arithmetic calculation.
- Design a form as a simple calculator using control array
- Design a form to change font size, font name, back color and fore color of content in a text box.
- Design a form for currency conversion.
- Design a form using combo box, option button- Student's details including marks and Result.
- Design a form using tree view and list view.
- Design a program to calculate depreciation in written down method.
- Design a program to animate a picture.
- Design a form for employee payroll using link from database.
- Design a form to create a banking system containing current account, fixed account and savings account. (Do the above process with the help of menu editor & data control consider MS-Access as Back-End).

Course Designed By : R.Jayalakshmi

Course Reviewed By :M.Devipriya

Checked By : R.Jayalakshmi

II UG Course

Semester III

Part IV – Non Major Elective – Mobile Commerce 317NEC
(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives (25 Hours)

- To provide an overview of basic Concepts of Mobile Commerce.
- To impart the knowledge of M-Commerce technology.
- Global and Integrated view of emerging Mobile Commerce.

Unit I

Introduction to Mobile Commerce-Scope of Mobile Commerce, Principles, Benefits, Limitations. Comparison of e-Commerce and M-Commerce-Impact of M-Commerce.
(5 Hours)

Unit II

Mobile Commerce Services: Types of M-Commerce Services-Location Based Services-Information Services, NIT DoCoMo I-Mode, Mobile Portal.
(5 Hours)

Unit III

Applications of Mobile Commerce-Financial Sector, Retail Sector, Tele Communication Sector, Entertainment Sector. Mobile Application Development-Software platforms, Software tools.
(3 Hours)

Unit IV

Mobile Commerce Technology: Wireless Communication-Wireless Service, Spectrum Allocation, Wireless System. Satellite Communication-Satellite Application. Mobile Communication System-Broad Band Technology-Wireless Broad Band Internet, Wireless Application Practical (WAP). (6 Hours)

Unit V

Mobile Payments-Characteristics-Models-Type of Mobile Payments. Mobile Computing: Applications of Mobile Computing-Challenges of Mobile Computing-Business Application of Mobile Computing. (6 Hours)

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I – V	Karabi Bandyopadhyay	Mobile Commerce	PHI Learning Private Ltd., Delhi, 2013

Books for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Dr.U.S.Pandey, Er.Saurash Shukla	E-Commerce and Mobile Commerce Technologies	S.Chand & Company Ltd, New Delhi, 2011
Puja Walia Mann & Nidhi	E-Commerce	MJP Publishers, 2011
Ravi Kalakota, Andrew B.Whinston	Frontiers of electronic commerce	Pearson Education, Inc-2011

B.Com/ B.Com (e-Commerce)

Semester III

Part IV -Skill Enhancement Course I-Business Application Tools:

Image Editor - Practicals

317BS1/317NS1

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(35 Hours)

- To enlighten the knowledge of GIMP.
- To work with images.
- To inculcate skills in working with graphics.
- To develop technical knowledge for designing advertisement and invitation.

List of Practicals

- Gimp environment: Basic image manipulation, color basic, drawing, painting tools, brush, filling and stroking, layers, masking, manipulating and animating images.
 - Change an image using Brush (layers, tool options, brushes, paint tools).
 - Make colour balance adjustment (path tool, foreground colour, gradient).

- Make adjustment on an image (Curve adjustment, minor correction and retouches).
- Design students identity card (apply filter, modify and insert text).
- Create advertisement with brand logo (merge two or more images).
- Create invitation for the college day (image and masking).
- Design newsletters (image, text and transformation tools).
- Create effect on an image for web poster (light effect, glow effect, 3D effect).
- Animate Images.
- Design a college prospectus.

B.Com (e-Commerce)

Semester - IV

Part III –Core XI – Web Designing

417N11

(For the students admitted from the academic year 2017 - 2018 onwards)

Course Objectives

(65 Hours)

- To enable the student to learn about Internet concepts.
- To develop programming skill using HTML.
- To provide knowledge to design web pages.

Unit I

Internet Basics – Basic Concept – Communicating on the Internet – Internet domains – Internet server identities – establishing connectivity on the Internet – IP Addressing – TCP/IP and its services – World Wide Web – FTP – TELNET. **(13 Hours)**

Unit II

Introduction to HTML: Information Files Creation-Web Server-Web Client/Browser- Tags. Lists: Types of Lists- Adding Graphics to HTML documents –Tables. **(13 Hours)**

Unit III

Linking Documents –Links-Images as hyperlinks-Frames- Dynamic HTML-Cascading Style Sheets-Class-Layers. **(13 Hours)**

Unit IV

Introduction to JavaScript: JavaScript in web pages-Writing JavaScript into HTML – Basic Programming Techniques-Functions in Java Script-Placing Text in a Browser. **(13 Hours)**

Unit V

The Java Script document object model: Java Script assisted Style sheets – Web Page HTML object hierarchy. **(13 Hours)**

Book for Study			
Unit	Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Unit I – V	Ivan Bayross	WebEnabled Commercial Application Development Using HTML, DHTML, JavaScript, Perl CGI.	BPB Publications, New Delhi, 2014

Book for Reference		
Author	Title	Publisher, Place of Publication, Edition, Year of Publication
Danny Goodman, Michael Morrison, Paul Novitski, Tia Gustaff Rayl	Java Script	John Wiley & Sons, Inc., Edition 2010
Daniel Minoli & Emma Minoli	Web Commerce Technology handbook	Tata MC Graw Hill Publishing Company Ltd, New Delhi 2013
Joel Sklar	Principles of Web Design	Cengage Learning India Pvt Ltd, 2015

B.Com/ B.Com (e-Commerce)

Semester IV

Part IV- Skill Enhancement Course II-Business Application Tools:

Business Data Analytics using EXCEL - Practicals 417BS2/417NS2

(For the students admitted from the academic year 2017-2018 onwards)

Course Objectives

(35 Hours)

- To inculcate knowledge on Excel worksheet.
- To acquaint with practical applications of Excel functions.
- To understand chart features of Excel to represent numeric data.

List of Practicals

- Excel: Creation of workbook, apply insert options, editing, style formatting, cell formatting, options menu and apply financial & statistical functions.
 - Presentation of Budget – Fixed, Flexible.
 - Presentation of Budget – sales, production and Cash.
 - Preparation of Employee Payroll.
 - Computation of Simple Interest, Compound Interest.
 - Computation of Present Value, Annuity.
 - Calculation of Mean, Median, Mode, Standard Deviation.
 - Calculation of Simple correlation co-efficient.
 - Calculation of Linear regression Values.
 - Consolidation of data using Pivot Table.
 - Preparation of Graphs and Charts.

2016-17

Curriculum Design

(For the students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	TOTAL Marks	
115TA1/ 115HD1/ 115MY1/ 115FR1	Semester – I Part I – Language – I	6	3	25	75	100	4
115EN1	Part II – English – I	6	3	25	75	100	4
115B01/ 115R01/ 115N01/	Part III - Core I- Financial Accounting	5	3	25	75	100	4
115 B02/ 115R02/ 115N02/ 115V02	Core II- Business Management	5	3	25	75	100	4
115AB2/ 115AR1/ 115AN1/ 115AV1	Allied I – Office Automation Tools - Practical	6	3	40	60	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
215TA2/ 215HD2/ 215MY2/ 215FR2	Semester – II Part I – Language – II	6	3	25	75	100	4
215EN2	Part II – English – I	6	3	25	75	100	4
215B03/ 215R03/ 215N03	Part III - Core III – Company Law	5	3	25	75	100	4
215 B04/ 215R04/ 215N04/ 215V04	Core IV – Marketing	5	3	25	75	100	4
215AN2	Allied II – Oracle and PL/SQL	6	3	40	60	100	4
215VEC	Part IV – Value Education	2	2	50	-	50	2
315B05/ 315R05/ 315N05	Semester – III Part III-Core V– Higher Financial Accounting	5	3	25	75	100	4

315N06	Core VI - Logistics Management	6	3	25	75	100	4
315N07	Core VII- Programming in Visual Basic	4	3	25	50	75	3
315N08	Core VIII- Visual Programming	4	3	40	60	100	4
315 AB3/ 315AR3/ 315AN3	Allied III – Mathematics in Business	6	3	25	75	100	4
315NME	Part IV – Non Major Elective Course I - Mobile Commerce	2	2	50	-	50	2
315NS1	Skill Based Course I – e-Banking	3	3	75	-	75	3
415B09/ 415R09/ 415N09/ 415V09	Semester – IV Part III - Core IX - Business Communication	5	3	25	75	100	4
415B10/ 415R10/ 415N10/ 415V10	Core X - Cost Accounting	5	3	25	75	100	4
415N11	Core XI - Management Information System	4	3	25	50	75	3
415N12	Core XII- Data Analytics with Excel	5	3	40	60	100	4
415AB4/ 415AR4/ 415AN4	Allied IV- Statistics for Business	6	3	25	75	100	4
415NGA	Part IV – Non Major Elective Course II - General Awareness (online)	-	1	50	-	50	2
415NS2	Skill Based Course II - e-Retailing	3	3	75	-	75	3
415GIS	Information Security	2	2	50	-	Grade	Grade
415ALN	Advanced Learners Course I Subject Viva Voce	-	-	-	100	100	3*
515B13/ 515RP5/ 515N13/ 515V13	Semester – V Part III – Core XIII- E Accounting	6	3	40	60	100	4
515B14/ 515R14/ 515N14/ 515V14	Core XIV- Income Tax	6	3	25	75	100	4
515B15/ 515R15/ 515N15/ 515V15	Core XV- Business Finance	5	3	25	75	100	4
515B16/	Core XVI- Higher Corporate Accounting	5	3	25	75	100	4

515R16/ 515N16							
515NE1	Elective I – Web Designing	5	3	25	75	100	4
515NS3/	Part IV– Skill Based Course III – e-Business	3	3	75	-	75	3
615B17/ 615R17/ 615N17/ 615V17	Semester – VI Part III-Core XVII-Management Accounting	6	3	25	75	100	4
615B18/ 615R18/ 615N18	Core XVIII – E Commerce	6	3	25	75	100	4
615N19	Core XIX - E-Commerce Applications-Practical	4	3	40	60	100	4
615NE2	Elective II – Enterprise Resource Planning	5	3	25	75	100	4
615BE3/ 615RE3/ 615NE3	Elective III – Financial Services	6	3	25	75	100	4
615NS4	Part IV – Skill Based Course IV – Mobile Commerce	3	3	75	-	75	3
615ALN	Advanced Learners Course II Subject Viva Voce	-	-	-	100	100	3*
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V – Extension Activities	-	-	50	-	50	2
Total						3500	140

- Starred Credits are treated as additional credits, which are optional.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester I

Part III - Core II - Business Management 115B02/115R02/115N02/115V02

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objectives of this course are:

- To gain knowledge on concepts of management.
- To familiarise with the managerial skills.

Unit I

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk.

Definition of Management – Nature and Scope of Management - Contribution of F.W. Taylor, Henry Fayol - Functions of Management. **(13 Hours)**

Unit II

Planning – Nature and Importance of planning – Advantages and Limitations – Steps in planning – Decision making – Decision making process. **(13 Hours)**

Unit III

Organising – Meaning, Nature and importance -Principles of Organisation– Classification of Organisation – Span of Control – Types of Organisation: Line, Functional, Line and Staff. **(13 Hours)**

Unit IV

Staffing: Definition –Functions-Recruitment – selection-promotion.

Directing: characteristics - techniques.

(13 Hours)

Unit V

Leadership – Meaning – Importance of Leadership – Functions of a Leader – Qualities of a Leader – Types of Leadership.

Controlling: Steps in Control Process – Techniques of Control.

(13 Hours)

Book for study

Principles of Management : T. Ramasamy,
Himalaya Publishing House, New Delhi. 6th Ed 2014.

Books for Reference

Principles of Management : Dinkar Pagare,
Sultan Chand and Sons, New Delhi. 5th Ed 2008.

Business Organization and Office Management : R.K.Sharma and Shashi, K.Gupta,
Kalyani Publishers, Ludhiana, 3rd Ed. 2013.

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)

Semester I

Allied I-Office Automation Tools-Practical

115AB2/115AR1/115AN1/115AV1

(For the students admitted from the academic year 2015-2016 onwards)

List of Practical

(75Hours)

Ms Word

1. Preparation of a Curriculum Vita.
2. Design: Cheque Leaf for a Bank
- Preparation of Invoice
3. Send an Invitation to various colleges for the workshop using Mail Merge.
4. Preparation of Advertisement Copy.

Ms Access

5. Prepare a Student Database.
6. Create an Employee Database.
7. Prepare a Customer Database.

Ms PowerPoint:

8. Prepare a Slide Show for organising a Seminar.
9. Prepare a Slide show for Paper Presentation.
10. Demonstrate a product using Custom Animation.

B.Com/B.Com(CA)/B.Com(e-Commerce)

Semester II

Part III - Core III – Company Law 215B03/215R03/215N03

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objective of this course is:

- To impart the basic principles of Company Law.

Unit I

Company – Definition and Features – kinds of companies– Incorporation of company – Certificate of Incorporation – Certificate of Commencement. **(13 Hours)**

Unit II

Memorandum of Association: Contents, Alteration.

Articles of Association - Contents - alteration - Doctrine of Ultra Virus – Constructive notice of Memorandum and Articles - Doctrine of indoor Management.

(13 Hours)

Unit III

Prospectus: Definition –Matters to be stated in prospectus – Red herring prospectus – Shelf prospectus- Public offer and Private placement- Invitation for subscription of securities on private placement - Liability for Misstatement in prospectus.

(13 Hours)

Unit IV

Company Meetings – Statutory Meeting - Annual General Meeting –Extraordinary General Meetings and Board Meetings – Resolutions, Minutes, Quorum and Proxy.

(13 Hours)

Unit V

Company Management - Board of Directors: Appointment, Qualification, Powers, duties, liabilities, and position of directors. **(13 Hours)**

Book for Study

Elements of Company Law :N.D. Kapoor,
Sultan Chand and Sons, New Delhi, 29th Ed2013.

Books for Reference

Company Law : Dr.N.Premavathy
Sri Vishnu Publication.,Chennai.,Ed 2009
Company Law : Dr.M.R.Sreenivasan
Margham Publication.,Chennai.,Ed 2013

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester II

Part III - Core IV- Marketing 215B04/215R04/215N04/215V04

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65Hours)

The objectives of this course are:

- To impart the knowledge on various aspects of marketing functions.
- To give a comprehensive understanding of the marketing concepts.

Unit I

Marketing: meaning – objectives – importance of modern marketing concept – Marketing mix. Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales. **(13 Hours)**

Unit II

Functions of physical supply – Transportation: functions – classification of transport – merits – choice of mode of transportation. Storage – advantages – Warehousing: functions – kinds. Standardization and Grading: types. Marketing finance: kinds of business finance. Marketing risk: causes – methods of handling risk. **(13 Hours)**

Unit III

Product– Product Life Cycle — New product planning – steps in New Product Planning. Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing. **(13 Hours)**

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections. **(13 Hours)**

Unit V

Channels of distribution: importance – types – Classification of middlemen – Agent middlemen- Wholesaler – Retailer – kinds – services rendered – elimination of middlemen. **(13 Hours)**

Book for Study

Modern Marketing :R.S.N. Pillai and Bagavathi
Principles and practice S. Chand and company, New Delhi. Ed. 2013.

Books for reference

Marketing : Dr. N. Rajan Nair and Sanjith R. Nair
Sultan Chand and sons, New Delhi, Ed. 2010

B.Com (e-Commerce)**Semester-III****Part III-Core VI-Logistics Management 315N06**

(For the students admitted from the academic year 2015-2016 onwards)

Preamble:

(75 Hours)

- To Understand the Concepts of logistics.
- To make them known about different kinds of ships and about the shipping industries.
- To develop their skill in air transportation.

Unit I

Logistics : Objectives-Importance-Elements-International logistics : Meaning -Factors-Elements-Characteristics. International supply chain management: characteristics - Logistics Excellence-Logistics performance of India-Logistics cost.
(14 Hours)

Unit II

Ships : Classification of vessels-Architecture of the ships-Shipping routes and World Tonnage : Shipping routes-Tramp delivery-World Tonnage. Flag of convenience and chartering : Flag of convenience-chartering-Types-Charter party-Chartering procedure
(15 Hours)

Unit III

Freight structure and role of intermediaries : Principles of freight rates-Determination of freight rates-Stevedore-Ocean freight forwards and customs house brokers. Ports in India-Recent development- The biggest port in India.
(15 Hours)

Unit IV

Containerization: Meaning-Advantages and disadvantages of containerization -Types-Classification. Developments in Indian shipping : Overseas shipping-Coastal shipping-Regional competition and environment in shipping-Ports infrastructure development-shipping policy highlights.
(15 Hours)

Unit V

Shipping Association-Shipper organization-Directorate General of shipping-Freight Investigation Bureau (FIB).Role of transportation in global logistics-International Ocean, Air, Land transportation-Impacts of road transportation-Types of Aircrafts-Airport infrastructure-IATA.
(16 Hours)

Book For Study

International Logistics Management - Ruchika Rajput
Vrinda Publications (P) Ltd.
Delhi,2012

Book For Reference

Logistics Management and World Seaborne Trade - Krishnaveni Muthiah
Himalaya Publishing House.Ed.2013
Logistics Management - Satish C.Ailawasi and Rakesh P.Singh
PHI learning PVT Ltd, New Delhi, 2015

Logistics Management

- Sussna K.Miller
Random Exports, New Delhi-2013

Logistic Management

- Rehi Ismail
Excel Boods, New Delhi

Semester- III

Part III - Core VII – Programming in Visual Basic 315N07

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble

(50 Hours)

- To develop the programming skills of the student in windows application.
- To provide job opportunities.

Unit I

Integrated Development Environment: Menu bar, tool bar, Project Explorer, Properties Window, Tool box and Code Window. Declaring Constants, Variables, Arrays, Subroutines and Functions. Handling Strings, Operators, Date and Time, Financial Data. Looping. **(10 Hours)**

Unit II

Managing Forms: Forms, MDI Forms, Adding tool bar and Status bar to forms, working with multiple forms, opening and arranging MDI Child Windows. Creating Dialog Boxes: Message Boxes and Input Boxes. **(10 Hours)**

Unit III

Basic and Enhanced Controls: Text Boxes and Rich Text Boxes, List Boxes and Combo Boxes, Picture Boxes and Image Control, Command Button, Option Button, Check Boxes. **(11 Hours)**

Unit IV

Tree View, List View, Status bar, Progress Bars, Chart and Grid Control, Timer Control, Working with Graphics. **(10 Hours)**

Unit V

Databases: Creating and managing database with DAO. **(9 Hours)**

Book for study

Visual Basic 6.0 - Holzner(Steven), Dream Tech Press, 2013

Book for Reference

Visual basic 6.0 from ground up - Gary Cornell, Tata McGraw Hill
Publication, 2012.

Visual Basic 6 - Sanjeev Sharma& Nandan Tripathi
Excel Books,2012

Visual Basic 6.0 - Steve Brown, BPB Publications.

B.Com (e-Commerce)

Semester-III

Part III-Core VIII -Visual Programming 315N08

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Practical Programs

(48 Hours)

- 1) Design a form for simple arithmetic calculation.
- 2) Design a form as a simple calculator using control array

- 3) Design a form to change font size, font name, back color and fore color of content in a text box.
- 4) Design a form for currency conversion.
- 5) Design a form using combo box, option button- Student's details including marks and Result.
- 6) Design a form using tree view and list view.
- 7) Design a program to calculate depreciation in written down method.
- 8) Design a program to animate a picture.
- 9) Design a form for employee payroll using link from database.
- 10) Design a form to create a banking system containing current account, fixed account and savings account. (Do the above process with the help of menu editor & data control consider MS-Access as Back-End).

B.Com (e-Commerce)

Semester-III

Part IV- Skill Based Course I - e-Banking

315NS1

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble

(35 Hours)

- To equip the students with the operational aspects of e-banking products and services.
- **Get an overview of the financial situation.**

Unit I

Commercial banking-Classification of banking-Banking system-Universal Banking-Function-Role of Banks in Economic Development. **(6 Hours)**

Unit II

e-Banking – Meaning – Services of e-Banking - e-Banking and financial services – Benefits – Initiatives and Opportunities –Types of risks. **(7 Hours)**

Unit III

Internet Banking Vs Traditional Banking – Mechanics of Internet Banking – Major issues of Internet Banking–Indian scenario – Future Outlook. Mobile Banking: Meaning – Definition – Features – Registration Services – Security issues. **(8 Hours)**

Unit IV

Telephone Banking: Meaning – Definition – Features – Mechanism – Banking facilities - Telephone Banking System – Drawbacks – Call centers.ATM –Concept – Features – ATM Types – Mechanism – ATM functions. **(7 Hours)**

Unit V

Electronic Fund Transfer System: Steps – Benefits. Electronic Payment System – Methods of payment. INFINET – Factors responsible for launch – Benefits - Application of INFINET. **(7 Hours)**

Book for Study

Banking Theory Law & Practice - Dr.S.Gurusamy
Vijay Nicole Imprints Private Ltd,
Chennai,2013

Books for Reference

Indian Banking - S.Natarajan & R.Parameswaran
S.Chand & Co Ltd, New Delhi, 2012

Banking Principles and Operations - M.N.Gopinath
First Edition August 2008

- Banking Theory, Law and Practice - Snow White Publication Private Ltd, Mumbai.
 e-banking in India - E.Gordon & Dr. K.Natarajan
 Himalaya Publishing house, New Delhi-2014
 Banking Law and Practice - R.K.Uppal and Rimpti Jatana.
 New Century Publications, New Delhi-2007
 - K.P.Kandasami,S.Natarajan &R.Prameswaran
 S.Chand & Co. PVT Ltd, New Delhi-2007.

II UG Course

Semester III

Part IV – Non Major Elective Course I – Mobile Commerce 315NEC (For the students admitted from the academic year 2015 – 2016 onwards) Preamble (25 Hours)

- To provide an overview of basic Concepts of Mobile Commerce.
- To impart the knowledge of M-Commerce technology.
- Global and Integrated view of emerging Mobile Commerce.

Unit I

Introduction to Mobile Commerce-Scope of Mobile Commerce, Principles, Benefits, Limitations. Comparison of e-Commerce and M-Commerce-Impact of M-Commerce.
(5 Hours)

Unit II

Mobile Commerce Services: Types of M-Commerce Services-Location Based Services-Information Services, NIT DoCoMo I-Mode, Mobile Portal.
(5 Hours)

Unit III

Applications of Mobile Commerce-Financial Sector, Retail Sector, Tele Communication Sector, Entertainment Sector. Mobile Application Development-Software platforms, Software tools.
(3 Hours)

Unit IV

Mobile Commerce Technology: Wireless Communication-Wireless Service, Spectrum Allocation, Wireless System. Satellite Communication-Satellite Application. Mobile Communication System-Broad Band Technology-Wireless Broad Band Internet, Wireless Application, Practical (WAP).
(6 Hours)

Unit V

Mobile Payments-Characteristics-Models-Type of Mobile Payments. Mobile Computing: Applications of Mobile Computing-Challenges of Mobile Computing-Business Application of Mobile Computing.
(6 Hours)

Book for Study

Mobile Commerce - Karabi Bandyopadhyay,
 PHI Learning Private Ltd.,
 Delhi,2013

Book for Reference

E-Commerce and

Mobile Commerce Technologies - Dr.U.S.Pandey,
 Er.Saurash Shukla,
 S.Chand & Company Ltd, New Delhi,2011.

E-Commerce - Puja Walia Mann & Nidhi
 MJP Publishers, 2009

Frontiers of electronic commerce - Ravi Kalakota, Andrew B. Whinston
Pearson Education, Inc-2011

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)

Semester IV

Part III - Core IX– Business Communication

415BO9/415R09/415N09/415V09

(For the students admitted from the academic year 2015-2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To develop the communicative abilities of the students.
- To train the student in drafting effective business letters on matters relevant to day to day business operations with special emphasis on quality of presentation.

Unit I

Communication - Meaning –Communication cycle- Importance- objectives – media – Types of Communication: formal and informal – Barriers of communication - Principles of Communication. **(13 Hours)**

Unit II

Business Letters: Need, functions and kinds of business letters – Planning business messages and layout- Enquiries and Replies - Orders and execution. **(13 Hours)**

Unit III

Credit and Status enquiries – Complaints and Adjustments. **(13 Hours)**

Unit IV

Collection letters – Sales letters – Circular letters. **(13 Hours)**

Unit V

Report – qualities of good report – types of report- Report by Individuals. Application Letters. **(13 Hours)**

Book for Study

Essentials of Business Communication: Rajendra Paul and J.S.Korlahalli,
S Chand and Sons, New Delhi, Ed..2012

Books for Reference

Business Communication and Customer Relations : Dr. C.B. Gupta,
Sultan Chand and Sons, New Delhi. Ed 2010.
Business Communication : Dr.V.K.Jain and Dr.Omprakash Biyani,
Sultan Chand and Sons, New Delhi-2013

B.Com (e-Commerce)

Semester-IV

Part III-Core XII– Data Analytics with Excel

415N12

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Practical Programs

(65 Hours)

1. Sort and filter the data in an order.
2. Prepare employees payroll.
3. Design Mark Sheet. Prepare the chart for analysing students result.
4. Summarise, analyse and present data using pivot table and pivot chart.
5. Calculate Time Value of money - NPV, IRR, ROI, using FV, NPER, PMT, PV, TYPE functions.
6. Calculate loan, annuity and investment analysis using financial functions.
7. Calculate mean, median and mode.
8. Calculate Standard deviation and Skewness for a distribution.
9. Analyse the data using correlation and regression.
10. Create a customer database of a bank.

B.Com (e-Commerce)

Semester - IV

Part IV- Skill Based Course II- e-Retailing

415NS2

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

(35 Hours)

- To equip with the principles and aspects of e-Retailing Business.
- To create a new platform for goods from different parts of the world which could be imported by placing an order.

Unit I

Retailing-Importance-Strategy and structure-Retailing Decisions-Emerging trends in retail marketing. **(6 Hours)**

Unit II

e-Retailing- guide to e-retailing resources-disciplines with e-retailing-different mode of retailing-advantages of e-retailing-shortcomings of e-retailing-success factors for e-retailing. **(8 Hours)**

Unit III

e-Retailing applications-e-retailing elements-application-online merchandising technique-online brand management-online advertising terminology-online purchasing. **(7 Hours)**

Unit IV

Competitive strategy for e-Retailing-customer care-CRM-CRM Cycle-myths about CRM-Foundation of CRM-online Pricing. **(7 Hours)**

Unit V

e-Retailing current trends-analysis and measures-current status of online retailing-criticality and statics of e-retailing-continuing trends of e-retailing-retail business and e-retailing-e-retailing across the global-Impact of FDI in retailing.

(7 Hours)

Book for Study

e-Retailing Principles and Practice (For Unit I to IV) - D.P.Sharma,
Himalaya Publishing House, 2012.

Books for Reference

Retailing and e-Tailing (For Unit V) - S.L.Gupta,RameshMittal,Ruchi Nayyar
International Book House Pvt Ltd., 2011.
Retailing and e-Tailing - Mickey Kosioski, Kim Creamer, Sharon Davis
2013.
Retail Marketing - Dr.L.Natarajan
Margham Publication, Chennai.2015

**B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)
Semester V**

Part III –Core XIII –E Accounting 515B13/515RP5/515N13/515V13

(For the students admitted from the academic year 2015-2016 onwards)

List of Practical (75 Hours)

- 1) Creation of Company in Tally and Enabling Accounting Features.
- 2) Group Creation and Alteration (single and multiple).
- 3) Ledger Creation and Alteration (single and multiple).
- 4) Entering transactions in accounting vouchers.
- 5) Display of list of accounts, books.
- 6) Report display: Trial Balance, Profit and Loss Account and Balance Sheet.
- 7) Altering Inventory, Statutory, Taxation Features.
- 8) Measures of units, Stock Group, Stock Item creation and alteration Display of Stock summary.
- 9) Cost center creation and alteration.
- 10) Creation of Tax Masters.

**B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)
Semester V**

Part III - Core XIV – Income Tax 515B14/515R14/515N14/515V14

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (75 Hours)

The objectives of this course are:

- To provide an in-depth knowledge of Income Tax Provisions.
- To impart practical knowledge about Income Tax calculation.

Unit I

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Residential Status – Exempted Income. **(15 Hours)**

Unit II

Income from Salaries. **(15 Hours)**

Unit III

Income from House Property – Income from Other Sources. **(15 Hours)**

Unit IV

Profit and Gains of Business or Profession.

(15 Hours)

Unit V

Capital Gains – Deductions from Gross Total Income with respect to payments only.

(15 Hours)

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Book for Study

Income Tax Law and Practice: V.P. Gaur and D.B. Narang,
Kalyani Publishers, Ludhiana.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester V

Part III - Core XV – Business Finance 515B15/515R15/515N15/515V15

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objective of this course is:

- To familiarize the students with the techniques of financial management.
- To impart knowledge on concepts relating to financial planning.

Unit I

Business Finance: Definition - Importance - Finance function - Approaches - aim - Scope - relationship of finance with other business functions - objectives - measuring shareholders value creation – financial decisions - functional areas of financial management – functions of a finance manager.

(13 Hours)

Unit II

Financial Plan: objectives – principles – considerations in formulating financial plan – steps in financial planning – estimating long-term and short-term financial needs – assessment of fixed capital requirements – Working capital-limitations of financial planning.

Capitalisation: definition – basis of capitalization – over- capitalisation – under-capitalisations.

(13 Hours)

Unit III

Sources of Finance: kinds of ownership securities – creditorship securities – internal financing – loan financing.

(13 Hours)

Unit IV

Capital Structure: Patterns of Capital Structure –importance – Theories of Capital Structure: NI, NOI, Traditional, MM Approach- Factors Determining Capital Structure – principles of Capital Structure decisions .

(13 Hours)

Unit V

Cost of capital: significance – classification of cost - determination of Cost of Capital - Computation of Cost of capital: Debt, Preference Share capital, Equity Share capital, Retained Earnings .

(13 Hours)

Note: Theory only.

Book for Study

Business Finance

: Shashi.K.Gupta and R.K.Sharma
Kalyani Publishers, New Delhi Ed. 2005,
10th Ed. 2013

Book for Reference

Financial Management
Principles and practice

: S.N. Maheswari
Sultan Chand and Sons, New Delhi Ed. 2014.

B.Com (e-Commerce)**Semester V****Part III –Elective I – Web Designing****515NE1****(For the students admitted from the academic year 2015 - 2016 onwards)****Preamble****(65 Hours)**

- It enables the student to learn about Internet concepts.
- It develops programming skill using HTML.
- It provides knowledge to design web pages.

Unit I

Internet Basics – Basic Concept – Communicating on the Internet – Internet domains – Internet server identities – establishing connectivity on the Internet – IP Addressing – TCP/IP and its services – World Wide Web – FTP – TELNET.

(13 Hours)**Unit II**

Introduction to HTML: Information Files Creation-Web Server-Web Client/Browser- Tags. Lists: Types of Lists- Adding Graphics to HTML documents –Tables.

(13 Hours)**Unit III**

Linking Documents –Links-Images as hyperlinks-Frames- Dynamic HTML-Cascading Style Sheets-Class-Layers.

(12 Hours)**Unit IV**

Introduction to JavaScript: JavaScript in web pages-Writing JavaScript into HTML – Basic Programming Techniques-Functions in Java Script-Placing Text in a Browser.

(14 Hours)**Unit V**

The Java Script document object model: Java Script assisted Style sheets – Web Page HTML object hierarchy.

(13 Hours)**Book for study**

Web Enabled Commercial

- Ivan Bayross BPB

Application Development Using

Publications, New Delhi, 2014

HTML, DHTML, JavaScript, Perl CGI.

Books for reference

Java Script

- Danny Goodman, Michael Morrison,
Paul Novitski,
Tia Gustaff Rayl, 2013.

Web Commerce Technology handbook- Daniel Minoli & Emma Minoli

Tata MC Graw Hill Publishing Company

Web design principle

Ltd, New Delhi 2013
- Joel Sklar
Cengage Learning India Pvt Ltd, 2012

B.Com (e-Commerce)

Semester V

Part IV- Skill Based Course III – e-Business

515NS3

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

(35 Hours)

- To provide knowledge about the Dynamics of e-Business.
- To offer proven solutions that will quickly automate the internal business processes and procedures at a reasonable cost.

Unit I

e-Business: Introduction - e-Business Vs e-Commerce – characteristics – elements – roles and their challenges – requirements – impacts – inhibitors. **(7 Hours)**

Unit II

e-Business strategy: Introduction – Relationship between e-business and other organization strategies – strategic positioning – levels – strategic planning process – strategic alignment. **(7 Hours)**

Unit III

e-Business relationships: modeling interdependence activities - The value chain -Business process and their management. Types and characteristics of e-Business relationships. **(8 Hours)**

Unit IV

e-Business technological infrastructure: Technical e-Business challenges – Client server technology - web technology and applications. **(7 Hours)**

Unit V

e-Business environment: International issues – Ethical issues – Legal issues. Internet book shops, grocery supplies – electronic newspapers – virtual auctions. **(6 Hours)**

Book for study

e-Business Organizational and
Technical foundations
(For Unit I to IV)

- Michael P.Papazoglou
Pieter M.A. Ribbers, John Wiley and sons Ltd
New Delhi.2012.

Books for reference

e-Commerce

- Dr. K.Abirami Devi, Dr.M.Alagammai
Maragham Publications,Chennai, 2014.

e-Commerce strategy,
Technologies and applications
e-Commerce e-Business

- David Whiteley, Tata McGraw – Hill.
Chennai, 2012.
- Dr.C.S.Rayudu
Himalaya Publishing House, Mumbai, 2012.

e-Commerce strategy, Technology
& Implementation

- Gary P.Scheider
Cengage Learning India PVT Ltd.2012

B.Com (e-Commerce)

Semester-VI

Part III - Elective II -Enterprise Resource Planning 615NE2

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble (75 Hours)

- To acquaint basic knowledge about Enterprise Resource Planning
- To develop an understanding on ERP Modules.

Unit I

Introduction to ERP-Common ERP Myths-Evaluation of ERP-Reason for growth of the ERP market-Advantages of ERP -Integrated Management Information-Business Modeling-Integrated Data Model. **(15 Hours)**

Unit II

Risk and benefits of ERP: Quantifiable Benefits from an ERP System- Intangible benefits of ERP-other factors. Risk of ERP-Risk Factor of ERP implementation-people issues-process risk - Technological risks - implementation issues - operational and maintenance issues-managing risk on ERP Projects-Benefits of ERP. **(15 Hours)**

Unit III

ERP and Related Technologies -BPR-Data Warehousing-Data Mining-OLAP-PLM-SCM-CRM-GIS. Functional Modules of ERP software. **(15 Hours)**

Unit IV

ERP implementation–benefits of implementing ERP – technological, operational and business reasons for implementing ERP – challenges. ERP implementation Life Cycle-Introduction-Objectives of ERP Implementation-Different phases of ERP Implementation. **(16 Hours)**

Unit V

ERP implementation process– importance of preparation – precautions –implementation methodologies – managing the implementation –project team – implementation strategy – factors – problem solution – system issues . **(14 Hours)**

Book for Study

Enterprise Resource Planning : Alexis Leon,
Tata McGraw hill publishing company,2013.

Book for Reference

Text book of Enterprise : Mahandeo Jaiswal & Ganesh Vanapalli,
Resource Planning Macmillian India Ltd, 2012.
ERP the Future of : Zubair H.Shaik
Business Automation Atlantic Publishers & Distributors (p) ltd. 2010
Enterprise Resource Planning : D.P. Goyal
-A Managerial Perspective Tata McGraw-Hill Education, 2011

B.Com (e-Commerce)

Semester VI

Part IV - Skill Based Course IV-Mobile Commerce 615NS4

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble (35 Hours)

- To provide an overview of basic Concepts of Mobile Commerce.
- To impart the knowledge of M-Commerce technology.
- Global and Integrated view of emerging Mobile Commerce.

Unit I

Introduction to Mobile Commerce - Scope of Mobile Commerce - Principles, Benefits, Limitations. Comparison of e-Commerce and M-Commerce - Impact of M-Commerce. Mobile Commerce Framework – Mobile Commerce models – M-Commerce Applications – e-commerce Vs. M-commerce. **(7 Hours)**

Unit II

Mobile Commerce Services: Types of M-Commerce Services-Location Based Services-Information Services, NIT DoCoMo I-Mode, Mobile Portal- Relevance of M-commerce in modern society. **(7 Hours)**

Unit III

Applications of Mobile Commerce-Financial Sector, Retail Sector, Tele Communication Sector, Entertainment Sector. Mobile Application Development-Software platforms, Software tools. **(7 Hours)**

Unit IV

Mobile Commerce Technology: Communication Systems - Wireless Communication-Wireless Service, Spectrum Allocation, Wireless System. Satellite Communication-Satellite Applications. Mobile Communication Systems -Broad Band Technology-Wireless Broad Band Internet, Wireless Application, Practical (WAP). **(8 Hours)**

Unit V

Mobile Payments-Characteristics-Models-Type of Mobile Payments. Mobile Computing: Applications of Mobile Computing-Challenges of Mobile Computing-Business Application of Mobile Computing. **(6 Hours)**

Book for Study

Mobile Commerce : Karabi Bandyopadhyay,
PHI Learning Private Ltd.,Delhi,2013

Book for Reference

E-Commerce and

Mobile Commerce Technologies : Dr.U.S.Pandey,
Er.Saurash Shukla,
S.Chand & Company Ltd, New Delhi, 2011.

E-Commerce : Puja Walia Mann & Nidhi, MJP Publishers, 2009

Frontiers of electronic commerce : Ravi Kalakota, Andrew B.Whinston
Pearson Education, Inc-2011

2015-16

Curriculum Design

SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)

Affiliated to Bharathiar University

Department of B.Com (e-Commerce)

B.Com (e-Commerce)

Scheme of Examination-CBCS Pattern

(For the students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Inst Hrs/ week	Examination				Credits
			Dur. Hrs	CIA Marks	ESE Marks	TOTAL Marks	
115TA1/ 115HD1/ 115MY1/ 115FR1	Semester – I Part I – Language – I	6	3	25	75	100	4
115EN1	Part II – English – I	6	3	25	75	100	4
115B01/ 115R01/ 115N01/	Part III - Core I- Financial Accounting	5	3	25	75	100	4
115 B02/ 115R02/ 115N02/ 115V02	Core II- Business Management	5	3	25	75	100	4
115AB2/ 115AR1/ 115AN1/ 115AV1	Allied I – Office Automation Tools - Practical	6	3	40	60	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
215TA2/ 215HD2/ 215MY2/ 215FR2	Semester – II Part I – Language – II	6	3	25	75	100	4
215EN2	Part II – English – I	6	3	25	75	100	4
215B03/ 215R03/ 215N03	Part III - Core III – Company Law	5	3	25	75	100	4
215 B04/ 215R04/ 215N04/ 215V04	Core IV – Marketing	5	3	25	75	100	4
215AN2	Allied II – Oracle and PL/SQL	6	3	40	60	100	4

215VEC	Part IV – Value Education	2	2	50	-	50	2
315B05/ 315R05/ 315N05	Semester – III Part III-Core V– Higher Financial Accounting	5	3	25	75	100	4
315N06	Core VI - Logistics Management	6	3	25	75	100	4
315N07	Core VII- Programming in Visual Basic	4	3	25	50	75	3
315N08	Core VIII- Visual Programming	4	3	40	60	100	4
315 AB3/ 315AR3/ 315AN3	Allied III – Mathematics in Business	6	3	25	75	100	4
315NEC	Part IV – Non Major Elective Course I - Mobile Commerce	2	2	50	-	50	2
315NS1	Skill Based Course I – e-Banking	3	3	75	-	75	3
415B09/ 415R09/ 415N09/ 415V09	Semester – IV Part III - Core IX - Business Communication	5	3	25	75	100	4
415B10/ 415R10/ 415N10/ 415V10	Core X - Cost Accounting	5	3	25	75	100	4
415N11	Core XI - Management Information System	4	3	25	50	75	3
415N12	Core XII- Data Analytics with Excel	5	3	40	60	100	4
415AB4/ 415AR4/ 415AN4	Allied IV- Statistics for Business	6	3	25	75	100	4
415NGA	Part IV – Non Major Elective Course II - General Awareness (online)	-	1	50	-	50	2
415NS2	Skill Based Course II - e-Retailing	3	3	75	-	75	3
415GIS	Information Security	2	2	50	-	Grade	Grade
415ALN	Advanced Learners Course I Subject Viva Voce	-	-	-	100	100	3*
515B13/ 515RP5/ 515N13/ 515V13	Semester – V Part III – Core XIII- E Accounting	6	3	40	60	100	4
515B14/ 515R14/ 515N14/ 515V14	Core XIV- Income Tax	6	3	25	75	100	4

515B15/ 515R15/ 515N15/ 515V15	Core XV- Business Finance	5	3	25	75	100	4
515B16/ 515R16/ 515N16	Core XVI- Higher Corporate Accounting	5	3	25	75	100	4
515NE1	Elective I – Web Designing	5	3	25	75	100	4
515NS3/	Part IV– Skill Based Course III – e-Business	3	3	75	-	75	3
615B17/ 615R17/ 615N17/ 615V17	Semester – VI Part III-Core XVII-Management Accounting	6	3	25	75	100	4
615B18/ 615R18/ 615N18	Core XVIII – E Commerce	6	3	25	75	100	4
615N19	Core XIX - E-Commerce Applications- Practical	4	3	40	60	100	4
615NE2	Elective II – Enterprise Resource Planning	5	3	25	75	100	4
615BE3/ 615RE3/ 615NE3	Elective III – Financial Services	6	3	25	75	100	4
615NS4	Part IV – Skill Based Course IV – Mobile Commerce	3	3	75	-	75	3
615ALN	Advanced Learners Course II Subject Viva Voce	-	-	-	100	100	3*
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V – Extension Activities	-	-	50	-	50	2
Total						3500	140

- Starred Credits are treated as additional credits, which are optional.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester I

Part III - Core II - Business Management 115B02/115R02/115N02/115V02

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objectives of this course are:

- To gain knowledge on concepts of management.
- To familiarise with the managerial skills.

Unit I

Nature and scope of business - characteristics of business - objectives of business – role of profit in business - business risk.

Definition of Management – Nature and Scope of Management - Contribution of F.W. Taylor, Henry Fayol - Functions of Management. **(13 Hours)**

Unit II

Planning – Nature and Importance of planning – Advantages and Limitations – Steps in planning – Decision making – Decision making process. **(13 Hours)**

Unit III

Organising – Meaning, Nature and importance -Principles of Organisation– Classification of Organisation – Span of Control – Types of Organisation: Line, Functional, Line and Staff. **(13 Hours)**

Unit IV

Staffing: Definition –Functions-Recruitment – selection-promotion.

Directing: characteristics - techniques. **(13 Hours)**

Unit V

Leadership – Meaning – Importance of Leadership – Functions of a Leader – Qualities of a Leader – Types of Leadership.

Controlling: Steps in Control Process – Techniques of Control. **(13 Hours)**

Book for study

Principles of Management : T. Ramasamy,
Himalaya Publishing House, New Delhi. 6th Ed 2014.

Books for Reference

Principles of Management : Dinkar Pagare,
Sultan Chand and Sons, New Delhi. 5th Ed 2008.

Business Organization and Office Management : R.K.Sharma and Shashi, K.Gupta,
Kalyani Publishers, Ludhiana, 3rd Ed. 2013.

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)

Semester I

Allied I-Office Automation Tools-Practical

115AB2/115AR1/115AN1/115AV1

(For the students admitted from the academic year 2015-2016 onwards)

List of Practical

(75Hours)

Ms Word

11. Preparation of a Curriculum Vita.
12. Design: Cheque Leaf for a Bank
 - Preparation of Invoice
13. Send an Invitation to various colleges for the workshop using Mail Merge.
14. Preparation of Advertisement Copy.

Ms Access

15. Prepare a Student Database.
16. Create an Employee Database.
17. Prepare a Customer Database.

Ms PowerPoint:

18. Prepare a Slide Show for organising a Seminar.
19. Prepare a Slide show for Paper Presentation.
20. Demonstrate a product using Custom Animation.

B.Com/B.Com(CA)/B.Com(e-Commerce)

Semester II

Part III - Core III – Company Law 215B03/215R03/215N03

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objective of this course is:

- To impart the basic principles of Company Law.

Unit I

Company – Definition and Features – kinds of companies– Incorporation of company – Certificate of Incorporation – Certificate of Commencement. **(13 Hours)**

Unit II

Memorandum of Association: Contents, Alteration.
Articles of Association - Contents - alteration - Doctrine of Ultra Virus – Constructive notice of Memorandum and Articles - Doctrine of indoor Management.

(13 Hours)

Unit III

Prospectus: Definition –Matters to be stated in prospectus – Red herring prospectus – Shelf prospectus- Public offer and Private placement- Invitation for subscription of securities on private placement - Liability for Misstatement in prospectus.

(13 Hours)

Unit IV

Company Meetings – Statutory Meeting - Annual General Meeting –Extraordinary General Meetings and Board Meetings – Resolutions, Minutes, Quorum and Proxy.

(13 Hours)

Unit V

Company Management - Board of Directors: Appointment, Qualification, Powers, duties, liabilities, and position of directors. **(13 Hours)**

Book for Study

Elements of Company Law :N.D. Kapoor,
Sultan Chand and Sons, New Delhi, 29th Ed2013.

Books for Reference

Company Law : Dr.N.Premavathy
Sri Vishnu Publication.,Chennai.,Ed 2009

Company Law : Dr.M.R.Sreenivasan
Margham Publication.,Chennai.,Ed 2013

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester II

Part III - Core IV- Marketing 215B04/215R04/215N04/215V04

(For the students admitted from the academic year 2015-2016 onwards)

Preamble (65Hours)

The objectives of this course are:

- To impart the knowledge on various aspects of marketing functions.
- To give a comprehensive understanding of the marketing concepts.

Unit I

Marketing: meaning – objectives – importance of modern marketing concept – Marketing mix. Marketing functions: Functions of exchange. Buying – elements of buying – purchasing methods - Assembling – Selling- elements of selling – kinds of sales. **(13 Hours)**

Unit II

Functions of physical supply – Transportation: functions – classification of transport – merits – choice of mode of transportation.Storage – advantages – Warehousing: functions – kinds. Standardization and Grading: types. Marketing finance: kinds of business finance. Marketing risk: causes – methods of handling risk. **(13 Hours)**

Unit III

Product– Product Life Cycle — New product planning – steps in New Product Planning.

Pricing: Objectives – factors affecting pricing decision – procedure for price determination- kinds of pricing. **(13 Hours)**

Unit IV

Promotion: Importance – objectives – forms of promotion. Sales promotion: objectives – advantages – kinds of sales promotion. Advertising: objectives – functions – objections. **(13 Hours)**

Unit V

Channels of distribution: importance – types – Classification of middlemen – Agent middlemen- Wholesaler – Retailer – kinds – services rendered – elimination of middlemen. **(13 Hours)**

Book for Study

Modern Marketing :R.S.N. Pillai and Bagavathi
Principles and practice S. Chand and company,New Delhi. Ed. 2013.

Books for reference

Marketing : Dr. N. Rajan Nair and Sanjith R. Nair
Sultan Chand and sons, New Delhi, Ed. 2010

B.Com (e-Commerce)
Semester-III
Part III-Core VI-Logistics Management 315N06
(For the students admitted from the academic year 2015-2016 onwards)

Preamble: (75 Hours)

- To Understand the Concepts of logistics.
- To make them known about different kinds of ships and about the shipping industries.
- To develop their skill in air transportation.

Unit I

Logistics : Objectives-Importance-Elements-International logistics : Meaning -Factors-Elements-Characteristics. International supply chain management: characteristics - Logistics Excellence-Logistics performance of India-Logistics cost. (14 Hours)

Unit II

Ships : Classification of vessels-Architecture of the ships-Shipping routes and World Tonnage : Shipping routes-Tramp delivery-World Tonnage. Flag of convenience and chartering : Flag of convenience-chartering-Types-Charter party-Chartering procedure (15 Hours)

Unit III

Freight structure and role of intermediaries : Principles of freight rates-Determination of freight rates-Stevedore-Ocean freight forwards and customs house brokers. Ports in India-Recent development- The biggest port in India. (15 Hours)

Unit IV

Containerization: Meaning-Advantages and disadvantages of containerization -Types-Classification. Developments in Indian shipping : Overseas shipping-Coastal shipping-Regional competition and environment in shipping-Ports infrastructure development-shipping policy highlights. (15 Hours)

Unit V

Shipping Association-Shipper organization-Directorate General of shipping-Freight Investigation Bureau (FIB).Role of transportation in global logistics-International Ocean, Air, Land transportation-Impacts of road transportation-Types of Aircrafts-Airport infrastructure-IATA. (16 Hours)

Book For Study

International Logistics Management - Ruchika Rajput
Vrinda Publications (P) Ltd.
Delhi,2012

Book For Reference

Logistics Management and World Seaborne Trade	- Krishnaveni Muthiah Himalaya Publishing House.Ed.2013
Logistics Management	- Satish C.Ailawasi and Rakesh P.Singh PHI learning PVT Ltd, New Delhi 2015
Logistics Management	- Sussna K.Miller Random Exports, New Delhi-2013
Logistic Management	- Rehi Ismail Excel Boods, New Delhi

Semester- III

Part III - Core VII – Programming in Visual Basic 315N07

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble

(50 Hours)

- To develop the programming skills of the student in windows application.
- To provide job opportunities.

Unit I

Integrated Development Environment: Menu bar, tool bar, Project Explorer, Properties Window, Tool box and Code Window. Declaring Constants, Variables, Arrays, Subroutines and Functions. Handling Strings, Operators, Date and Time, Financial Data. Looping. **(10 Hours)**

Unit II

Managing Forms: Forms, MDI Forms, Adding tool bar and Status bar to forms, working with multiple forms, opening and arranging MDI Child Windows. Creating Dialog Boxes: Message Boxes and Input Boxes. **(10 Hours)**

Unit III

Basic and Enhanced Controls: Text Boxes and Rich Text Boxes, List Boxes and Combo Boxes, Picture Boxes and Image Control, Command Button, Option Button, Check Boxes. **(11 Hours)**

Unit IV

Tree View, List View, Status bar, Progress Bars, Chart and Grid Control, Timer Control, Working with Graphics. **(10 Hours)**

Unit V

Databases: Creating and managing database with DAO. **(9 Hours)**

Book for study

Visual Basic 6.0 - Holzner(Steven), Dream Tech Press, 2013

Book for Reference

Visual basic 6.0 from ground up - Gary Cornell, Tata McGraw Hill Publication, 2012.

Visual Basic 6 - Sanjeev Sharma& Nandan Tripathi Excel Books,2012

Visual Basic 6.0 - Steve Brown, BPB Publications.

B.Com (e-Commerce)

Semester-III

Part III-Core VIII -Visual Programming 315N08

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Practical Programs

(48 Hours)

- 11) Design a form for simple arithmetic calculation.
- 12) Design a form as a simple calculator using control array
- 13) Design a form to change font size, font name, back color and fore color of content in a text box.
- 14) Design a form for currency conversion.
- 15) Design a form using combo box, option button- Student's details including marks and Result.

- 16) Design a form using tree view and list view.
- 17) Design a program to calculate depreciation in written down method.
- 18) Design a program to animate a picture.
- 19) Design a form for employee payroll using link from database.
- 20) Design a form to create a banking system containing current account, fixed account and savings account. (Do the above process with the help of menu editor & data control consider MS-Access as Back-End).

B.Com (e-Commerce)

Semester-III

Part IV- Skill Based Course I - e-Banking 315NS1

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble (35 Hours)

- To equip the students with the operational aspects of e-banking products and services.
- **Get an overview of the financial situation.**

Unit I

Commercial banking-Classification of banking-Banking system-Universal Banking-Function-Role of Banks in Economic Development. **(6 Hours)**

Unit II

e-Banking – Meaning – Services of e-Banking - e-Banking and financial services – Benefits – Initiatives and Opportunities –Types of risks. **(7 Hours)**

Unit III

Internet Banking Vs Traditional Banking – Mechanics of Internet Banking – Major issues of Internet Banking–Indian scenario – Future Outlook. Mobile Banking: Meaning – Definition – Features – Registration Services – Security issues. **(8 Hours)**

Unit IV

Telephone Banking: Meaning – Definition – Features – Mechanism – Banking facilities - Telephone Banking System – Drawbacks – Call centers.ATM –Concept – Features – ATM Types – Mechanism – ATM functions. **(7 Hours)**

Unit V

Electronic Fund Transfer System: Steps – Benefits. Electronic Payment System – Methods of payment. INFINET – Factors responsible for launch – Benefits - Application of INFINET. **(7 Hours)**

Book for Study

Banking Theory Law & Practice - Dr.S.Gurusamy
Vijay Nicole Imprints Private Ltd,
Chennai,2013

Books for Reference

Indian Banking	- S.Natarajan & R.Parameswaran S.Chand & Co Ltd, New Delhi, 2012
Banking Principles and Operations	- M.N.Gopinath First Edition August 2008 Snow White Publication Private Ltd, Mumbai.
Banking Theory, Law and Practice	- E.Gordon & Dr. K.Natarajan Himalaya Publishing house, New Delhi-2014
e-banking in India	- R.K.Uppal and Rimpiti Jatana. New Century Publications, New Delhi-2007

Banking Law and Practice

- K.P.Kandasami, S.Natarajan & R.Prameswaran
S.Chand & Co. PVT Ltd, New Delhi-2007.

II UG Course

Semester III

Part IV – Non Major Elective Course I – Mobile Commerce 315NEC

(For the students admitted from the academic year 2015 – 2016 onwards)
Preamble (25 Hours)

- To provide an overview of basic Concepts of Mobile Commerce.
- To impart the knowledge of M-Commerce technology.
- Global and Integrated view of emerging Mobile Commerce.

Unit I

Introduction to Mobile Commerce-Scope of Mobile Commerce, Principles, Benefits, Limitations. Comparison of e-Commerce and M-Commerce-Impact of M-Commerce.
(5 Hours)

Unit II

Mobile Commerce Services: Types of M-Commerce Services-Location Based Services-Information Services, NIT DoCoMo I-Mode, Mobile Portal.
(5 Hours)

Unit III

Applications of Mobile Commerce-Financial Sector, Retail Sector, Tele Communication Sector, Entertainment Sector. Mobile Application Development-Software platforms, Software tools.
(3 Hours)

Unit IV

Mobile Commerce Technology: Wireless Communication-Wireless Service, Spectrum Allocation, Wireless System. Satellite Communication-Satellite Application. Mobile Communication System-Broad Band Technology-Wireless Broad Band Internet, Wireless Application, Practical (WAP).
(6 Hours)

Unit V

Mobile Payments-Characteristics-Models-Type of Mobile Payments. Mobile Computing: Applications of Mobile Computing-Challenges of Mobile Computing-Business Application of Mobile Computing.
(6 Hours)

Book for Study

Mobile Commerce

- Karabi Bandyopadhyay,
PHI Learning Private Ltd.,
Delhi, 2013

Book for Reference

E-Commerce and

Mobile Commerce Technologies -

Dr.U.S.Pandey,
Er.Saurash Shukla,
S.Chand & Company Ltd, New Delhi, 2011.

E-Commerce

- Puja Walia Mann & Nidhi
MJP Publishers, 2009

Frontiers of electronic commerce -

Ravi Kalakota, Andrew B. Whinston
Pearson Education, Inc-2011

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)
Semester IV

Part III - Core IX– Business Communication

415BO9/415R09/415N09/415V09

(For the students admitted from the academic year 2015-2016 onwards)

Preamble:

(65 Hours)

The objectives of this course are:

- To develop the communicative abilities of the students.
- To train the student in drafting effective business letters on matters relevant to day to day business operations with special emphasis on quality of presentation.

Unit I

Communication - Meaning –Communication cycle- Importance- objectives – media – Types of Communication: formal and informal – Barriers of communication - Principles of Communication. **(13 Hours)**

Unit II

Business Letters: Need, functions and kinds of business letters – Planning business messages and layout- Enquiries and Replies - Orders and execution. **(13 Hours)**

Unit III

Credit and Status enquiries – Complaints and Adjustments. **(13 Hours)**

Unit IV

Collection letters – Sales letters – Circular letters. **(13 Hours)**

Unit V

Report – qualities of good report – types of report- Report by Individuals. Application Letters. **(13 Hours)**

Book for Study

Essentials of Business Communication: Rajendra Paul and J.S.Korlahalli,
S Chand and Sons, New Delhi, Ed..2012

Books for Reference

Business Communication and	: Dr. C.B. Gupta,
Customer Relations	Sultan Chand and Sons, New Delhi. Ed 2010.
Business Communication	: Dr.V.K.Jain and Dr.Omprakash Biyani.
	Sultan Chand and Sons, New Delhi-2013

B.Com (e-Commerce)
Semester-IV

Part III-Core XII– Data Analytics with Excel **415N12**

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Practical Programs

(65 Hours)

11. Sort and filter the data in an order.
12. Prepare employees payroll.
13. Design Mark Sheet.Prepare the chart for analysing students result.
14. Summarise, analyse and present data using pivot table and pivot chart.
15. Calculate Time Value of money - NPV, IRR, ROI, using FV, NPER, PMT, PV, TYPE functions.
16. Calculate loan, annuity and investment analysis using financial functions.

17. Calculate mean, median and mode.
18. Calculate Standard deviation and Skewness for a distribution.
19. Analyse the data using correlation and regression.
20. Create a customer database of a bank.

B.Com (e-Commerce)

Semester - IV

Part IV- Skill Based Course II- e-Retailing

415NS2

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

(35 Hours)

- To equip with the principles and aspects of e-Retailing Business.
- To creates a new platform for goods from different parts of the world which could be imported by placing an order.

Unit I

Retailing-Importance-Strategy and structure-Retailing Decisions-Emerging trends in retail marketing. **(6 Hours)**

Unit II

e-Retailing- guide to e-retailing resources-disciplines with e-retailing-different mode of retailing-advantages of e-retailing-short comings of e-retailing-success factors for e-retailing. **(8 Hours)**

Unit III

e-Retailing applications-e-retailing elements-application-online merchandising technique-online brand management-online advertising terminology-online purchasing. **(7 Hours)**

Unit IV

Competitive strategy for e-Retailing-customer care-CRM-CRM Cycle-myths about CRM-Foundation of CRM-online Pricing. **(7 Hours)**

Unit V

e-Retailing current trends-analysis and measures-current status of online retailing-criticality and statics of e-retailing-continuing trends of e-retailing-retail business and e-retailing-e-retailing across the global-Impact of FDI in retailing. **(7 Hours)**

Book for Study

e-Retailing Principles and Practice - D.P.Sharma,
Himalaya Publishing House, 2012.
(For Unit I to IV)

Books for Reference

Retailing and e-Tailing - S.L.Gupta,RameshMittal,Ruchi Nayyar
(For Unit V) International Book House Pvt Ltd., 2011.
Retailing and e-Tailing - Mickey Kosioski, Kim Creamer, Sharon Davis
2013.

Retail Marketing - Dr.L.Natarajan
Margham Publication, Chennai.2015

B.Com/B.Com (CA)/B.Com (e-Commerce)/BBA(CA)

Semester V

Part III –Core XIII –E Accounting 515B13/515RP5/515N13/515V13

(For the students admitted from the academic year 2015-2016 onwards)

List of Practical

(75 Hours)

- 11) Creation of Company in Tally and Enabling Accounting Features.
- 12) Group Creation and Alteration (single and multiple).
- 13) Ledger Creation and Alteration (single and multiple).
- 14) Entering transactions in accounting vouchers.
- 15) Display of list of accounts, books.
- 16) Report display: Trial Balance, Profit and Loss Account and Balance Sheet.
- 17) Altering Inventory, Statutory, Taxation Features.
- 18) Measures of units, Stock Group, Stock Item creation and alteration Display of Stock summary.
- 19) Cost center creation and alteration.
- 20) Creation of Tax Masters.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester V

Part III - Core XIV – Income Tax 515B14/515R14/515N14/515V14

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(75 Hours)

The objectives of this course are:

- To provide an in-depth knowledge of Income Tax Provisions.
- To impart practical knowledge about Income Tax calculation.

Unit I

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Residential Status – Exempted Income. **(15 Hours)**

Unit II

Income from Salaries. **(15 Hours)**

Unit III

Income from House Property – Income from Other Sources. **(15 Hours)**

Unit IV

Profit and Gains of Business or Profession. **(15 Hours)**

Unit V

Capital Gains – Deductions from Gross Total Income with respect to payments only. **(15 Hours)**

Note: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

Book for Study

Income Tax Law and Practice: V.P. Gaur and D.B. Narang,
Kalyani Publishers, Ludhiana.

B.Com/B.Com(CA)/B.Com(e-Commerce)/BBA(CA)

Semester V

Part III - Core XV – Business Finance 515B15/515R15/515N15/515V15

(For the students admitted from the academic year 2015-2016 onwards)

Preamble

(65 Hours)

The objective of this course is:

- To familiarize the students with the techniques of financial management.
- To impart knowledge on concepts relating to financial planning.

Unit I

Business Finance: Definition - Importance - Finance function - Approaches - aim - Scope - relationship of finance with other business functions - objectives - measuring shareholders value creation – financial decisions - functional areas of financial management – functions of a finance manager. **(13 Hours)**

Unit II

Financial Plan: objectives – principles – considerations in formulating financial plan – steps in financial planning – estimating long-term and short-term financial needs – assessment of fixed capital requirements – Working capital-limitations of financial planning.

Capitalisation: definition – basis of capitalization – over- capitalisation – under-capitalisations. **(13 Hours)**

Unit III

Sources of Finance: kinds of ownership securities – creditorship securities – internal financing – loan financing. **(13 Hours)**

Unit IV

Capital Structure: Patterns of Capital Structure –importance – Theories of Capital Structure: NI, NOI, Traditional, MM Approach- Factors Determining Capital Structure – principles of Capital Structure decisions . **(13 Hours)**

Unit V

Cost of capital: significance – classification of cost - determination of Cost of Capital - Computation of Cost of capital: Debt, Preference Share capital, Equity Share capital, Retained Earnings . **(13 Hours)**

Note: Theory only.

Book for Study

Business Finance

: Shashi.K.Gupta and R.K.Sharma

Kalyani Publishers, New Delhi Ed. 2005, 0th Ed. 2013

Book for Reference

Financial Management

: S.N. Maheswari

Principles and practice

Sultan Chand and Sons, New Delhi Ed.2014.

B.Com (e-Commerce)

Semester V

Part III –Elective I – Web Designing

515NE1

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

(65 Hours)

- It enables the student to learn about Internet concepts.
- It develops programming skill using HTML.

- It provides knowledge to design web pages.

Unit I

Internet Basics – Basic Concept – Communicating on the Internet – Internet domains – Internet server identities – establishing connectivity on the Internet – IP Addressing – TCP/IP and its services – World Wide Web – FTP – TELNET.
(13 Hours)

Unit II

Introduction to HTML: Information Files Creation-Web Server-Web Client/Browser- Tags. Lists: Types of Lists- Adding Graphics to HTML documents –Tables.
(13 Hours)

Unit III

Linking Documents –Links-Images as hyperlinks-Frames- Dynamic HTML-Cascading Style Sheets-Class-Layers.
(12 Hours)

Unit IV

Introduction to JavaScript: JavaScript in web pages-Writing JavaScript into HTML – Basic Programming Techniques-Functions in Java Script-Placing Text in a Browser.
(14 Hours)

Unit V

The Java Script document object model: Java Script assisted Style sheets – Web Page HTML object hierarchy.
(13 Hours)

Book for study

Web Enabled Commercial Application Development Using HTML, DHTML, JavaScript, Perl CGI. - Ivan Bayross BPB Publications, New Delhi, 2014

Books for reference

Java Script - Danny Goodman, Michael Morrison, Paul Novitski, Tia Gustaff Rayl, 2013.
Web Commerce Technology handbook- Daniel Minoli & Emma Minoli Tata MC Graw Hill Publishing Company Ltd, New Delhi 2013
Web design principle - Joel Sklar Cengage Learning India Pvt Ltd, 2012

B.Com (e-Commerce)

Semester V

Part IV- Skill Based Course III – e-Business

515NS3

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble

(35 Hours)

- To provide knowledge about the Dynamics of e-Business.
- To offer proven solutions that will quickly automate the internal business processes and procedures at a reasonable cost.

Unit I

e-Business: Introduction - e-Business Vs e-Commerce – characteristics – elements – roles and their challenges – requirements – impacts – inhibitors. **(7 Hours)**

Unit II

e-Business strategy: Introduction – Relationship between e-business and other organization strategies – strategic positioning – levels – strategic planning process – strategic alignment. **(7 Hours)**

Unit III

e-Business relationships: modeling interdependence activities - The value chain -Business process and their management. Types and characteristics of e-Business relationships. **(8 Hours)**

Unit IV

e-Business technological infrastructure: Technical e-Business challenges – Client server technology - web technology and applications. **(7 Hours)**

Unit V

e-Business environment: International issues – Ethical issues – Legal issues. Internet book shops, grocery supplies – electronic newspapers – virtual auctions. **(6 Hours)**

Book for study

e-Business Organizational and Technical foundations
(For Unit I to IV) - Michael P.Papazoglou
Pieter M.A. Ribbers, John Wiley and sons Ltd
New Delhi.2012.

Books for reference

e-Commerce - Dr. K.Abirami Devi, Dr.M.Alagammai
Maragham Publications,Chennai, 2014.
e-Commerce strategy, - David Whiteley, Tata McGraw – Hill.
Technologies and applications Chennai, 2012.
e-Commerce e-Business - Dr.C.S.Rayudu
Himalaya Publishing House, Mumbai, 2012.
e-Commerce strategy, Technology - Gary P.Scheider
& Implementation Cengage Learning India PVT Ltd.2012

B.Com (e-Commerce)

Semester-VI

Part III - Elective II -Enterprise Resource Planning 615NE2

(For the students admitted from the academic year 2015 - 2016 onwards)

Preamble (75 Hours)

- To acquaint basic knowledge about Enterprise Resource Planning
- To develop an understanding on ERP Modules.

Unit I

Introduction to ERP-Common ERP Myths-Evaluation of ERP-Reason for growth of the ERP market-Advantages of ERP -Integrated Management Information-Business Modeling-Integrated Data Model. **(15 Hours)**

Unit II

Risk and benefits of ERP: Quantifiable Benefits from an ERP System- Intangible benefits of ERP-other factors. Risk of ERP-Risk Factor of ERP implementation-people issues-process risk - Technological risks - implementation issues - operational and maintenance issues-managing risk on ERP Projects-Benefits of ERP. (15 Hours)

Unit III

ERP and Related Technologies -BPR-Data Warehousing-Data Mining-OLAP-PLM-SCM-CRM-GIS. Functional Modules of ERP software. (15 Hours)

Unit IV

ERP implementation-benefits of implementing ERP – technological, operational and business reasons for implementing ERP – challenges. ERP implementation Life Cycle-Introduction-Objectives of ERP Implementation-Different phases of ERP Implementation. (16 Hours)

Unit V

ERP implementation process– importance of preparation – precautions –implementation methodologies – managing the implementation –project team – implementation strategy – factors – problem solution – system issues . (14 Hours)

Book for Study

Enterprise Resource Planning : Alexis Leon,
Tata McGraw hill publishing company,2013.

Book for Reference

Text book of Enterprise : Mahandeo Jaiswal & Ganesh Vanapalli,
Resource Planning Macmillian India Ltd, 2012.
ERP the Future of : Zubair H.Shaik
Business Automation Atlantic Publishers & Distributors (p) ltd. 2010
Enterprise Resource Planning : D.P. Goyal
-A Managerial Perspective Tata McGraw-Hill Education, 2011

B.Com (e-Commerce)

Semester VI

Part IV - Skill Based Course IV-Mobile Commerce 615NS4

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble (35 Hours)

- To provide an overview of basic Concepts of Mobile Commerce.
- To impart the knowledge of M-Commerce technology.
- Global and Integrated view of emerging Mobile Commerce.

Unit I

Introduction to Mobile Commerce - Scope of Mobile Commerce - Principles, Benefits, Limitations. Comparison of e-Commerce and M-Commerce - Impact of M-Commerce. Mobile Commerce Framework – Mobile Commerce models – M-Commerce Applications – e-commerce Vs. M-commerce. (7 Hours)

Unit II

Mobile Commerce Services: Types of M-Commerce Services-Location Based Services-Information Services, NIT DoCoMo I-Mode, Mobile Portal- Relevance of M-commerce in modern society. (7 Hours)

Unit III

Applications of Mobile Commerce-Financial Sector, Retail Sector, Tele Communication Sector, Entertainment Sector. Mobile Application Development-Software platforms, Software tools. **(7 Hours)**

Unit IV

Mobile Commerce Technology: Communication Systems - Wireless Communication-Wireless Service, Spectrum Allocation, Wireless System. Satellite Communication-Satellite Applications. Mobile Communication Systems -Broad Band Technology-Wireless Broad Band Internet, Wireless Application, Practical (WAP). **(8 Hours)**

Unit V

Mobile Payments-Characteristics-Models-Type of Mobile Payments. Mobile Computing: Applications of Mobile Computing-Challenges of Mobile Computing-Business Application of Mobile Computing. **(6 Hours)**

Book for Study

Mobile Commerce : Karabi Bandyopadhyay,
PHI Learning Private Ltd.,Delhi,2013

Book for Reference

E-Commerce and

Mobile Commerce Technologies : Dr.U.S.Pandey,
Er.Saurash Shukla,
S.Chand & Company Ltd, New Delhi, 2011.

E-Commerce : Puja Walia Mann & Nidhi, MJP Publishers, 2009

Frontiers of electronic commerce : Ravi Kalakota, Andrew B.Winston
Pearson Education, Inc-2011

2014-15

B.Com (e-Commerce)

(For Candidates admitted during the academic year 2012 -2013 & onwards)

Seme ster	Course	Cre dits	Durat ion of Exa m	Maximum		
				CI A	ES E	Tota l
I	Part I –Language I	3	3	25	75	100
	Part II- English I	3	3	25	75	100
	Part III Core I – Business Organization	4	3	25	75	100
	Core Practical I -Front office management	4	3	40	60	100
	Allied I – Business Mathematics	5	3	25	75	100
	Part IV – Environmental Studies	2		50	-	50
II	Part I – Language II	3	3	25	75	100
	Part II- English II	3	3	25	75	100
	Part III Core II – Financial Accounting	5	3	25	75	100
	Core Practical II–Oracle & PL/SQL	4	3	40	60	100
	Allied II – Business Statistics	5	3	25	75	100
	Part IV- Value Education	2		50	-	50
	Advanced Learners’ Course I-Principles of Management	3*	3	-	100	100
III	Part III Core III - Cost Accounting	5	3	25	75	100
	Core IV – Marketing	4	3	25	75	100
	Core V – Programming in C	3	3	25	75	100
	Core Practical III - Programming in C	2	3	40	60	100
	Allied III – Principles of Information Technology	5	3	25	75	100
		3		100	-	100
	Part IV Skill Based Course I –Principles of Banking	2		75	-	75
	Non major Elective					

IV	Part III Core VI- Higher Financial Accounting	5	3	25	75	100
	Core VII – e-Commerce Framework and Business Informatics	4	3	25	75	100
	Core VIII – Visual Programming	3	3	25	75	100
	Core Practical IV- Visual Programming	2	3	40	60	100
	Allied IV – Logistics Management	5	3	25	75	100
	Part IV Skill Based Course II- Basic Banking Operations	3		100	-	100
	General Awareness	2		75	-	75
	Advanced Learners' Course II –Enterprise Resource Planning	3*	3	-	100	100
	Part V- Extension Activities	1		50	-	50
V	Part III Core IX – e-Commerce Strategy, Technology and Implementation	4	3	25	75	100
	Core X – Internet and Web design	3	3	25	75	100
	Core XI– Java programming	3	3	25	75	100
	Core practical V- e- Commerce Application	4	3	40	60	100
	Elective I-Income Tax	5	3	25	75	100
	Part IV - Skill Based Course III- e- Banking	3		100	-	100`
VI	Part III Core XII –Management Accounting	5	3	25	75	100
	Core XIII - Financial Management	4	3	25	75	100
	Core XIV- Management Information System	4	3	25	75	100
	Elective II- Computerized Accounting Tally-practical	5	3	40	60	100
		5	3	25	75	100
	Elective III –Business Communication	3		100	-	100
	Part IV - Skill Based Course IV– Practical	3*	3	-	100	100
	Advanced Learners' course III-Business Environment					
Total Credits		140				370

B.Com (e-Commerce)

Semester-I

Part III Core I – Business Organization

SubCode:112N01

(For Candidates admitted during the academic year 2012 -2013 onwards) 65 Hours

Preamble:

To impart knowledge about the basic forms of business organizations.

To make the students learn the nature and types of business organizations and Stock Market.

Module I

Nature & scope of business-Characteristics-Objectives-*Essentials of successful business- Business Ethics: Needs and Principles. (11 Hours)

Module II

Forms of Organization: Sole Proprietorship –Characteristics – Merits and Demerits- Partnership: Characteristics – Merits and Demerits-Partnership-Partnership Deed-Kinds of partnership-Kinds of Partner-Joint Hindu Family Firm-Merits-Demerits (11 Hours)

Module III

Joint Stock Company-Characteristics – Merits –Demerits- Co-operative Societies: Characteristics-Types-Merits- Limitation. Public Enterprise: Characteristics- Forms-Problems. (11 Hours)

Module IV

Location and Site-Factors influencing location- Merits and Demerits of industry- Localisation , Decentralisation- Merits-Demerits-Selection of Site- Factors influencing selection of site-Classification. (16 Hours)

Module V

Sources of Finance: Shares- Debentures- Stock Exchange: Features-services-function- salient features of SEBI in India. (16 Hours)

*Starred and underlined portion: Self-study.

Book for study

Business Organization : Kathiresan and Dr.Radha
Prasanna Publishers,Chennai.Ed 2010

Book for reference

Business Organization and : R.K.Sharma & shashi, K.Gupta,
Office Management Kalyani publishers, Ludhiana, Reprint 2011

B.Com (e-Commerce)

Semester I

Part III – Core Practical I- Front Office Management

Sub Code:112NP1

(For Candidates admitted during the academic year 2012 -2013 onwards) 75 Hours

List of programs

- Format the Text
- Create a Document and perform the following
- Insert Header and Footer

- Find and Replace the Text
- Use Column Form
- Prepare a Time Table using Ms Word
- Prepare a Curriculum-vita using Resume Wizard
- Design a Cheque leaf for a Bank
- Prepare an Invoice using Ms Word
- Send an Invitation to various colleges for the workshop using Mail Merge
- Design a Newspaper Advertisement for a Company
- Prepare a Payroll for employee using Ms Excel
- Design a Mark Sheet using Ms Excel including Total, Credit, GPA and CGPA
- Calculate Loan, Annuity and Investment Analysis using Financial Functions in Ms Excel
- Show year wise performance of Sales and Profit of a concern using Chart. Modify and Add Data Table to the Chart
- Prepare a Database for item, Quantity and Price
- Prepare Student Database
- Create Employee Database
- Prepare Customer Database for a Tele Communication Service provider
- Prepare Slide Show for the Seminar
- Design Slide Show for College Day event
- Prepare an organizational Chart for a Company
- Demonstrate a Product using Custom Animation

Semester-II

Part-III Core II-Financial Accounting

Sub Code:212N02

(For Candidates admitted during the academic year 2012 -2013 onwards) 75 Hours

Preamble

To provide an in-depth knowledge of accounting concepts and conventions

To acquaint the student with the methods of applying accounting principles

Module I

Accounting concepts and conventions- Preparation of final statement of accounts of a Sole trader. (14 Hours)

Module II

Depreciation Accounting- meaning- methods of Depreciation. (13 Hours)

Module III

Hire Purchase and Installment Purchase System. (17 Hours)

Module IV

Consignment and Joint Venture. (18 Hours)

Module V

Accounts of Non Trading Concerns - Receipt and Payments Account - Income and Expenditure Account - Balance Sheet. (13 Hours)

Note:

Distribution of marks for Theory and Problem shall be 40% and 60% respectively.

Book for study
Advanced Accountancy : S.P.Jain and K.L.Narang,
Kalyani Publishers, New Delhi. Edition 2010.

Books for reference
Principles of Accountancy : K.L.Nagarajan, N.Vinayakam, P.L.Mani
Eurasia publishing house Pvt Ltd,
New Delhi, Edition 2010
Financial Accounting : T.S.Reddy & A.Murthy
Margham Publications, Chennai, Edition -2010

B.Com (e-Commerce)
Semester-II

Part-III Core Practical II - Oracle & PL/SQL Sub Code:212NP2
(For Candidates admitted during the academic year 2012 -2013 onwards) 65 Hours

List of program

- Create a table customer with the fields customer number, name, address, city, pincode and insert the details of customers and perform select, update and delete operations.
- Add the fields state and phone number to an existing customer table and insert necessary values into it.
- Create a table student with fields register number and name and create another table mark with fields register number and mark of 3 subjects. Merge these two tables and display all the information in the table student.
- Create a table product with the fields: product number, product name and date of the sales. Display the above information in the ascending order of the field sales. The date of sales should be displayed in the format “DD/MM/YY”.
- Create a table named Account_Details having three fields Account_number, Branch_number and Current_balance from the source table named Account_master and rename the field Current_balance to Balance.
- Drop the table Customer detail.
- Write a PL/SQL Block to print natural numbers upto n.
- Find the sum of n natural numbers using PL/SQL Block.
- Write a PL/SQL Block to print the number in reverse order.
- Write a PL/SQL Block to check whether the number is even or odd.
- Write a PL/SQL Block to print the Fibonacci series.
- Write a PL/SQL Block to perform Employees payroll calculation.
- Create a table with fields employee number, employee name and salary. Write a PL/SQL code for inserting a record in the table and then update the content of the fields salary based on the condition when the employee number is 101 change the salary to 15000.
- Write a PL/SQL Block to perform the splitting operation on a table.

- Create a table that contains the student information and write a PL/SQL block to find the total, average marks and result.

B.Com (e-Commerce)

Semester-III

Part IV- Skill Based Course –I- Principles of Banking Sub Code: 312NS1

(For Candidates admitted during the academic year 2012 -2013 onwards) 38 Hours

Preamble :

To acquaint the students with the banking concepts and principles

Module I:-

Commercial banking – Definition – Bank – Banking system - Commercial banking – Functions – Role of banks in economic development. (8 Hours)

ModuleII:

Central banking – Need – Principles - Central Banking Functions – Functions of RBI. (8 Hours)

ModuleIII:

Negotiable instruments: Meaning – Characteristics – Nature – Features – Types. (8 Hours)

Module IV:

Crossing – Definition – Need for Crossing – Types of Crossing – Consequence of Crossing – Marking of a Cheque. (7 Hours)

Module V:

Endorsement – Definition – Types of Endorsement – Effect of Endorsement – Rules regarding Endorsement. (7 Hours)

Book for Study:

Banking Theory Law & Practice – Dr.S.Gurusamy

Edition – 2010

Vijay Nicole Imprints Private Ltd, Chennai.

Books for Reference:

1. Indian Banking

- S.Natarajan & R.Parameswaran

S.Chand & Co Ltd, New Delhi

Edition– 2012

2. Banking Principles and Operations -M.N.Gopinath

First Edition August 2008

Snow White Publication Private Ltd, Mumbai.

B.Com (e-Commerce)

Semester-IV

Part IV- Skill Based Course –II- Basic Banking Operations Sub Code: 412NS2

(For Candidates admitted during the academic year 2012 -2013 onwards) 38 Hours

Preamble:

To familiarise the students with basic banking operations.

Module I:

Bank Customer Relationship – Special types of Customer. (8 Hours)

Module II:

Opening Bank Accounts – Types of Accounts – Steps in opening accounts –
Disclosure of information. (8 Hours)

Module III:

Paying Banker – Meaning – Banker's duty – Precautions by a paying banker –
Dishonouring customer's Cheque – Discharge of paying banker – Material alteration –
Statutory protection – Refusal of cheque payment. (8 Hours)

Module IV:

Collecting banker – Meaning – Collecting banker's role - Statutory protection –
Payment in due course – Collecting Banker's duty. (7 Hours)

Module V:

Bank lending – Significance of Bank lending – Lending Sources - Bank lending
principles – forms of lending – Securities for lending – Factors influencing Bank lending.
(7 Hours)

Book for Study:

Banking Theory Law & Practice – Dr.S.Gurusamy
Edition– 2010
Vijay Nicole Imprints Private Ltd, Chennai.

Books for Reference:

1. Indian Banking - S.Natarajan & R.Parameswaran
S.Chand & Co Ltd, New Delhi
Edition– 2012
2. Banking Principles and Operations - M.N.Gopinath
First Edition August 2008
Snow White Publication Private Ltd, Mumbai.

B.Com (e-Commerce)

Semester-V

Part IV- Skill Based Course –III– e-Banking

Sub Code: 512NS3

(For Candidates admitted during the academic year 2012 -2013 onwards) 38 Hours

Preamble

To equip the students with the operational aspects of e-banking products and services.

Module I:

e-Banking – Meaning – Services of e-Banking - e-Banking and financial services – Benefits – Initiatives and Opportunities –Types of risks. (8 Hours)

Module II:

Internet Banking Vs Traditional Banking – Mechanics of Internet Banking – Major issues of Internet Banking –Drawbacks – Indian scenario – Future Outlook. (8 Hours)

Module III:

Mobile Banking: Meaning – Definition – Features – Registration Services – Security issues. Telephone Banking: Meaning – Definition – Features – Mechanism – Banking facilities - Telephone Banking System – Drawbacks – Call centers. (8 Hours)

Module IV:

ATM –Concept – Features – ATM Types – Mechanism – ATM functions. (7 Hours)

Module V:

Electronic Fund Transfer System: Steps – Benefits. Electronic Payment System – Methods of payment.

INFINET – Factors responsible for launch – Benefits - Application of INFINET.(7hours)

Book for Study:

Banking Theory Law & Practice – Dr.S.Gurusamy

Edition – 2010

Vijay Nicole Imprints Private Ltd, Chennai.

Books for Reference:

1. Indian Banking

- S.Natarajan & R.Parameswaran
S.Chand & Co Ltd, New Delhi
Edition – 2012

2. Banking Principles and Operations - M.N.Gopinath

First Edition August 2008

Snow White Publication Private Ltd, Mumbai.

B.Com (e-Commerce)

Semester VI

PartIII Elective II-Computerized Accounting Tally-practical SubCode: 612NE2
(For Candidates admitted during the academic year 2012 -2013 onwards) 75 Hours

List of Programs

- Creation of Company in Tally ERP.
- Enabling Accounting Features.
- Group Creation and Alteration (single and multiple).
- Ledger Creation and Alteration (single and multiple).
- Display of books.
- Display of Trial Balance.
- Display of Profit and Loss Account.
- Display of Balance Sheet.
- Altering Inventory Features.
- Altering Statutory Features.
- Altering Taxation Features.
- Creation and alteration of measures of units.
- Stock Group creation and alteration.
- Stock Item creation and alteration.
- Display of Stock summary.
- Cost center creation and alteration.
- Creation of tax Masters.
- Display of Ratios.
- Creation of Payroll Masters.
- Back up and Restoration.

2013-14

B.Com (e-Commerce)

(For Candidates admitted during the academic year 2012 -2013 & onwards)

Seme ster	Course	Cre dits	Durat ion of Exa m	Maximum		
				CI A	ES E	Tota l
I	Part I –Language I	3	3	25	75	100
	Part II- English I	3	3	25	75	100
	Part III Core I – Business Organization	4	3	25	75	100
	Core Practical I -Front office management	4	3	40	60	100
	Allied I – Business Mathematics	5	3	25	75	100
	Part IV – Environmental Studies	2		50	-	50
II	Part I – Language II	3	3	25	75	100
	Part II- English II	3	3	25	75	100
	Part III Core II – Financial Accounting	5	3	25	75	100
	Core Practical II–Oracle & PL/SQL	4	3	40	60	100
	Allied II – Business Statistics	5	3	25	75	100
	Part IV- Value Education	2		50	-	50
	Advanced Learners’ Course I-Principles of Management	3*	3	-	100	100
III	Part III Core III - Cost Accounting	5	3	25	75	100
	Core IV – Marketing	4	3	25	75	100
	Core V – Programming in C	3	3	25	75	100
	Core Practical III - Programming in C	2	3	40	60	100
	Allied III – Principles of Information Technology	5	3	25	75	100
		3		100	-	100
	Part IV Skill Based Course I –Principles of Banking	2		75	-	75
	Non major Elective					

IV	Part III Core VI- Higher Financial Accounting	5	3	25	75	100
	Core VII – e-Commerce Framework and Business Informatics	4	3	25	75	100
	Core VIII – Visual Programming	3	3	25	75	100
	Core Practical IV- Visual Programming	2	3	40	60	100
	Allied IV – Logistics Management	5	3	25	75	100
	Part IV Skill Based Course II- Basic Banking Operations	3		100	-	100
	General Awareness	2		75	-	75
	Advanced Learners' Course II –Enterprise Resource Planning	3*	3	-	100	100
	Part V- Extension Activities	1		50	-	50
V	Part III Core IX – e-Commerce Strategy, Technology and Implementation	4	3	25	75	100
	Core X – Internet and Web design	3	3	25	75	100
	Core XI– Java programming	3	3	25	75	100
	Core practical V- e- Commerce Application	4	3	40	60	100
	Elective I-Income Tax	5	3	25	75	100
	Part IV - Skill Based Course III- e- Banking	3		100	-	100`
VI	Part III Core XII –Management Accounting	5	3	25	75	100
	Core XIII - Financial Management	4	3	25	75	100
	Core XIV- Management Information System	4	3	25	75	100
	Elective II- Computerized Accounting Tally-practical	5	3	40	60	100
		5	3	25	75	100
	Elective III –Business Communication	3		100	-	100
	Part IV - Skill Based Course IV– Practical	3*	3	-	100	100
	Advanced Learners' course III-Business Environment					
Total Credits		140				370

B.Com (e-Commerce)

Semester-I

Part III Core I – Business Organization

SubCode:112N01

(For Candidates admitted during the academic year 2012 -2013 onwards) 65 Hours

Preamble:

To impart knowledge about the basic forms of business organizations.

To make the students learn the nature and types of business organizations and Stock Market.

Module I

Nature & scope of business-Characteristics-Objectives-*Essentials of successful business- Business Ethics: Needs and Principles. (11 Hours)

Module II

Forms of Organization: Sole Proprietorship –Characteristics – Merits and Demerits- Partnership: Characteristics – Merits and Demerits-Partnership-Partnership Deed-Kinds of partnership-Kinds of Partner-Joint Hindu Family Firm-Merits-Demerits (11 Hours)

Module III

Joint Stock Company-Characteristics – Merits –Demerits- Co-operative Societies: Characteristics-Types-Merits- Limitation. Public Enterprise: Characteristics- Forms-Problems. (11 Hours)

Module IV

Location and Site-Factors influencing location- Merits and Demerits of industry- Localisation , Decentralisation- Merits-Demerits-Selection of Site- Factors influencing selection of site-Classification. (16 Hours)

Module V

Sources of Finance: Shares- Debentures- Stock Exchange: Features-services-function- salient features of SEBI in India. (16 Hours)

*Starred and underlined portion: Self-study.

Book for study

Business Organization : Kathiresan and Dr.Radha
Prasanna Publishers,Chennai.Ed 2010

Book for reference

Business Organization and : R.K.Sharma & shashi, K.Gupta,
Office Management Kalyani publishers, Ludhiana, Reprint 2011

B.Com (e-Commerce)

Semester I

Part III – Core Practical I- Front Office Management

Sub Code:112NP1

(For Candidates admitted during the academic year 2012 -2013 onwards) 75 Hours

List of programs

- Format the Text
- Create a Document and perform the following
- Insert Header and Footer

- Find and Replace the Text
- Use Column Form
- Prepare a Time Table using Ms Word
- Prepare a Curriculum-vita using Resume Wizard
- Design a Cheque leaf for a Bank
- Prepare an Invoice using Ms Word
- Send an Invitation to various colleges for the workshop using Mail Merge
- Design a Newspaper Advertisement for a Company
- Prepare a Payroll for employee using Ms Excel
- Design a Mark Sheet using Ms Excel including Total, Credit, GPA and CGPA
- Calculate Loan, Annuity and Investment Analysis using Financial Functions in Ms Excel
- Show year wise performance of Sales and Profit of a concern using Chart. Modify and Add Data Table to the Chart
- Prepare a Database for item, Quantity and Price
- Prepare Student Database
- Create Employee Database
- Prepare Customer Database for a Tele Communication Service provider
- Prepare Slide Show for the Seminar
- Design Slide Show for College Day event
- Prepare an organizational Chart for a Company
- Demonstrate a Product using Custom Animation

Semester-II

Part-III Core II-Financial Accounting

Sub Code:212N02

(For Candidates admitted during the academic year 2012 -2013 onwards) 75 Hours

Preamble

To provide an in-depth knowledge of accounting concepts and conventions

To acquaint the student with the methods of applying accounting principles

Module I

Accounting concepts and conventions- Preparation of final statement of accounts of a Sole trader. (14 Hours)

Module II

Depreciation Accounting- meaning- methods of Depreciation. (13 Hours)

Module III

Hire Purchase and Installment Purchase System. (17 Hours)

Module IV

Consignment and Joint Venture. (18 Hours)

Module V

Accounts of Non Trading Concerns - Receipt and Payments Account - Income and Expenditure Account - Balance Sheet. (13 Hours)

Note:

Distribution of marks for Theory and Problem shall be 40% and 60% respectively.

Book for study
Advanced Accountancy : S.P.Jain and K.L.Narang,
Kalyani Publishers, New Delhi. Edition 2010.

Books for reference
Principles of Accountancy : K.L.Nagarajan, N.Vinayakam, P.L.Mani
Eurasia publishing house Pvt Ltd,
New Delhi, Edition 2010
Financial Accounting : T.S.Reddy & A.Murthy
Margham Publications, Chennai, Edition -2010

B.Com (e-Commerce)
Semester-II

Part-III Core Practical II - Oracle & PL/SQL Sub Code:212NP2
(For Candidates admitted during the academic year 2012 -2013 onwards) 65 Hours

List of program

- Create a table customer with the fields customer number, name, address, city, pincode and insert the details of customers and perform select, update and delete operations.
- Add the fields state and phone number to an existing customer table and insert necessary values into it.
- Create a table student with fields register number and name and create another table mark with fields register number and mark of 3 subjects. Merge these two tables and display all the information in the table student.
- Create a table product with the fields: product number, product name and date of the sales. Display the above information in the ascending order of the field sales. The date of sales should be displayed in the format “DD/MM/YY”.
- Create a table named Account_Details having three fields Account_number, Branch_number and Current_balance from the source table named Account_master and rename the field Current_balance to Balance.
- Drop the table Customer detail.
- Write a PL/SQL Block to print natural numbers upto n.
- Find the sum of n natural numbers using PL/SQL Block.
- Write a PL/SQL Block to print the number in reverse order.
- Write a PL/SQL Block to check whether the number is even or odd.
- Write a PL/SQL Block to print the Fibonacci series.
- Write a PL/SQL Block to perform Employees payroll calculation.
- Create a table with fields employee number, employee name and salary. Write a PL/SQL code for inserting a record in the table and then update the content of the fields salary based on the condition when the employee number is 101 change the salary to 15000.
- Write a PL/SQL Block to perform the splitting operation on a table.

- Create a table that contains the student information and write a PL/SQL block to find the total, average marks and result.

B.Com (e-Commerce)

Semester-III

Part IV- Skill Based Course –I- Principles of Banking Sub Code: 312NS1

(For Candidates admitted during the academic year 2012 -2013 onwards) 38 Hours

Preamble :

To acquaint the students with the banking concepts and principles

Module I:-

Commercial banking – Definition – Bank – Banking system - Commercial banking – Functions – Role of banks in economic development. (8 Hours)

ModuleII:

Central banking – Need – Principles - Central Banking Functions – Functions of RBI. (8 Hours)

ModuleIII:

Negotiable instruments: Meaning – Characteristics – Nature – Features – Types. (8 Hours)

Module IV:

Crossing – Definition – Need for Crossing – Types of Crossing – Consequence of Crossing – Marking of a Cheque. (7 Hours)

Module V:

Endorsement – Definition – Types of Endorsement – Effect of Endorsement – Rules regarding Endorsement. (7 Hours)

Book for Study:

Banking Theory Law & Practice – Dr.S.Gurusamy

Edition – 2010

Vijay Nicole Imprints Private Ltd, Chennai.

Books for Reference:

1. Indian Banking

- S.Natarajan & R.Parameswaran

S.Chand & Co Ltd, New Delhi

Edition– 2012

2. Banking Principles and Operations -M.N.Gopinath

First Edition August 2008

Snow White Publication Private Ltd, Mumbai.

B.Com (e-Commerce)

Semester-IV

Part IV- Skill Based Course –II- Basic Banking Operations Sub Code: 412NS2

(For Candidates admitted during the academic year 2012 -2013 onwards) 38 Hours

Preamble:

To familiarise the students with basic banking operations.

Module I:

Bank Customer Relationship – Special types of Customer. (8 Hours)

Module II:

Opening Bank Accounts – Types of Accounts – Steps in opening accounts –
Disclosure of information. (8 Hours)

Module III:

Paying Banker – Meaning – Banker's duty – Precautions by a paying banker –
Dishonouring customer's Cheque – Discharge of paying banker – Material alteration –
Statutory protection – Refusal of cheque payment. (8 Hours)

Module IV:

Collecting banker – Meaning – Collecting banker's role - Statutory protection –
Payment in due course – Collecting Banker's duty. (7 Hours)

Module V:

Bank lending – Significance of Bank lending – Lending Sources - Bank lending
principles – forms of lending – Securities for lending – Factors influencing Bank lending.
(7 Hours)

Book for Study:

Banking Theory Law & Practice – Dr.S.Gurusamy
Edition– 2010
Vijay Nicole Imprints Private Ltd, Chennai.

Books for Reference:

1. Indian Banking - S.Natarajan & R.Parameswaran
S.Chand & Co Ltd, New Delhi
Edition– 2012
2. Banking Principles and Operations - M.N.Gopinath
First Edition August 2008
Snow White Publication Private Ltd, Mumbai.

B.Com (e-Commerce)

Semester-V

Part IV- Skill Based Course –III– e-Banking

Sub Code: 512NS3

(For Candidates admitted during the academic year 2012 -2013 onwards) 38 Hours

Preamble

To equip the students with the operational aspects of e-banking products and services.

Module I:

e-Banking – Meaning – Services of e-Banking - e-Banking and financial services – Benefits – Initiatives and Opportunities –Types of risks. (8 Hours)

Module II:

Internet Banking Vs Traditional Banking – Mechanics of Internet Banking – Major issues of Internet Banking –Drawbacks – Indian scenario – Future Outlook. (8 Hours)

Module III:

Mobile Banking: Meaning – Definition – Features – Registration Services – Security issues. Telephone Banking: Meaning – Definition – Features – Mechanism – Banking facilities - Telephone Banking System – Drawbacks – Call centers. (8 Hours)

Module IV:

ATM –Concept – Features – ATM Types – Mechanism – ATM functions. (7 Hours)

Module V:

Electronic Fund Transfer System: Steps – Benefits. Electronic Payment System – Methods of payment.

INFINET – Factors responsible for launch – Benefits - Application of INFINET.(7hours)

Book for Study:

Banking Theory Law & Practice – Dr.S.Gurusamy

Edition – 2010

Vijay Nicole Imprints Private Ltd, Chennai.

Books for Reference:

1. Indian Banking

- S.Natarajan & R.Parameswaran

S.Chand & Co Ltd, New Delhi

Edition – 2012

2. Banking Principles and Operations - M.N.Gopinath

First Edition August 2008

Snow White Publication Private Ltd, Mumbai.

B.Com (e-Commerce)

Semester VI

PartIII Elective II-Computerized Accounting Tally-practical SubCode: 612NE2
(For Candidates admitted during the academic year 2012 -2013 onwards) 75 Hours

List of Programs

- Creation of Company in Tally ERP.
- Enabling Accounting Features.
- Group Creation and Alteration (single and multiple).
- Ledger Creation and Alteration (single and multiple).
- Display of books.
- Display of Trial Balance.
- Display of Profit and Loss Account.
- Display of Balance Sheet.
- Altering Inventory Features.
- Altering Statutory Features.
- Altering Taxation Features.
- Creation and alteration of measures of units.
- Stock Group creation and alteration.
- Stock Item creation and alteration.
- Display of Stock summary.
- Cost center creation and alteration.
- Creation of tax Masters.
- Display of Ratios.
- Creation of Payroll Masters.
- Back up and Restoration.

Curriculum Design
SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
Department of Information Technology
 Scheme of Examination – CBCS Pattern
 Programme: B.Sc.IT
(For the Students admitted from the academic year 2017 – 2018 onwards)

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester I							
117BT1/ 117MY1/ 117HD1/ 117FR1 117EN1	Part I Language I	6	3	25	75	100	4
	Part II English I	6	3	25	75	100	4
117G01	Part III Core I – Computer Fundamentals and Digital Principles	5	3	25	75	100	4
117GP1	Core Practical I – Internet and Open Source Office Automation Tools	5	3	40	60	100	4
117AG1	Allied I – Principles of Accountancy	6	3	25	75	100	4
117EVS	Part IV Environmental Studies	2	2	50	-	50	2
Semester II							
217BT2/ 217MY2/ 217HD2/ 217FR2	Part I Language II	6	3	25	75	100	4
217EN2	Part II English II	6	3	25	75	100	4
217G02	Part III Core II-C Programming	5	3	25	75	100	4
217GP2	Core Practical II-C Programming and Web Designing	5	3	40	60	100	4
217AG2	Allied II-Discrete Mathematics	6	3	25	75	100	4
217VEC	Part IV Value Education	2	2	50	-	50	2

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
Semester III							
317G03	Part III Core III- Operating System	5	3	25	75	100	4
317G04	Core IV- C ++ Programming	4	3	25	75	100	4
317G05	Core V- Data Structures and Algorithms	5	3	25	75	100	4
317GP3	Core Practical III- C++ Programming	5	3	40	60	100	4
317AG3	Allied III- Operations Research	6	3	25	75	100	4
317NTA	Part IV: Non Major Elective: Animation	2	2	50	-	50	2
317GS1	Skill Enhancement Course I: Multimedia – Image Designing and Graphics Tool	3	3	75	-	50	2
Semester IV							
417G06	Part III Core VI- .NET Programming	4	3	25	50	75	3
417G07	Core VII- Database Management Systems	5	3	25	75	100	4
417G08	Core VIII- Computer Networks	5	3	25	75	100	4
417GP4	Core Practical IV- .NET Programming	5	3	40	60	100	4
417AG4	Allied IV- Organizational Behavior	6	3	25	75	100	4
417NGA	Part IV General Awareness (Online)	-	1	50	-	50	2
417GS2	Skill Enhancement Course II: Multimedia – Image Editing Tool	3	3	75	-	75	3
417GIS	Information Security	2	2	50	-	Grade	Grade
417ALG	Advanced Learners Course I – Enterprise resource planning	-	3	-	100	100	4*

*Starred Credits are treated as additional credits, which are optional.

B.Sc Information Technology

Semester - I

Part III - Core Practical I – Internet and Open Source Office Automation Tools (For the students admitted from the academic year 2017 – 2018 onwards)117GP1

Course Objectives:

[65 Hrs]

- To acquire a basic understanding of Writer, Spread sheet, Impress, and Database.
- To gain knowledge about basics on Internet and to share data between systems.

List of Programs:

Writer:

1. Prepare a Class Timetable.
2. Prepare a Resume.
3. Publish Students' Results using Mail Merge.
4. Create a Newsletter.
5. Create a document using Macros.
6. Create a document and perform,
 - i. Aligning and Formatting
 - ii. Add Page Numbers, Date and Time
 - iii. Find and Replace

Spread Sheet:

7. Create employee details using Sort and Filter.
8. Draw Graph and Chart for Population analysis.
9. Prepare a mark list of 5 subjects for a class and consolidate by using the formulae: Sum, Average, Maximum, Minimum and Count.
10. Prepare a sheet using date fill option, apply formatting styles and add Header and Footer.
11. Prepare a pivot table for student database.

Impress:

12. Prepare slides regarding Sports Day Invitation and use Hyperlink.
13. Prepare a presentation using custom animation.
14. Prepare a slide show with different slide Transition and add sound effects.

Database:

15. Prepare a database maintaining stock in a shop with fields: Serial Number, Product ID (Primary Key), Product Name, Quantity and Price.
16. Prepare a database for customer information and generate a report with customer name in ascending order.

#Network and Internet:

17. Setting up LAN Connection and share a file in LAN.
18. Create an email account.
19. Upload files in Google Drive.
20. Post your resume to a job portal.

[#Spoken Tutorial]

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Work on Open Source Office package(Libre Office 5)
2. Understands about the components of computer packages (Writer, Spreadsheet, and Impress) and networking concepts.
3. Gain knowledge of Working with files and folders.

4. Understand the basic features of internet(sending and reading E-Mails, sending letters through attachments etc.,)
5. Effectively analyze data using Spreadsheet.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	H	M	H	H	H	A
CO2	M	H	H	M	H	H	U
CO3	H	H	H	M	H	H	K
CO4	L	H	M	M	H	H	U
CO5	H	H	H	M	H	M	A

Course Designed by : Mrs. L.Sankara Maheswari

Course Reviewed by : Mrs. V.Vadivu

Course Checked by : Mrs. L.Sankara Maheswari

B .Sc Information Technology

Semester II

Part III – Core II – C Programming 217G02

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives: [65 Hrs]

- To Study the fundamentals of C programming and the standard C libraries.
- Understand the principles of creating an effective web page, including an in-depth consideration of information architecture.

Unit I: [13 Hrs]

Overview of C: History of C - Importance of C - Basic Structure of C Programs - Programming Style - Executing a 'C' Program. Constants, Variables and Data Types.

Operators and Expressions: Introduction - Arithmetic Operators - Relational Operators - Logical Operators - Assignment Operators - Increment and Decrement Operators - Conditional Operator - Bitwise Operators - Special Operators - Arithmetic Expressions - Evaluation of Expressions - Precedence of Arithmetic Operators – Type conversions in Expressions.

(Chapters : 1,2,3)

Unit II: [13 Hrs]

Managing Input and Output Operations - Decision Making and Branching - Decision Making and Looping.

(Chapters : 4,5,6)

Unit III : [13 Hrs]

Array - Characters Arrays and Strings: Introduction - Declaring and Initializing String Variables - Reading Strings from Terminal - Writing Strings To Screen - Comparison of Two Strings - String Handling

User defined Functions: Introduction - Need for User-defined Functions - A Multi-Function Program - Elements of User-defined Functions - Definition of Functions - Return Values and their Types - Function Calls - Function Declaration - Category of Functions - No Arguments and No Return Values - Arguments but No Return Values - Arguments with Return Values - No Arguments but Returns a Value - Functions that Return Multiple Values - Nesting of Functions - Recursion - The Scope, Visibility and Lifetime of Variables.

(Chapters :7,8,9)

Unit IV: [13 Hrs]

Structures and Unions: Introduction - Defining a Structure - Declaring Structure Variables - Unions.

Pointers: Introduction, Understanding Pointers - Accessing the Address Of Variables - Declaring Pointer Variables - Initialization of Pointer Variables – Array of Pointers – Pointers as Function Arguments.

(Book 1 : Chapters : 10,11)

Unit V: [13 Hrs]

File Management in C: Introduction - Defining and Opening A File - Closing A File - Input/output Operations on Files - Error Handling During I/O Operations - Random Access To Files – Command Line Arguments - Dynamic memory allocation and linked list.

(Chapters : 12,13)

Books for Study:

1. E.Balagurusamy, “Programming in Ansi C”, Tata McGraw Hill Education (India) Private Limited, New Delhi, 7th Edition, 2017.
2. Chris Bates, “Web Programming Building Internet Applications”, Wiley India Private Limited, Reprint 2016.

Books for Reference:

1. Yashavant Kanetkar, “Let Us C”, BPB Publications, First Edition 2012.
2. Deitel,. “Internet and World Wide Web, How to Program”, Pearson Education, 4th Edition 2013.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Understand the basic terminology used in computer programming.
2. Write, compile and debug programs in C language.
3. Use different data types in a computer program.
4. Design programs involving decision structures, loops and functions.
5. Use the structures and unions through which derived data types can be formed.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	H	H	M	M	H	K
CO2	H	H	H	M	H	H	A
CO3	H	H	H	L	M	H	A
CO4	H	H	H	M	M	H	A
CO5	H	H	H	M	M	H	U

Course Designed By : Ms.D.Jothikanna

Course Reviewed By : Mrs.L.Sankara Maheswari

Checked By : Mrs.L.Sankara Maheswari

B .Sc Information Technology

Semester II

Part III – Core Practical II – C Programming and Web Designing 217GP2 (For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:

- ☐ To formulate problems and implement algorithms in C.
- ☐ To choose programming components that efficiently solves computing problems in real-world.
- To gain knowledge about the language of the web: HTML and CSS and design rules in constructing web pages and sites.

List of Programs:

[65 Hrs]

C Programming:

1. Write a program to find whether the given year is Leap year or not. .
2. Write a program to find biggest number among three numbers.
3. Program to Construct a Pyramid of digits.
4. Create a program to perform Matrix Multiplication.
5. Finding the number of Vowels, Consonants and white spaces in a string.
6. Write a program using Structure.
7. Write a program to perform String operations.
8. Program to find the factorial of the given number using Recursive function.
9. Create a program by passing pointers as arguments to function to Add, Subtract, Multiply and Divide two numbers.
10. Create a program to receive a file name and the names of employees as command line argument and write the text to the File.

#Web Designing:

1. Design a Web page with external and internal links and link between two frames.
2. Design a class timetable using HTML tags.
3. Design a web page using image and list tags also use physical and logical styles to display text.
4. Design a webpage in DHTML using cascading style sheets (Use all attributes).
5. Design a webpage for a College (Using Forms).
6. Design a webpage showing your biodata.

[# Spoken Tutorial]

Course Outcomes:

Upon successful completion of this lab Course, student will be able to

1. Acquire knowledge about the basic concept of writing a program in C Language.
2. Understands the role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.
3. Use the conditional expressions and looping statements to solve problems associated with conditions and repetitions.
4. Demonstrate the role of Functions involving the idea of modularity.
5. Understand the concept of Array and pointers dealing with memory management
6. Work with HTML and CSS and design rules in constructing web pages and sites.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	H	H	H	M	L	M	K
CO2	H	H	H	M	M	H	U
CO3	H	H	H	M	M	H	A
CO4	H	H	H	M	L	M	A
CO5	M	H	H	M	M	H	U
CO6	H	H	H	M	H	H	A

Course Designed By : Ms.D.Jothi Kanna

Course Reviewed By: Mrs.L.Sankara Maheswari

Course Checked By :Mrs.L.Sankara Maheswari

B.Sc Information Technology

Semester III

Part III – Core IV – C++ Programming

317G04

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:

[52 Hrs]

- To be able to program using more advanced C++ features such as composition of objects, operator overloads, dynamic memory allocation, inheritance and polymorphism, file I/O, exception handling, etc.
- To inculcate an in-depth programming knowledge in OOPS.

Unit I:

[11 Hrs]

Fundamentals of Object-Oriented Programming: Procedure-Oriented Programming Concepts-Object-Oriented Programming Concepts-Characteristics or Features of OOPs-Modeling Real-World Objects-Types of Objects-Advantages and Disadvantages of OOPs. Basics of C++: Similarities in C and C++-Differences between C and C++-Basics of C++-Data Types-Type Conversion-Variables-Literals or Constants-Operators-Comments in C++-Structure of C++ Program-Statements in C++-Iteration or looping Statements-Breaking Control Statements.

(Chapters : 1,2)

Unit II:

[10 Hrs]

Functions: Declaration of a Function-Parameter Passing Mechanism-Types of Functions-Scope Rules-Storage Class-Advantages of Functions-Arrays: Defining an Array-Types of Arrays-Arrays and Functions. Structure, Union and Bit Fields: Declaration of a Structure-Accessing the Structure Element (Dot Operator)-Initialization of a Structure-Array within Structure-Union-Bit Fields.

(Chapters :3,4,5)

Unit III:

[11 Hrs]

Pointers: Declaration of a Pointer- Initializing Pointers- Pointers and Strings- Pointers and Functions-Pointers to Pointers- Dynamic Memory Management. Classes and Objects: Declaration of a Class-Defining the Member Functions-Creating the Objects-Class and Arrays-Objects and Functions- Friend Functions-Pointers and Objects. Constructors and Destructors: Structure of a Constructor- Types of Constructors-Destructor.

(Chapters : 6,7,8)

Unit IV:

[10 Hrs]

Inheritance: Structure of Inheritance-Importance of Inheritance-Types of Inheritance-Virtual Base Class. Polymorphism: Types of Polymorphism-Compile-Time Polymorphism-Run-Time Polymorphism. (Chapters :9,10)

Unit V:**[10 Hrs]**

Templates and Exception Handling: Declaration of a Function Template-Declaration of a Class Template-Exception Handling-Try, Catch and Throw-Exception Generated by the Function-Multiple Catch Blocks-Single Catch Block for all Exceptions-Restrict the Exceptions. File Organization: Basic Operations with Files-Binary Files-Random Access Files-Error Handling in Files. Preprocessor Directives and I/O: C++ Stream-Manipulators-String Manipulation.

(Chapters : 11,12,14)

Book for Study:

Rajesh K.Shukla , “Object-Oriented Programming in C++”, Wiley India Pvt.Ltd, Reprint 2016.

Books for Reference:

1. Bjarne Stroustrup, ”The C++ Programming Language”, Addison –Wesley, 2013.
2. E.Balagurusamy, ”Object Oriented programming with C++”, Tata McGraw Hill Education(India) Pvt.Ltd, Sixth Edition 2013.

Course Outcomes:

Upon successful completion of this course, student will be able to

1. Gain the basic knowledge on Object Oriented concepts like class structures as fundamental, modular building blocks.
2. Develop applications using Object Oriented Programming Concepts.
3. Demonstrate the differences between traditional imperative design and object-oriented design.
4. Understand the role of inheritance, polymorphism, dynamic binding and generic structures in building reusable code.
5. Write small/medium scale C++ programs with simple graphical user interface.
6. Understand the file handling and error handling mechanisms and get knowledge to use strings and Streams in C++.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	H	H	M	M	L	M	U
CO2	H	H	H	M	H	M	A
CO3	H	H	M	L	M	H	K
CO4	H	H	H	M	M	H	U
CO5	H	H	H	M	M	H	A
CO6	H	H	H	M	M	H	K

Course Designed By : Mrs.V.Vadivu

Course Reviewed By : Ms.G.Neelaveni

Checked By : Mrs.L.Sankara Maheswari

B.Sc. Information Technology**Semester III****Part III- Core V – Data Structures and Algorithms 317G05**

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:**[65 Hrs]**

- To enrich the students with knowledge in creating and analyzing algorithms.
- It also focuses on the storage mechanism of the data.

Unit I: [13Hrs]

Introduction and overview: Introduction - Basic Terminology: Elementary Data Organization - Data Structures - Data Structure Operations - Algorithms: Complexity, Time - Space Tradeoff.

Arrays, records and pointers: Introduction-Linear Arrays- Representation of Linear Arrays in Memory - Traversing Linear Arrays - Inserting and Deleting- Sorting; Bubble Sort - Searching; Linear Search - Binary Search - Multidimensional Arrays - Pointers; Pointer arrays – Records; Record Structures.

(Book 1: Chapters : 1,4)

Unit II: [14 Hrs]

Linked lists: Introduction - Linked Lists - Representation of Linked List in Memory - Traversing a Linked List - Searching a Linked List - Memory Allocation; Garbage Collection - Insertion into a Linked List - Deletion from a Linked List.

Stacks, queues, Recursion: Introduction – Stacks - Array Representation of Stacks - Linked Representation of Stacks - Arithmetic Expressions; Polish Notation - Quick sort, An Application of Stacks – Recursion - Towers of Hanoi - Queues.

(Book 1: Chapters : 5,6)

Unit III: [13 Hrs]

Trees: Introduction- Binary Trees - Representing Binary Trees in Memory - Traversing Binary Trees - Traversal algorithms using Stacks - Header Nodes; Threads - Binary Search Trees - Searching and Inserting in Binary Search Trees - Deleting in a Binary Search Trees - AVL Search Trees.

(Book 1: Chapter : 7)

Unit IV: [13 Hrs]

Graphs and their applications: Introduction - Graph Theory Terminology - Sequential Representation of graphs; Adjacency Matrix; Path Matrix - Warshall's Algorithm; Shortest Paths. Sorting and Searching: Introduction – Sorting - Insertion Sort - Selection Sort - Merging - Merge Sort.

(Book 1: Chapters : 8,9)

Unit V: [12 Hrs]

File Structures: Introduction: Secondary storage device - Definitions and Concepts - Physical Structure of Hard Disk - File Operations - File Organization: Sequential file Organization - Indexed Sequential File Organization – Direct File Organization - External Sorting: External Merge Sort – Multi- way merge sort.

(Book 2: Chapter : 6)

Books for Study:

1. G A Vijayalakshmi Pai, “Data Structures“, Tata McGraw Hill Education Private Limited, New Delhi, 22 Reprint 2012.
2. R.Venkatesan, S.Lovelyn Rose, “Data Structures“, Wiley India Private Limited, New Delhi, First Edition, 2015.

Books for Reference:

1. Seymour Lipschutz, “Data Structures”, Tata McGraw Hill Education Pvt. Ltd., 21st Reprint, 2012.
2. S.K.Manju Bargavi, ” Data Structures “ Sams Publishers Private Limited, Chennai, First Edition, 2012.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Analyze performance of algorithms and choose the appropriate data structure and algorithm design method for a specified application.
2. Determine which algorithm or data structure to use in different scenarios and be familiar with writing recursive methods.

3. Demonstrate the abstract properties of various data structures such as stacks, queues, lists, trees and graphs and use various data structures effectively in application programs.
4. Demonstrate various sorting algorithms, including bubble sort, insertion sort, selection sort, heap sort and quick sort.
5. Understand and apply fundamental algorithmic problems including Tree traversals, Graph traversals, and shortest paths.
6. Gain knowledge about file structures and storages.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	H	H	H	H	M	H	K
CO2	H	H	H	H	M	H	U
CO3	H	H	H	H	H	H	U
CO4	H	H	H	H	H	H	A
CO5	H	H	H	H	M	H	A
CO6	H	H	H	H	M	H	K

Course Designed By : Mrs.G.Neelaveni

Course Reviewed By : Mrs.V.Vadivu

Checked By : Mrs.L.Sankara Maheswari

B.Sc. Information Technology

Semester III

Part III - Core Practical III– C++ Programming 317GP3

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:

[65 Hrs]

- To strengthen their problem solving ability by applying the characteristics of an object-oriented approach.
- To make the student learn an object oriented way of solving problems.
- To make the student to identify and practice the object-oriented programming concepts and techniques.
- To practice the use of C++ classes and class libraries, modify existing C++ classes.
- To develop C++ classes for simple applications.

List of Programs:

1. Program to find Fibonacci of a number.
2. Program to find whether the given number is palindrome.
3. Program to calculate the area of circle, rectangle and triangle.
4. Program to implement Call by reference.
5. Program to find the greatest and smallest element in an array.
6. Program using singly linked list.
7. Program to implement Stack Operation.
8. Program to implement Queue Operations.
9. Program to use the pointer with structure.
10. Program to illustrate the concept of Friend Function.
11. Program to display the student details using Constructor and Destructor.
12. Program to implement Binary Search.
13. Program using single inheritance.
14. Program for Payroll processing using Multiple Inheritance.
- #15. Program to implement Operator Overloading.

- #16.Program to implement Selection Sort.
- #17.Program to implement Quick Sort.
- #18.Program to illustrate the Concept of Templates.
- #19.Program for exception handling.
- #20.Program for reading and writing to the text file.

[#Spoken Tutorial]

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Understand and apply object-oriented programming features to program design and implementation.
2. Analyze, use, and create functions, classes, to overload operators.
3. Implement inheritance and Pointers when creating or using classes and create templates.
4. Understand and use Exception handling and file handling mechanism.
5. Write programs that make appropriate use of advanced object-oriented facilities common to many object-oriented features such as classes, message passing, overloading and inheritance.
6. Gain knowledge on the application of data structures(Stack,Queue,Linked list and various sorting techniques)

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	H	H	M	L	M	U
CO2	M	H	H	M	M	H	U
CO3	H	H	H	M	M	H	A
CO4	H	H	H	M	M	H	A
CO5	H	H	H	M	M	H	A
CO6	H	H	H	M	M	H	A

Course Designed By : Mrs.V.Vadivu

Course Reviewed By : Ms.G.Neelaveni

Checked By : Mrs.L.Sankara Maheswari

B.Sc. Information Technology

Semester III

Part IV – Non Major Elective – Animation

317NTA

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:

[26Hrs]

- To gain Knowledge about the basics of Image Editing tool to create, edit and composite images that can be used on Web sites and as graphics for movies.
- To achieve clear idea on basics of creating different animation effects like tweening, morphing, audio etc.

List of Programs:

Image Editor:

1. Design scenery using drawing tools.
2. Design an image using Clone stamp tools.
3. Design an invitation using Paint Tools.
4. Design a page using type masking.
5. Design a program applying filter option.
6. Use a heal brush tool and make changes in an image.

Animation Tool:

1. Draw a butterfly using Oval and Pencil tools [use Straight Smooth and Freeform lines].
2. Design a program using text tool and apply different effects.
3. Create a program using Drop Shadow, Drop to Ice and 3D Rotation effects.
4. Draw a pendulum using motion tweening.
5. Create a program using shape tweening (Morphing).
6. Design a scene and add bitmap and sound effect.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Develop their creativity in image editing and animation.
2. Design layouts for web pages, Paper Adverts, Brouchers.
3. Understand the editing tools and create movies.
4. Do Paintings, Drawing using various shapes.
5. Gain Knowledge to create a movie with bitmap images and sounds.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	M	M	H	H	M	K
CO2	M	M	M	H	H	H	A
CO3	M	M	M	H	H	H	U
CO4	L	H	H	H	H	L	A
CO5	L	M	L	H	M	L	A

Course Designed by : Ms D.Jothikanna

Course Reviewed by : Mrs.G.Neelaveni

Course Checked by : Mrs.L.Sankara Maheswari

B.Sc. Information Technology**Semester III****Part IV- Skill Enhancement Course I: Multimedia – Image Designing and Graphics Tool**

(For the students admitted from the academic year 2017 – 2018 onwards)

317GS1

Course Objective:

[35 Hrs]

- Educate clear idea to create brochures, flyers, newsletters, reports and a variety of other professional-quality documents used for business or educational purposes.

List of Programs:**Image Designing Tool**

1. Create a program to draw College Logo using layers.
2. Create a program to draw a Robo using drawing tools.
3. Create a program to import images and apply image effects.
4. Design a program using text tool and apply various format and styles.
5. Create a program for transformation of an object and text.
6. Create a program to design an invitation for Book Exhibition using frames.
7. Create a program for converting text to outlines and to image frame.

Graphics Tool

1. Create a program to design Scenery using drawing tools.
2. Create a logo for Car Company using various tools.
3. Create an invitation for an Inter Collegiate competition.
4. Create a program to design an advertisement using Text tool.

5. Create a Banner using Multiple layers.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Draw and import different types of images.
2. Apply different styles and format for text.
3. Control the animation speed, portion of the view, the geometric relationship of the object.
4. Create innovative sceneries using graphics tools.
5. Design an creative advertisement, invitation, Brouchers etc..

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	M	M	H	H	M	A
CO2	M	M	M	H	H	H	A
CO3	M	M	M	H	H	H	U
CO4	M	H	H	H	H	M	A
CO5	L	H	H	H	H	M	A

Course Designed by : Mrs. V.Vadivu

Course Reviewed by : Mrs. G.Neelaveni

Course Checked by : Mrs. L.Sankara Maheswari

B.Sc. Information Technology

Semester IV

Part III – Core VI - .NET Programming

417G06

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:

[52 Hrs]

- To enable the students to create powerful user interfaces using web forms.
- To train the students to develop software by combining their own source code with .NET Framework and other libraries.

Unit I:

[10 Hrs]

Introduction to Programming: Introducing a Programming Language - High-Level Language - Low-Level Language - Converting Source Code to Machine Language Code - Explaining Program Development Cycle.

Introducing .NET Framework 4.0 and Visual Studio 2010: Exploring the Benefits of .NET Framework - Exploring the versions of .NET Framework - Explaining .NET framework 4.0 Architecture - Exploring New Features of .NET Framework 4.0 - Installing, Opening and Exploring Visual Studio 2010 - Introducing the key enhancements in Visual Studio 2010 IDE – Developing Applications in Visual Studio 2010.

(Chapters : 1,2)

VISUAL BASIC 2010: Getting Started with Visual Basic 2010: New features of Visual Basic 2010 - Visual Basic 2010 Keywords - Operators - Operator precedence - Data types in Visual Basic 2010 - Visual Basic Statements – Variables – Constants – Arrays – Enumerations.

(Chapter : 1)

Unit II:

[10 Hrs]

Windows Forms: Introducing the Form class - Performing common form operations - Creating Message boxes - Creating Input Boxes - Creating Dialog boxes - Handling events - Adding comments to the code.

Windows Forms Controls-I: Introducing the control class - Label - Textbox – Button – RadioButton - CheckBox - Combobox - Listbox - GroupBox - Panel -

PictureBox - Timer - ProgressBar. Windows Forms Controls-II: Toolstrip – Menustrip – Statusstrip - Working with Dialog Boxes.

(Chapters : 2,3,4)

Unit III: [12 Hrs]

Windows Presentation Foundation: Exploring the improvements in WPF 4.0 - Explaining WPF 4.0 Architecture - Describing types of WPF Applications - Exploring WPF 4.0 Designer - Using XAML in WPF - Working with WPF controls - Working with resources and styles.

LINQ in Visual Basic 2010: Creating a simple LINQ Query - Working with standard query operators - Implementing LINQ to ADO.NET - Using anonymous types in queries - Using lambda expressions in LINQ Queries - Exploring parallel LINQ.

(Chapters : 5,7)

Unit IV: [10 Hrs]

Introduction to ASP.NET 4.0: Exploring versions of ASP.NET - Describing benefits of ASP.NET - Exploring new features in ASP.NET 4.0 - Exploring ASP.NET 4.0 web applications - Explaining ASP.NET 4.0 provider model - Explaining ASP.NET 4.0 coding models - Implementing code sharing - Compiling an ASP.NET 4.0 web application - Understanding dynamic compilation in ASP.NET 4.0.

Standard Controls: Introducing the web control class - Label - Textbox - Button - Image button - Listbox - Radiobutton - Checkbox - Table - Wizard - Calendar – AdRotator Control. Navigation Controls: Working with the SiteMapPath control - Working with the Menu control - Working with the TreeView Control.

(Chapters : 1,2,3)

Unit V: [10 Hrs]

Validation Controls: Introducing the BaseValidator class - RequiredFieldValidator - RangeValidator - RegularExpressionValidator - CompareValidator - CustomValidator – ValidationSummary.

Login Controls: Creating a User Account in ASP.NET 4.0 - Login - LoginName - LoginView -LoginStatus - Passwordrecovery - Configuring the web.config File for Password Recovery. Database Controls: Working with ADO.NET - Introducing datasource - Working with Data-Bound controls.

(Chapters : 4,5,6)

Book for Study:

Vikas Gupta, ".NET 4.0 PROGRAMMING Course Kit", Dreamtech Press, 2014.

Books for Reference:

1. Bill Evjen, Jason Beres, "Visual Basic .NET Programming Bible" Authorized reprint by Wiley India(P) Ltd, New Delhi. Reprint 2012.
2. Kogent Solutions Inc ".NET 4.5 programming, BLACK BOOK", Dreamtech press 2013.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Develop web application or distributed application very quickly.
2. Display proficiency in building stand-alone applications in the Visual basic and .NET framework.
3. Create distributed data-driven applications using the .NET Framework
4. Utilize DirectX libraries in the .NET environment to implement graphic displays and audio.
5. Utilize XML in the .NET environment to create Web Service-based applications and components.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	H	M	H	H	H	K
CO2	H	H	H	H	H	M	U
CO3	H	H	H	H	H	M	U
CO4	H	H	H	H	H	M	A
CO5	H	H	H	H	H	M	A

Course Designed by : Mrs.G.Neelaveni.

Course Reviewed by: Mrs.V.Vadivu.

Course Checked by : Mrs.L.Sankara Maheswari

B.Sc. Information Technology

Semester IV

Part III -Core VII- Database Management Systems 417G07

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives: [65 Hrs]

- To understand basic database concepts, including the structure and operation of the relational data model.
- To educate students with fundamental concepts of Data Base Management System, Data Models, Different Data Base Languages.
- To provide skill in commercial applications development using oracle products.

Unit I: [12 Hrs]

Database Concepts: A Relational approach: Database: An Introduction – Relationships – Database Management System (DBMS) – The Relational Database Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams - Denormalization – Another Example of Normalization.

(Chapters : 1,2)

Unit II: [13 Hrs]

Oracle9i: An Overview: Personal Databases – Client/Server Databases – Oracle9i: An introduction – The SQL *Plus Environment – Structured Query Language (SQL) – Logging into SQL *Plus – SQL *Plus Commands – Oracle Errors and Online Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus – Sample Databases. Oracle Tables: Data Definition Language (DDL): Naming Rules and conventions – Data Types – Constraints – Creating an Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping a Table – Renaming a Table - Truncating a Table – Oracle's Various Table Types – Spooling – Error codes.

(Chapters : 3,4)

Unit III: [14 Hrs]

Working with Tables: Data Management and Retrieval: Data Manipulation Language (DML) – Adding a new Row/Records – Customized Prompts – Updating Existing Rows/Records – Deleting Existing Rows/Records – Retrieving Data from a Table – Arithmetic Operations – Restricting Data with a WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operators.

(Chapters : 5,6,7)

Unit IV:**[14 Hrs]**

PL/SQL: A Programming Language: A Brief History of PL/SQL – Fundamentals of PL/SQL – PL/SQL Block Structure – Comments – Data Types – Other Data Types – Variable Declaration – Anchored Declaration – Assignment operation – Bind variables – Substitution Variables in PL/SQL – Printing in PL/SQL – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation in PL/SQL – Transaction Control statements.

PL/SQL Cursors and Exceptions: Cursors – Implicit Cursors - Explicit Cursors – Explicit Cursor Attributes – Implicit Cursor Attributes – Cursor FOR loops – SELECT...FOR UPDATE

Cursor – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables: An Introduction – Exceptions – Types of Exceptions.

(Chapters : 10,11,12)

#Unit V:**[12 Hrs]**

PL/SQL Composite Data Types: Records – Tables – Varrays. PL/SQL Named Blocks: Procedures, Functions, Package and Trigger. **Case Study:** ORACLE9i : Architecture and Administration: DataBase Administrator – Oracle Architecture : An Overview – Installation – Connection to the Oracle9i Database – Instance and DataBase – working with Oracle Enterprise Manager System Privileges – Oracle Data Dictionary.

(Chapters : 13,14, 16)

[# EContent Unit]**Book for Study:**

Nilesh Shah, “Database Systems Using Oracle”–2nd edition, PHI, 2013.

Books for Reference:

1. Raghu Ramakrishnan, Johannes Gehrke, “Database Management Systems”, McGraw Hill Education (India), Third Edition, 2014.
2. Abraham Silberschatz, Henry F. Korth, S.Sudarshan, “Database System Concepts”, McGraw Hill Education (India), Sixth Edition, 2014.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Analyze Database design methodology.
2. Acquire knowledge in fundamentals of Data Base Management System.
3. Understand the various queries and concepts in Oracle 9i (RDBMS).
4. Design data base and normalize data and understand how queries are being processed and executed.
5. Manipulate the various database information.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	H	H	M	H	L	H	K
CO2	M	H	H	H	M	H	K
CO3	L	H	H	H	M	M	U
CO4	M	H	H	H	M	H	A
CO5	H	M	H	H	M	H	A

Course Designed By : Mrs.P.Jeyanthirani

Course Reviewed By : Ms. D.Jothikanna

Checked By : Mrs.L.Sankara Maheswari

B .Sc Information Technology

Semester – IV

Part III -Core VIII- Computer Networks

417G08

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:

[65 Hrs]

- To study the functions of different layers in OSI and TCP/IP Model.
- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures in networks.

Unit I:

[12 Hrs]

Introduction: Uses of Computer Networks- Network Hardware – Network Software: Protocol Hierarchies- Design Issues for the Layers – Connection Oriented and Connectionless Services - Reference Models: The OSI Reference Model- The TCP/IP Reference Model.

(Chapter : 1)

Unit II:

[13 Hrs]

The Physical Layer: Guided Transmission Media-Wireless Transmission – The Public Switched Telephone Network: Structure of the Telephone System –Trunks and Multiplexing – Switching.

(Chapter : 2)

Unit III:

[13 Hrs]

The Data Link Layer: The Data Link Layer Design Issues: Services Provided to the Network Layer-Framing-Error Control-Flow Control- Error Detection and Correction: Error Correcting Codes-Error Detecting Codes - Elementary Data Link Protocols: A Utopian Simplex Protocol-A Simplex Stop-and-Wait Protocol for an Error-Free Channel - A Simplex Stop-and-Wait Protocol for a Noisy Channel.

(Chapter : 3)

Unit IV:

[14 Hrs]

The Network Layer: Network Layer Design Issues: Store-and-Forward Packet Switching, Services Provided to the Transport Layer - Routing Algorithms: Shortest Path Routing – Flooding - # Distance Vector Routing - # Link State Routing - Hierarchical Routing - Broadcast Routing.

(Chapter : 5)

Unit V:

[13 Hrs]

The Transport Layer: The Transport Service - Elements of Transport Protocols: Addressing - Connection Establishment - Connection Release-Error Control and Flow Control. The Application Layer: DNS –The Domain Name System-Electronic Mail. Network Security: Public Key Algorithms.

(Chapters : 6,7,8)

[# Demonstrate using NS2 Simulator Tool]

Book for Study:

Andrew S. Tanenbaum, David J. Wetherall “Computer Networks”, Dorling Kindersley India Pvt.Ltd. Third Impression, 2013.

Books for Reference:

1. Fred Halsall, Lingana Gouda Kulkarni, “Computer Networking and the Internet”, Pearson Education, Edition-2011.
2. Behouz A.Forouzan, ”Data Communication and Networking”, McGraw-Hill Education, Fifth Edition 2013.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Define, use and implement Computer Networks and the basic components of a Network system.

2. Differentiate the various types of network configurations.
3. Understand the layers of OSI and TCP and gain knowledge about congestion control and network security
4. Define the different protocols, software, and network architectures.
5. Define the concept of local area networks, their topologies, protocols and applications.
6. Analyze why networks need security and control anticipated errors to avoid network errors.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	H	H	H	M	M	H	K
CO2	M	H	H	M	M	H	U
CO3	M	H	H	M	H	H	U
CO4	H	H	H	M	H	H	K
CO5	M	H	H	M	H	H	A
CO6	H	H	H	H	H	H	U

Course Designed By : Mrs.G.Neelaveni

Course Reviewed By : Mrs.V.Vadivu

Checked By : Mrs.L.Sankara Maheswari

B.Sc. Information Technology Semester IV

Part III – Core Practical IV-.NET Programming 417GP4

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objectives:

[65 Hrs]

- To gain an understanding of the .NET architecture.
- To educate the process of implementing web applications using web forms, including programs that interact with databases.

List of Programs:

VB.NET

1. Implement the Font application using VB.Net.
2. Develop the Notepad application using VB.Net.
3. Create a program for the application of Simple Calculator using VB.Net.
4. Write a code for the Manipulate of file such as Read and Write.
5. Display the Student details and calculate total, average, Grade using database connectivity.

#ASP.Net

1. A website for employee payroll calculation. Get basic pay as input from the user and to display the net and gross pay by calculating allowances and deductions
2. A website for job seeker registration and to get the user data as input. Validate the data using validator controls and display the welcome page.
3. A webpage that contains adrotator control with key word filter concept.
4. A webpage that can perform file uploading using the file upload control and store the file in a temporary folder.
5. A website to verify the user login and password using data base connectivity.

DBMS

1. Create a Table for inserting Customer details and Perform Update, Select, Delete Operations in the Table.
2. Creating a table and displaying the information in ascending order.
3. Creating and joining two tables and displaying all the information.
4. Create two tables with relevant details and implement the Integrity Constraints.
5. Write a PL/SQL program for student database and calculate the Total, Average and Result using cursor.
6. Create a program using triggers.
7. Create a program to raise an exception if the actual sales are less than the target sales. If sales condition is satisfied, calculate commission.

[#Spoken Tutorial]

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Acquire good programming skills in .Net platform.
2. Develop applications for various devices and platforms like windows application web applications windows services and web services.
3. Use all types of data types provided by .Net Framework.

Mapping of Course Outcomes with Programme Outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	H	H	M	H	H	U
CO2	M	H	M	M	H	H	A
CO3	M	H	H	H	H	H	A

Course Designed by : Mrs.G.Neelaveni.

Course Reviewed by: Mrs.P.Jeyanthirani.

Course Checked by : Mrs.L.Sankara Maheswari

B .Sc Information Technology

Semester IV

Part IV- Skill Enhancement Course II: Multimedia – Image Editing Tool 417GS2

(For the students admitted from the academic year 2017 – 2018 onwards)

Course Objective:

[35 Hrs]

- To understand the basics of Image Editing tools to create, edit and composed images that can be used on Web sites and as graphics for movies.

List of Programs:

1. Design Scenery using drawing tools.
2. Design an image using GIF Animation.
3. Design a Sports Day Invitation using 3D text.
4. Create an advertisement by using Clone stamp tools.
5. Create a program for Cartoon effect.
6. Design a brochure using Paint Tools.
7. Create a program using lighting effects with difference clouds.
8. Design an image and apply type masking.
9. Design an banner using filter option.
10. Design the movie scene using multiple layers.

11. Use a heal brush tool and make changes in an image.

12. Design a college prospectus.

Course Outcomes:

Upon successful completion of this course, students will be able to

1. Draw and import different types of images.
2. Apply different styles and format for text.
3. Control the animation speed, portion of the view, the geometric relationship of the object.
4. Create innovative sceneries using graphics tools.
5. Design an creative advertisement, invitation, Brouchers etc..

Mapping of Course Outcomes with Programme Outcomes:

SEC-II	PO1	PO2	PO3	PO4	PO5	PO6	Knowledge Level
CO1	M	H	M	H	H	M	A
CO2	M	H	M	H	H	M	A
CO3	M	H	M	H	H	M	A
CO4	M	H	M	H	H	M	A
CO5	L	M	H	H	H	M	A

Course Designed by : Ms. V.Vadivu

Course Reviewed by : Ms. L.Sankara Maheswari

Course Checked by : Ms. L.Sankara Maheswari

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Information Technology
 Scheme of Examination – CBCS Pattern
 Programme: B.Sc.IT
 (For the students admitted during the academic year 2016 – 2017 only)

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	ESE Marks	
Semester I							
115BT1/ 115MY1/ 115HD1/ 115FR1	Part I Language I	6	3	25	75	100	4
115EN1	Part II English I	6	3	25	75	100	4
115G01	Part III Core I – Digital Principles and Computer Architecture	5	3	25	75	100	4
115GP1	Core Practical I -Word Processing and Internet	5	3	40	60	100	4
115AG1	Allied I – Principles of Accountancy	6	3	25	75	100	4
115EVS	Part IV Environmental Studies	2	2	50	-	50	2
Semester II							
215BT2/ 215MY2/ 215HD2/ 215FR2	Part I Language II	6	3	25	75	100	4
215EN2	Part II English II	6	3	25	75	100	4
215G02	Part III Core II-C Programming and Web Designing	6	3	25	75	100	4
216GP2	Core Practical II-C Programming and Web Designing	4	3	40	60	100	4
215AG2	Allied II-Discrete Mathematics	6	3	25	75	100	4
215VEC	Part IV Value Education	2	2	50	-	50	2

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
	Semester III						
	Part III						
315G03	Core III-Object Oriented Programming with C++	4	3	25	75	100	4
315G04	Core IV-Data Structures and Algorithms	5	3	25	75	100	4
315G05	Core V- Operating System Concepts	5	3	25	75	100	4
315GP3	Core Practical III- Object Oriented Programming with C++	5	3	40	60	100	4
315AG3	Allied III- Operations Research	6	3	25	75	100	4
315GS1	Part IV: Skill Based Course I: Multimedia –Image Designing and Graphics Tool	3	3	75	-	75	3
315NTA	Non Major Elective Course I: 2D Animation-Practical	2	2	50	-	50	2
	Semester IV						
	Part III						
415G06	Core VI-.NET Programming	4	3	25	50	75	3
415G07	Core VII-Database Management Systems	5	3	25	50	75	3
415G08	Core VIII-Computer Networking and the Internet	5	3	25	75	100	4
415GP4	Core Practical IV- .NET Programming	5	3	40	60	100	4
415AG4	Allied IV- Principles of Management	6	3	25	75	100	4
415GS2	Part IV Skill Based Course II: Multimedia – Image Editor	3	3	75	-	75	3
415NGA	Non Major Elective Course II: General Awareness (Online)	-	1	50	-	50	2
415GIS	Information Security	2	2	-	-	Grade	Grade
415ALG	Advanced Learners Course I – Enterprise Resource Planning	-	-	-	100	100	4*

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III						
515G09	Core IX-Java Programming	4	3	25	75	100	4
515G10	Core X-Software Engineering and Testing Tools	5	3	25	75	100	4
515G11	Core XI- Cloud Computing	6	3	25	75	100	4
515GP5	Core Practical V- Java Programming and Software Testing	6	3	40	60	100	4
515GE1	Elective I –Computer Graphics	6	3	25	75	100	4
	Part IV						
515GS3	Skill Based Course III: Multimedia - Animation	3	3	75	-	75	3
	Semester VI						
	Part III						
615G12	Core XII – PHP and Python Programming	5	3	25	75	100	4
615G13	Core XIII- Cryptography and Network Security	6	3	25	75	100	4
615GP6	Core Practical VI – Open Source Programming	4	3	40	60	100	4
615GE2	Elective II- Data Mining and Data Warehousing	6	3	25	75	100	4
615GPV	Project and Viva Voce	6	3	25	75	100	4
615GS4	Part IV: Skill Based Course IV: Multimedia – Authoring Tool	3	3	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V: Extension Activities	-	-	50	-	50	2
615ALG	Advanced Learners Course II- Client/Server Technology	-	-	-	100	100	4*

Total Credits:

140

Starred

Credits are treated as additional credits, which are optional

Part III – Core Practical I – Word Processing and Internet
(For the students admitted from the academic year 2015 – 2016 onwards)

List of programs:

[65 Hrs]

MS- Word

1. Prepare a Class Timetable
2. Prepare a Resume.
3. Publish Students' Results using Mail Merge.
4. Create a Newsletter.
5. Create a document using Macros.
6. Create a document and perform,
 - i. Aligning and Formatting
 - ii. Add Page Numbers, Date and Time
 - iii. Find and Replace.

MS- Excel

7. Create employee details using Sort and Filter.
8. Draw graph and Chart for Population Analysis.
9. Prepare a mark list of 5 subjects for a class and consolidate by using the formulae: Sum, Average, Max, Min, Count.
10. Prepare a sheet using date fill option, apply formatting styles and add Header and Footer.
11. Prepare a pivot table for student database.

MS- Power point

12. Prepare Power point slides regarding Sports Day (use Hyperlink).
13. Prepare slides using Custom Animation.
14. Prepare slideshow with different slide Transition and add Sound effects.

MS- Access

15. Prepare a Database maintaining stock in a shop with fields: sno, Product ID(Primary Key), Product Name, Quantity and Price.
16. Prepare a Database for Customer information and generate a report with Customer Name in ascending order.

Internet

17. Create an email account.
18. Post your resume to a job portal.

Hardware

19. Identify the parts in the CPU.
20. Format the system and install the OS.

Course Designed By :Ms.N.Sathyapriya

Course Reviewed By :Ms.G.Neelaveni

Checked By :Mrs.S.Shobana

Part III – Core II – C Programming and Web Designing

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- C has emerged as the language of choice for most applications due to Speed, Portability and Compactness of Code.
- Learn the fundamentals of Ansi C programming and the standard C libraries.

- Unit I:** [14 Hrs]
Overview of C – Constants, Variables and Data Types – Operators and Expressions, Managing Input and Output Operations – Decision Making and Branching – Decision Making and Looping.
- Unit II:** [16 Hrs]
Arrays – Characters Array and Strings – User defined Functions.
- Unit III:** [16 Hrs]
Structures and Unions – Pointers – File Management in C.
- Unit IV:** [15 Hrs]
Internet Basics- Internet Basics –Introduction to HTML-Lists-Adding Graphics to HTML Documents-Tables-Linking Documents- Frames-Forms used by a Website.
- Unit V:** [14 Hrs]
Dynamic HTML:Cascading Style sheets- CLASS – Using the ... Tag- External Style Sheets- Using the <DIV>...</DIV> Tag.

Book for Study:

- 1.E.Balagurusamy, “Programming in Ansi C”, Tata McGraw Hill Publishing, V Edition, 2010.
- 2.Ivan Bayross, “Web Enabled Commercial Application Development Using HTML,JavaScript,DHTML and PHP”, BPB Publications,2005.

Book for Reference:

1. Kelly , “A Book of C “, Pearson Education (2008).
- 2 Deitel, “Internet and World Wide Web, How to Program”, Pearson Education,4th Edition,2013
- 3 Spoken Tutorial Project (C) as e-Resource for learning- IIT, Mumbai under national mission on education through ICT, MHRD, Government of India.

Course Designed By :Ms.V.Vadivu
Course Reviewed By :Ms.N.Sathyapriya
Checked By :Mrs.S.Shobana

**B .Sc Information Technology
Semester II**

**Part III – Core Practical II – C Programming and Web Designing 216GP2
(For the students admitted from the academic year 2016 – 2017 onwards)**

Preamble:

[52 Hrs]

- Learn the fundamentals of C programming and the standard C libraries.
- Learn the basic tags of HTML, DHTML and CSS and provides an idea to create webpages.

List of Programs:

C Programming:

11. Program to find the factorial of the given number.
12. Write a program to generate Fibonacci series.
13. Create a program to perform Matrix Addition.
14. Program to Construct a Pyramid of digits and Reverse the Pyramids.

15. Solve a Quadratic equation for all types of roots.
16. Finding the number of Vowels, Consonants and white spaces in a string.
17. Write a program to sort numbers in ascending and descending order using arrays.
18. Write a program to perform String operation and check for Palindrome.
19. Create a program by passing pointers as arguments to function to Add, Subtract, Multiply and Divide two numbers.
20. Create a program to receive a file name and the names of employees as command line argument and write the text to the File.

Web Designing:

7. Design a Web page with external and internal links and link between two frames.
8. Design a class timetable using HTML tags.
9. Design a web page using image and list tags also use physical and logical styles to display text.
10. Design a webpage in DHTML using cascading style sheets (Use all attributes).
11. Create a webpage in DHTML using class in external style sheets.
12. Design a webpage for a College (Using Forms).
13. Design a webpage showing your biodata.

Course Designed By :Mrs.A.Kalaivani

Course Reviewed By :Ms.N.Sathyapriya

Checked By :Mrs.S.Shobana

B.Sc. Information Technology Semester III

Part III - Core III - Object Oriented Programming With C++ 315G03 (For the students admitted from the academic year 2015 – 2016

onwards)

Preamble:

[52 Hrs]

- C++ has emerged as the language of choice for most applications due to the speed portability and compactness of code.
- To inculcate an in-depth programming knowledge in OOPS.

Unit I:

[11 Hrs]

Principles of Object Oriented Programming - Beginning with C++: What is C++ - Applications of C++ - Structure of C++ program –Creating the source file-Compiling and linking.

Unit II:
[11 Hrs]

Classes and objects: C Structures revisited-Specifying a class-Defining member functions-A C++ program with class-Making an outside function inline-Nesting of member functions-Private member functions-Arrays within a class-Memory allocation for classes-Static data members-Static member functions-Arrays of objects-Objects as function arguments-Friendly functions-Returning objects-const member functions-Pointers to members-Local classes.

Constructors and Destructors: Constructors- Parameterized Constructors-Multiple Constructors in class-Constructors with default arguments-Dynamic initialization of objects- Copy Constructor-Dynamic Constructors-Constructing two dimensional arrays-const objects-Destructors

Unit III:

[10 Hrs]

Operator overloading and Type conversions: Defining Operator Overloading-Overloading Unary operators- Overloading Binary operators- Overloading Binary operators using Friends-Manipulation of Strings using Operators- Rules for overloading operators-Type conversion.

Inheritance: Extending classes: Defining derived classes-Single inheritance-Making a private member inheritable-Multi level Inheritance- Multiple Inheritance-Hierarchical Inheritance-[Hybrid Inheritance]-Virtual base classes- Abstract classes-Constructors in derived classes-Member classes: Nesting of classes.

Unit IV:

[10 Hrs]

Pointers, virtual functions and polymorphism: Pointers to objects-this Pointers-Pointers to derived classes-Virtual functions- Pure virtual functions.

Managing console I/O operations: C++ Streams –C++ Stream classes-Unformatted I/O operations-Formatted Console I/O operations-Managing output with manipulators.

Manipulating Strings: Creating (String) Objects-Manipulating string objects-Relational Operations-String characteristics-Accessing characters in strings-Comparing and swapping.

Unit V:

[10 Hrs]

Templates: Introduction –Class templates-Class templates with multiple parameters-Function templates-Function templates with multiple parameters-Overloading of template functions-Member function templates-Non-type template arguments.

Working with files: Classes for File stream operations-Opening and Closing a file-Detecting end -of - file- More about open(): File modes –File Pointers and their manipulations- Sequential Input and Output Operations-Updating a file: Random Access- Error handling during file operations-Command line arguments.

Exception handling: Basics of exception handling-Exception handling mechanism- Throwing mechanism-Catching mechanism-Rethrowing an Exception – Specifying Exceptions.

Book for Study:

E.Balagurusamy , “Object Oriented Programming with C++”, Tata McGraw Hill Publications, Fourth Edition, 6th Reprint 2009.

Book for Reference:

- 1.Robert Lafore , “Object oriented programming in Turbo C++” , Galgotia Publication.
- 2.Herbert Scheldt , “The Complete Reference C++” , Fourth Edition McGraw Hill
3. Spoken Tutorial Project (C++) as e-Resource for learning- IIT, Mumbai under national mission on education through ICT, MHRD, Government of India.

Course Designed By : Ms.N.Sathyapriya
Course Reviewed By :Ms.V.Vadivu
Checked By :Mrs.S.Shobana

B.Sc Information Technology**Semester III****Part III – Core IV – Data Structures and Algorithms 315G04**

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble**[65 Hrs]**

- This paper enriches the students with knowledge in creating and analyzing algorithms.
- It also focuses on the storage mechanism of the data.

Unit I:**[13Hrs]**

History of Algorithms – Definition, Structure and Properties of Algorithms- Development of an Algorithm- Data Structures and Algorithms- Data Structure – Definition and Classification.

Analysis of Algorithms: Efficiency of Algorithms - Apriori analysis- Asymptotic Notations – Time Complexity of an Algorithm using O Notation- Polynomial Vs Exponential Algorithms- Average, Best and worst Case Complexities- Analyzing Recursive programs.

Arrays: Array Operations – Number of elements in an Array – Representation of arrays in Memory – Applications.

Unit II:**[14 Hrs]**

Stacks: Stack Operations.

Queues: Operation on Queues – Circular Queues – Other types of Queues.

Linked Lists: Singly Linked Lists – Circularly linked Lists- Doubly linked lists- Multiple Linked Lists.

Linked Stacks and Linked Queues: Operations on Linked Stacks and Linked Queues – Dynamic Memory Management and Linked Stacks – Implementation of Linked representations.

Unit III:**[13 Hrs]**

Trees and Binary Trees: Trees: Definition and Basic Terminologies- Representation of Trees – Binary trees: Basic Terminologies and Types – Representation of Binary Trees – Binary Tree Traversals – Threaded Binary Trees.

Graphs: Definitions and Basic Terminologies- Representations of Graphs – Graph Traversals - Applications.

Binary Search Trees and AVL Trees: Binary Search Tree: Definition and Operations.

Unit IV: [13 Hrs]

Hash Tables: Hash Table Structure – Hash Functions – [Linear Open Addressing] – Chaining.

File Organizations: Files – Keys – Basic File Operations – Heap or Pile Organisation – Sequential File Organisation – Indexed Sequential File Organisation – Direct File Organisation.

Unit V: [12 Hrs]

Searching: Linear Search – Binary Search – Fibonacci search – Other Search Techniques.

Internal Sorting: Bubble sort – Insertion Sort – Selection sort – Merge sort - Quick sort – Heap sort – Radix sort.

External Sorting: External Storage Devices- Sorting with Tapes: Balanced Merge – Sorting with Disks: Balanced Merge.

Book for Study:

G A Vijayalakshmi Pai ,“ Data Structures and Algorithms – Concepts, Techniques and Applications” –Tata McGraw Hill Education Private Limited, New Delhi, Third Reprint 2009.

Book for Reference:

Ellis Horowitz, Sartaj Sahni, ”Fundamentals of Data Structures”, Galgotia Book House Pvt Ltd.

Course Designed By :MsG.Neelaveni

Course Reviewed By :Ms.V.Vadivu

Checked By :Ms.S.Shobana

B.Sc. Information Technology

Semester III

Part III- Core V – Operating System Concepts 315G05

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: [65 Hrs]

➤ This paper is unique in presenting the students a comprehensive framework for the design, study and implementation of Operating Systems.

➤ Operating Systems is an exciting software area because the design of an Operating System exerts a major influence on the overall function and performance of the entire computer.

Unit I: [13 Hrs]

Introduction: What Operating System Do - Computer system Organization- Computer system Architecture - Operating System structure - Operating System Operations - Process Management - Memory Management -Storage Management - Distributed Systems- Computing Environment.

System Structure: Operating System Services-User Operating System Interface - System Calls - Types of System Calls - System Programs-Operating System Structure- Operating System Debugging- System Boot.

Unit II: [12 Hrs]

Process Concept: Process Concept –Process Scheduling-Operations on Processes - Interprocess Communication-Communication in Client Server Systems. Multithreaded Programming: Overview – Multithreading Models-Thread Libraries- Threading Issues-Operating System Examples.

Unit III: [14 Hrs]

Process Scheduling: Basic Concepts – Scheduling Criteria-Scheduling Algorithm-Thread Scheduling. Deadlocks: System Model - Deadlock Characterization – Methods for Handling Deadlock-Deadlock Prevention- Deadlock Avoidance- Deadlock Detection- Recovery from Deadlock. Memory Management Strategies: Swapping Contiguous Memory Allocation- Paging- Segmentation- Example: The Intel Pentium.

Unit IV: [13 Hrs]

File- System: File Concept-Access Methods- Directory and Disk Structure- File System Mounting-File Sharing-Protection. Implementing File System: File System Structure – File System Implementation-Directory Implementation-Allocation Methods-Free Space Management.

Unit V: [13 Hrs]

System Protection: Goals of Protection- Principles of Protection-Domain of Protection-Access Matrix-Implementation of Access Matrix-Access Control-Capability Based Systems.

Case Study: System Security: The security Problem-Program Threads-System and Networks Threats- User Authentication.

Book for Study:

Abraham Silberschatz , Peter B.Galvin , Greg Gagne – “Operating System Concepts”, 8th Edition,2010 by John Wiley & Sons.

Book for reference:

1. H.M. Deitel, “Operating System”, Second Edition, Pearson Education incorporation.
2. Abraham Silberschatz & Peter Baer Galvin ,“Operating System Concepts”, 5th Edition Addison Wesley Longman, Inc.

Course Designed By :Mrs.G.Neelaveni

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

B.Sc. Information Technology

Semester III

Part III- Core Practical III– Object Oriented Programming with C++ 315GP3

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Programs:

[65 Hrs]

1. Program to find Armstrong number.
2. Program to perform overload Functions add(), sub() and multiply() that handle different data types.
3. Program to find the area of Circle, Rectangle and Square by using Inline Functions.
4. Program to implement Call by reference
5. Program to demonstrate Employee details using classes and array of objects.
6. Program to display the student details using Constructor and Destructor.
7. Program using single inheritance.
8. Program for Payroll processing using Multiple Inheritance.
9. Program using virtual functions and pointers.
10. Program to implement Stack Operation.
11. Program to implement Bubble Sort.
12. Program for reading and writing to the text file.
13. Program to illustrate the concept of Templates.

14. Program to implement Queue Operations.
15. Program to implement Binary Search.
16. Program to illustrate the concept of Friend Function.
17. Program to implement Operator Overloading.
18. Program to implement Quick Sort.
19. Program for exception handling.
20. Program using singly linked list.

Course Designed By : Ms.N.Sathyapriya
Course Reviewed By :Ms.V.Vadivu
Checked By :Mrs.S.Shobana

**B.Sc. Information Technology
Semester III**

**Part IV- Skill Based Course I: Multimedia – Image Designing and Graphics Tool
315GS1**

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[35 Hrs]

This paper gives an idea to create brochures, flyers, newsletters, reports and a variety of other professional-quality documents used for business or educational purposes.

List of Programs:

Image Designing Tool

1. Create a program to work with layers.
2. Create a program using drawing tools.
3. Create a program to import images and apply image effects.
4. Design a program using text tool and apply various format and styles.
5. Create a program for transformation of an object and text.
6. Create a program to work with frames.
7. Create a program for converting text to outlines and to image frame.
8. Graphics Tool
9. Create a program using drawing tools.
10. Create a logo using various tools.
11. Create an invitation for an Inter Collegiate competition.
12. Create a program using Text tool.
13. Create a Banner using Multiple layers.

Course Designed by : Mrs. A. Kalaivani
Course Reviewed by : Mrs. N. Sathyapriya
Course Checked by : Mrs. S. Shobana

UG Courses
Semester III
Part IV – Non Major Elective Course I – 2D Animation-Practical
315NTA
(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[26Hrs]

This paper emphasize the basics of Image Editing tool to create, edit and composite images and gives an idea on basics of creating different animation effects like tweening, key frame animation.

List of Programs:

Image Editing Tool

1. Design a program to import images and make adjustments.
2. Create a program using clone stamp and healing brush tool.
3. Create a program using Blur, Sharpen, Dodge and Burn tools.
4. Design a program using text, transform and re touching tools.
5. Create a program by filter option.
6. Design the program using layers.

Animation Tool

1. Design scenery using various tools.
2. Design an animation using Frame by Frame Animation.
3. Create a pendulum using Motion Tweening.
4. Create an Album with the help of Buttons.
5. Create folders in the library and add different symbols like doors, windows, roof, walls with different colors etc to the folders. Using those symbols assemble different types of houses.
6. Create a simple story using key frame animation.

Course Designed by : Mrs. R. Nandhini

Course Reviewed by : Mrs. N. Sathyapriya

Course Checked by : Mrs. S. Shobana

B.Sc. Information Technology
Semester IV
Part III-Core VI- .NET Programming **415G06**
(For the students admitted from the academic year 2015 – 2016 onwards)
[52 Hrs]

Preamble:

.NET is a Microsoft operating system platform that incorporates applications and a suite of tools and services.

- Students can produce software by combining their own source code with .NET Framework and other libraries. .

Unit I : [10 hrs]

Introduction To Programming – Getting Started With Visual Basic 2005 – Object Oriented Programming.

Unit II : [10 hrs]

Windows Forms – Label , Textbox , Button , Combobox And Listbox Controls – Checkbox , Radiobutton And Groupbox Controls.

Unit III : [11 hrs]

Panel , PictureBox , Progress Bar And Timer Controls – Menus ,Built-In Dialog Boxes , Printing , And Treeview Controls – Mouse Events And Keyboard Events – Handling Errors And Exceptions.

Unit IV : [11 hrs]

ASP.NET 2.0 Essentials – Developing A Web Application – Standard Controls – Navigation Controls – Validation Controls.

Unit V : [10 hrs]

Login Controls – Working With Database : ASP.NET 2.0 Data Display Controls - Accessing Data Using ADO.NET : What Are Database : Working With ADO.NET : Overview Of ADO.NET Objects – Datagrid View Control –Accessing Data Using Server Explorer – Creating A New Data Connection – Accessing Data Using Data Adapters And Datasets – Previewing Data From Data Adapters – Connecting To An MS Jet Database. Data Binding.

Book for study :

Vikas Gupta, “.NET PROGRAMMING”, Kogent Solutions Inc edition ,Dreamtech press, 2007

Books for Reference:

1. Kogent Solutions Inc “.NET 4.5 programming, BLACK BOOK”, Dreamtech press 2013.
2. Matthew MacDonald ASP.NET “complete reference” Tata McGraw – hill edition 2002, second reprint 2003.

Course Designed by: Ms.B.Kalaivani

Course Reviewed by: Ms.V.Vadivu

Course Checked by: Ms.S.Shobana

B.Sc. Information Technology

Semester IV

Part III -Core VII- Database Management Systems 415G07

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: [65 Hrs]

- Database systems are designed to manage large bodies of information.
- This paper provides commercial applications development using oracle products.

Unit I: [12 Hrs]

Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages.Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams - Denormalization –Example of Normalization.

Unit II: [13 Hrs]

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL

*Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Unit III: [14 Hrs]

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – [Sorting] – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

Unit IV: [14 Hrs]

A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. control Structures and Embedded SQL: Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

Unit V: [12 Hrs]

PL/SQL Composite Data Types: Records – Tables – Varrays. Named Blocks: Procedures – Functions – Packages – Triggers – Data Dictionary Views.

Books for Study:

Nilesh Shah, “Database Systems Using Oracle”–2nd edition, PHI, 2005.

Books For Reference:

1. Silberschatz, Korth, Sudarshan, “Data base concepts”, Fourth Edition McGraw Hill International Edition.
2. Bipin C. Desai, “An Introduction to database System” Galgotia Publication Pvt-Ltd.

Course Designed By : Ms.G.Neelaveni

Course Reviewed By: Ms.V.Vadivu

Checked By : Ms.S.Shobana

B .Sc Information Technology

Semester - IV

Part III -Core VIII - Computer Networking and the Internet 415G08

(For the students admitted from the academic year 2015 – 2016 onwards)
[65 Hrs]

Preamble:

To study the functions of different layers.

- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks

Unit I : [12 Hrs]

Data Communications and Networking Basics: Overview – Application and Networking terminology – Digital communications basics – Protocol basics – Protocol Stacks.

Unit II: [14 Hrs]

Telephone Networks and modems: Introduction – Transmission Systems: Analog Subscriber lines , PSTN Modems , Digital Subscriber Lines – Access Network Signaling – Trunk Network Signaling – Broadband Modems – Internet Service Providers.

Local Area Networks and Intranets: Introduction – LAN Interconnection Technologies – High Speed LANs – Virtual LANs – LAN Protocols – Multisite LAN Interconnection Technologies.

Unit III: [13 Hrs]

The Internet Protocol: Introduction – IP Datagram – Fragmentation and reassembly – Routing Algorithms – Routing in the Internet: Internet Structure and Terminology , Multicast Routing , M-Bone , Mobile IP.

Transport Protocols: Introduction – TCP/IP Protocol Suite – TCP: User Services, Protocol Operation – UDP – RTP and RTCP - Wireless TCP.

Unit IV: [13 Hrs]

Internet Applications: Introduction – Domain Name System – Electronic Mail – Internet Telephony – SNMP

Wireless Networks: Introduction- Bluetooth – Cellular Radio Networks.

Unit V: [13 Hrs]

Entertainment Networks: Introduction- cable Television Networks – Satellite Television Networks.

Case Study: The World Wide Web: Introduction – Overview – URLs and HTTP – Audio and Video – Wireless Web – Web Operation.

Book for Study:

Fred Halsall, Lingana Gouda Kulkarni, “Computer Networking and the Internet”,
Edition-2011, Pearson Education

Book for Reference:

Andrew S. Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi – IV Edition, 2003.

Course Designed By :Ms.V.Vadivu
Course Reviewed By :Ms.G.Neelaveni
Checked By :Mrs.S.Shobana

B.Sc. Information Technology

Semester IV

Part III-Core Practical IV - .NET Programming 415GP4

(For the students admitted from the academic year 2015 – 2016

onwards)

List of Programs:

[65 Hrs]

VB.NET

1. Implement the font application using VB.Net.
2. Develop the notepad application using VB.Net.
3. Create a program for the application of simple calculation using VB.Net.
4. Write a code for the manipulate of file such as send and write.
5. Display the employee details and calculate payroll using Adobe control.

6. ASP.NET

7. A website for employee payroll calculation. Get basic pay as input from the user and to display the net and gross pay by calculating allowances and deductions.
8. A website for job seeker registration and to get the user data as input. Validate the data using validator controls and display the welcome page.
9. A website for Tamilnadu tourism. Get user data like name, country and occupation as input using cookies and query string.
10. A webpage that contains adrotator control with and without key word filter concept.
11. A webpage that can perform file uploading using the file upload control and store the file in a temporary folder.
12. A website to verify the login user and password using data base connectivity.

13. DBMS

14. Create a Table for inserting Customer details and Perform Update, Select, Delete Operations in the Table.
15. Create two tables with relevant details and implement the Integrity Constraints.
16. Write a PL/SQL program for student database and calculate the Total, Average and Result using cursor.
17. Create a program using triggers.
18. Create a program to raise an exception if the actual sales are less than the target sales. If sales condition is satisfied, calculate commission.

Course Designed by : Ms.B.Kalaivani
 Course Reviewed by: Ms.G.Neelaveni
 Course Checked by : Ms.S.Shoban

B .Sc Information Technology

415GS2

Semester IV

Part IV- Skill Based Course II: Multimedia – Image Editor

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[35 Hrs]

To learn the basics of Image Editing tool to create, edit and composite images that can be used on Web sites and as graphics for movies.

List of Programs:

1. Create a program using drawing tools.
2. Create a GIF Animation.
3. Design a 3D text.
4. Create a program by using clone stamp tools.
5. Create a program by using Transformation tools.
6. Design a program using Paint Tools.
7. Create a program using lighting effects and difference clouds.

8. Create type masking.
9. Create a program by filter option.
10. Design the program using multiple layers.
11. Use a heal brush tool and make changes in an image.
12. Design a college prospectus.

Course Designed by : Mrs. G. Neelaveni

Course Reviewed by : Mrs. N. Sathyapriya

Course Checked by : Mrs. S. Shobana

B .Sc Information Technology

Semester-V

Part III - Core IX – JAVA Programming 515G09

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: [52 Hrs]

- The students can develop their programming skills in GUI applications.
- Java is one of the popular programming languages for developing consumer electronic devices.
- It is an object-oriented language that enables students to create real world applications.

Unit I: [10 Hrs]

Overview of JAVA Language - Constants, Variables and Data Types- Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Unit II: [10 Hrs]

Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes Together - Multithreaded Programming.

Unit III: [10 Hrs]

Managing Errors and Exceptions – Applet Programming – Graphics Programming-Managing Input/output files in JAVA.

Unit IV: [12 Hrs]

Introducing the AWT: Working with graphics-Using AWT Controls, Layout Managers

Unit V: [10 Hrs]

Java Beans-Introducing Swing-Exploring Swing.

Books for study:

1 E. Balagurusamy, „Programming with JAVA A Primer”, Tata McGraw Hill Publishing Company Limited, New Delhi, 4th Edition.

2 Herbert Schildt, „JAVA The Complete Reference”, Tata McGraw Hill Publishing Company Limited, New Delhi, 7th edition.

Book for Reference :

1. Herbert Scheldt , “JAVA 2 The Complete Reference” , The Tata McGraw Hill Publishing Company Ltd, New Delhi, Fifth Edition.
2. Steven Holzner, “JAVA 2 , Swing , Servlets , JDBC and JAVA Beans Programming Black Box”, Dream Tech Press, New Delhi.
3. Spoken Tutorial Project (C) as e-Resource for learning- IIT, Mumbai under national mission on education through ICT, MHRD, Government of India.

Course Designed by : Mrs.V.Vadivu

Course Reviewed by: Ms.N.Sathyapriya

Course Checked by : Ms.S.Shobana

515G10

(For the students admitted from the academic year 2015 – 2016 [65 Hrs] onwards)

Preamble:

To improve the quality of software products and to increase the productivity and job satisfaction of software engineers.

- It is a systematic approach for development, operation and maintenance of software.
- Gaining confidence in and providing information about the level of quality

Unit I:

[15 Hrs]

Introduction: What is software?-Characteristics of Software-Evolution of Software for Business-Generations of Computers – Programming Languages-Paradigm Shift in Programming Techniques-Software crisis and Emergence of Software Engineering-Core Aspects of Software Engineering-Salient Features of Software Development. Software Development Process-Software Requirement Engineering-Software Design Approaches.

Unit II:

[13 Hrs]

Structured Analysis-Structured Design-Object –Oriented Concepts and Principles: Relationships-Some More Concepts-Modeling Techniques-The Unified Approach to Modeling-Unified Modeling Language.

Unit III:

[13 Hrs]

Object-oriented Analysis-Object-oriented Design- Case Study : User Interface Design-Coding and Documentation.

Unit IV:

[12 Hrs]

Software Project Estimation. Software Project Management-Software Quality Management-Web Engineering.

Unit V:

[12 Hrs]

Software testing process : Psychology of Testing – Verification and Validation – Testing Team and Development Team – Cost of Quality – Characteristics of Test Engineers – Why testing is difficult – Levels of Testing. Types of testing: white box testing-black box testing-Win runner-LoadRunner

Book for Study:

1. Jibitesh Nishra, Ashok Mohanty, “Software Engineering”, Edition – 2012, Pearson

Education.

2 Dr.K.V.K.K.Prasad,.”Software Testing Tools”, Edition-2010, Dream Tech

Book for Reference:

1. Roger S.Pressman, “Software Engineering:A Practitioner’s Approach”, Sixth

Edition, McGraw Hill International Edition-2005.

2 Srinivasan Desikan, Gopalaswamy Ramesh.”Software Testing Principles and

Practices”, Pearson Education,2009

Course Designed by : Ms.V.Vadivu

Course Reviewed by: Ms.B.Kalaivani

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester V

Part III – Core XI –Cloud Computing 515G11

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- Learning About Cloud Types, Understanding The Paradigm Shift That Is Cloud Computing, Benefits Of Cloud Computing
- Understanding Service and Applications by its type, how to Work with Cloud –Based Storage

Unit I :

[15 Hrs]

Defining Cloud Computing: Defining Cloud Computing-Cloud Types-Examining the Characteristics of Cloud Computing. Assessing the Value Proposition: Measuring the Cloud's Value- Avoiding Capital Expenditures - Computing the Total Cost of Ownership –Specifying Service Level Agreements-Defining Licensing Models. Understanding Cloud Architecture: Exploring the Cloud Computing Stack-Connecting to the Cloud.

Unit II :

[14 Hrs]

Understanding Services and Applications by Type: Defining Infrastructure as a Service (IaaS)-Defining Platform as a Service (PaaS)-Defining Software as a Service (SaaS)-Defining Identity as a Service (IDaaS)-Defining Compliance as a Service (CaaS). Using Platforms: Understanding Abstraction And Virtualization: Using Virtualization Technologies –Load Balancing and Virtualization-Understanding Hypervisors-Understanding Machine Imaging-Porting Applications. Exploring Platform as a Service: Defining Services-Using PaaS Application Frameworks.

Unit III :

[16 Hrs]

Using Amazon Web Services: Understanding Amazon Web Services-Amazon Web Service Components and Services-Working with the Elastic Compute Cloud (EC2)-Working With Amazon Storage Systems-Understanding Amazon Database Services. Using Microsoft Cloud Services: Exploring Microsoft Cloud Services-Defining the Windows Azure Platform-Using Windows Live.

Unit IV :

[15 Hrs]

Understanding Cloud Security: Securing the Cloud-Securing Data-Establishing Identity and Presence. Understanding Service Oriented Architecture: Introducing Service Oriented Architecture-Defining SOA Communications-Managing and Monitoring SOA-Relating SOA and Cloud Computing. Moving Applications to The Cloud: Applications in the Clouds-Applications and Cloud APIs.

Unit V :

[15 Hrs]

Working With Cloud-Based Storage: Measuring The Digital Universe-Provisioning Cloud Storage-Exploring Cloud Backup Solutions
Case Study: The Mobile Cloud

Book For Study:

Barrie Sosinsky ,“Cloud Computing bible” Wiley India Pvt Ltd, Reprint:2013

Book For Reference:

1.Rajkumar Buyya, Christian Vecchiola, S.Thamarai Selvi, “Mastering Cloud Computing”, Published by Tata McGraw Hill Education Pvt Ltd, India 2009.

2. Gautam Shroff, ”Enterprise Cloud Computing”, Reprinted 2011,2014 , Cambridge

University press, Printed in India at India Binding House,Noida.

Course Designed by : Ms.G.Neelaveni

Course Reviewed by: Ms.B.Kalaivani

Course Checked by : Ms.S.Shobana

B .Sc Information Technology
Semester-V
Part III-Core Practical V – JAVA Programming and Software Testing 515GP5
(For the students admitted from the academic year 2015 – 2016 onwards)

List of Programs:

[75 Hrs]

JAVA Programming

1. Program to generate pascal triangles.
2. Create the multiplication table using arrays.
3. Create a program for manipulating strings.
4. Program using Multithreading.
5. Program to implement employee payroll processing using packages.
6. Generating advertisements using Applets.
7. Program for simple calculator using AWT.
8. Create a program using graphics.
9. Count the number of words,characters,digits,alphapets,special characters and white spaces in a file.
10. Program to implement interfaces.
11. Program to display personal information using swings.
12. Create a javabeen program for button control.

Software Testing

1. To prepare an analog recording using win runner tool.
2. To test the standard calculator application using win runner tool.
3. To test the login form in the visual basic using win runner tool.
4. To test batch processing using win runner tool.
5. To test the bitmap check point using win runner tool.
6. To Create a Bitmap Check Point for Screen Area
7. To test the insert function using win runner tool.
8. To test whether the recorded actions works for a set of data by using win runner tool.
9. To creating Vuser Scripting using visual user generator.
10. To Creating virtual users using loadrunner controller.

Course Designed by : Ms.V.Vadivu
Course Reviewed by: Ms.B.Kalaivani
Course Checked by : Ms.S.Shobana

B.Sc. Information Technology
Semester V
Part III- Elective I – Computer Graphics 515GE1
(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- To give students practical experience in the production of 2D computer animation.
- To provide students with an understanding of the algorithms and theories that forms the basis of computer graphics and modeling.
- To give students skills necessary in the production of 3D models, lighting and rendering

Unit I:

[14 Hrs]

Overview of Graphics Systems: Video Display Device-Raster Scan System-Random Scan System – Graphics Monitors and workstations-Input devices-Hard Copy devices. Output Primitives: Points and Lines - DDA - Bresenham's Line Algorithm-Circle Generating Algorithm –Ellipse Generating Algorithm.

Unit II:

[16 Hrs]

Two Dimensional Geometric Transformations: Basic Transformations-Matrix Representations and Homogeneous Coordinates- Composite Transformations –Other Transformation– Two Dimensional Viewing: The viewing pipeline-Viewing Coordinate reference frame-Window to view point coordinates-Clipping operations, point clipping, line clipping: Cohen-Sutherland line clipping, Polygon clipping: Sutherland-Hodgeman Polygon clipping, Curve Clipping, Text Clipping.

Unit III:

[15 Hrs]

Three Dimensional Concepts – Three Dimensional Object Representations: Polygon Surfaces – Curved Lines and Surfaces – Quadric Surfaces – Super Quadrics - Blobby objects – Spline Representations-Fractal-Geometry Methods: Fractal Generation Procedures-Classification of Fractals-Fractal Dimensions.

Unit IV:

[15 Hrs]

Three Dimensional Geometric and Modeling Transformations:Translation-Rotation-Scaling –Other Transformation. Three Dimensional Viewing: Viewing Pipeline-Viewing Co-Ordinates- Projections..

Unit V:

[15 Hrs]

Visible–Surface Detection Methods: Classification of Visible – Surface Detection Algorithms-Back face Detection- Depth –Buffer Method- A-Buffer Method-Scan Line Method-Depth Sorting Method. Computer Animation.

Book for Study:

Donald Hearn, M.Pauline Baker, “Computer Graphics”, Prentice-Hall India Private Limited Second Edition, 2007.

Book for Reference:

Madusu Hanmandlu,”Computer Graphics”,BPB Publications, 2010.

Course Designed by : Ms.V.Vadivu

Course Reviewed by : Ms.G.Neelaveni

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester V

Part IV- Skill Based Course III: Multimedia – Animation

515GS3

(For the students admitted from the academic year 2015- 2016 onwards)

Preamble:

[35 Hrs]

This paper gives an idea on basics of creating different animation effects like tweening, morphing, audio and video.

List of Programs:

1. Draw scenery using Oval, Circle, Rectangle and Pencil tools [use Straight Smooth and Freeform lines].
2. Create a program using text tool and apply different effects.
3. a) Draw a 3D Ring.
b) Create a 3D Tunnel.
4. Create a program with cartoon effects.
5. Create an animated button with a gradient in the up state and a text over it.
6. Create folders in the library and add different symbols like eyes, head, nose, mouth etc to the folders. Using those symbols assemble different types of faces.
7. Draw a pendulum using motion tweening.
8. Convert a ball to a rectangular box using shape tweening (Morphing).
9. Create a program and apply filter option.
10. Create a program using Action Script.
11. Design a scene and add audio, video effect.
12. Create a movie with multiple scenes.

Course Designed by : Mrs. N. Sathyapriya

Course Reviewed by : Mrs. G. Neelaveni

Course Checked by : Mrs. S. Shobana

B.Sc. Information Technology Semester VI

Part III- Core XII – PHP and Python Programming 615G12 (For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[65 Hrs]

- Gaining knowledge in Object Oriented Programming paradigm with python, studying about objects, inheritance of the open source language python.
- PHP is an object-oriented open source language that enables students to create real world applications.

Unit I :

[11 Hrs]

Welcome To Python: What Is Python?- Origins- Features-Downloading and installing Python-Running Python-Python Documentation-Comparing Python-Other Implementations. Getting Started :Program Output ,the print Statement, and “Hello World!”-Program Input and the raw_input() Built-in Function-Comments –Operators-Variables and Assignment-Numbers-Strings –Lists and Tuples.Python Basics:Statements and Syntax- Variable Assignment-Identifiers-Basic Style Guidelines –Memory Management.

Unit II :

[13Hrs]

Conditionals And Loops: if Statement-else statement- elif(aka else- if) statements-Conditional Expressions(aka “the Ternary Operator”)-while Statement-for Statement-break Statement-continue Statement-pass Statement-else

Statement..Take Two-Iterators and the iter() function.Files And Input/Output:File Objects-File Built-in Functions[open() and file()]-File Built-in Methods-File Built-in Attributes-Standard Files-Command-Line Arguments-File System-File Execution.Errors And Exceptions:What Are Exceptions?-Exceptions in Python-Detecting and Handling Exceptions.

UnitIII:

[13Hrs]

Functions And Functional Programming:What Are functions?-Calling Functions-Creating Functions-Variable Scope-*Recursion. Object-Oriented Programming: Object-Oriented Programming -Classes-Class Attributes-Instances-Instance Attributes-Binding and Method Invocation-Static Methods and Class Methods-Composition-SubClassing and Derivation-Inheritance.

UnitIV:

[15Hrs]

Introduction- Strings: Matching Patterns (Regular Expressions)- Checking the Spelling of a word- Matching Similar Strings- Counting the Number of times certain words Appear. Numbers: Retrieving a Number from a string- Converting Numbers into Roman numerals- Calculating Interest- Temperature Conversion. Time and Date: Calculating the Difference Between two dates- Leap year calculation- Determining Number of business days- Generating a calendar for a given month. Variables: Determining whether a Variable is equal to another- Accessing a Variable outside a Function,from Within it (global Variables)- keeping a persistent Value Within a Function (static Variables)- having one Variable refer to another (references)- Using a Variable to hold the name of another Variable- declaring a constant instead of a Variable. Functions-Classes and Objects.

UnitV:

[13Hrs]

Files and directories: Generating a full Directory Listing, natural display of File sizes, Renaming all Files Within a Directory, search for File names Within a Directory tree, Handling relative and absolute File paths, reading a File via HTTP or FTP, Watching the contents of a File as it grows(Simulating UNIX tail-f),Generating a difference report Between two Files, locking a File for exclusive use, catching remote Files locally, compressing and uncompressing Files, Automatically including certain Files from the parent tree.Relational Databases: Communicating With MySQL- Communicating With Oracle- Communicating With Sybase- Communicating With Microsoft SQL server- Communicating With Databases through ODBC. User Authentication and Encryption: Generating Random Passwords- Using Encryption to Protect Data- Simple CAPTCHA for Real User Detection- Authenticating Users.

Book for study:

1.Wesley J.Chun,"Core Python Programming", Pearson education Inc.2nd Edition,6th impression,2012.(Unit I,II,III).

2.Elliott White III,Jonathan D.Eisenhamer"PHP 5 IN PRACTICE",Pearson education Inc.1st impression,2007.(Unit IV,V).

Book for reference:

1.Peter Norton,Alex Samuel,David Aitel,Eric foster-Johnson,Leonard Richardson,Jason Diamond,Aleatha Parker,Michael Roberts. Edition 2005,Printed at:Unique color carton offset printers.

2.Julie meloni,Matt Telles,PHP6

Course Designed by : Ms.G.Neelaveni

Course Reviewed by: Ms.V.Vadivu

Course Checked by : Ms.S.Shobana

B.Sc Information Technology

Semester -VI

Part III-Core XIII –Cryptography and Network Security 615G13

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- To gain the basic knowledge about the Cryptography and Network Security Protocols and technology
- To know about the important network security tools and applications

Unit I:

[14 Hrs]

Introduction to the Concepts Of Security-Cryptography Techniques-Computer Based Symmetric Key Cryptographic Algorithms:Introduction-Algorithm Types and Modes-An Overview Of Symmetric-Key Cryptography-Data Encryption Standard (DES)-International Data Encryption Algorithm(IDEA).

Unit II:

[15 Hrs]

Computer –Based Asymmetric-Key Cryptography Algorithms:Introduction-An Overview Of Asymmetric-Key Cryptography-The RSA Algorithm- Symmetric – And Asymmetric-Key Cryptography-Digital Signatures-Knapsack Algorithm.Public Key Infrastructure(PKI):Introduction-Digital Certificates.

Unit III:

[15 Hrs]

Internet Security Protocols:Introduction-Basic Concepts-Secure Socket Layer(SSL)-Transport Layer Security(TLS)-Secure Hypertext Transfer Protocol(SHTTP)-Secure Electronic Transaction(SET)-SSL Versus SET-3-D Secure Protocol.

Unit IV:

[16 Hrs]

User-Authentication Mechanisms-Practical Implementations Of Cryptography/Security-Introduction-Cryptographic Solutions Using Java.

Unit V :

[15 Hrs]

Network Security-Case study:Firewalls and Virtual Private Networks(VPN)

Book For Study:

Atul Kahate,"Cryptography and Network Security", 3rd Edition ,Published By McGraw Hill Education(India)Private Limited

Book For Reference :

1. William Stallings ,,"Cryptography and Network Security", Pearson Education,4th Edition.
2. William Stallings ,,"Network Security Essentials-Applications and Standards", Pearson Education Pvt Ltd,Third Indian Print,2005

Course Designed by : Ms.G.Neelaveni

Course Reviewed by: Ms.V.Vadivu

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester VI

Part III – Core Practical VI – Open Source Programming 615GP6

(For the students admitted from the academic year 2015 – 2016 onwards)

Listing of Programs

[52 Hrs]

PHP

1. Write a program to perform string manipulation
2. Write a program to generate a calendar to a given month.

3. Write a program by using functions concepts.
4. Write a program by using class and objects.
5. Write a connectivity program with Oracle database.
6. Write a connectivity program through ODBC
7. Design a Program to Create (edit) the Blog Spots.
8. Write a program to create a Google Map.

Python

1. Write a program to implement command line arguments.
2. Write a program by using functional arguments.
3. Write a program to implement overloading operators.
4. Write a program to implement Classes.
5. Write a program to implement inheritance concept.
6. Write an Animated banner program.
7. Write a Simple calculator program.
8. Write a program to implement label, scale and button widgets.

Course Designed By : Ms.V.Vadivu

Course Reviewed By : Ms.G.Neelaveni

Checked By : Ms.S.Shobana

B.Sc. Information Technology Semester VI

Part III - Elective II- Data Mining and Data Warehousing 615GE2 (For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: [75 Hrs]

- Data Mining is the process that results in the discovery of new patterns in large Data sets.
- The overall goal of the data mining process is to extract knowledge from an existing data set and transform it into a human-understandable structure for further use

Unit I: [14 Hrs]

Introduction: Basic Data Mining Tasks-Data Mining versus Knowledge Discovery in Databases-Data Mining Issues-Data Mining Metrics-Social Implications of Data Mining-Data Mining from a Database Perspective-Database/OLTP systems-Fuzzy Sets and Fuzzy Logic-Information Retrieval-Decision Support Systems-Dimensional Modeling-Data Warehousing-OLAP.

Unit II: [15 Hrs]

Data Mining Techniques: Introduction-Statistical perspective on data mining-Similarity measures- Decision trees- Neural Networks-Genetic Algorithm.

Clustering: Introduction-Hierarchical Algorithms: Agglomerative algorithm-Divisive Clustering-Partitional Algorithms ;Minimum spanning tree-Squared error clustering algorithm-K-Means clustering-Nearest neighbor algorithm-PAM algorithm-Bond energy algorithm-Clustering with genetic algorithm- Clustering with neural networks.

Unit III: [15 Hrs]

Association Rules: Introduction-Basic Algorithms: Apriori Alogrithm-Sampling algorithm- Partitioning

Advanced Association Rule Techniques: Generalized association rules-Multiple level association rules-Quantitative association rules-using multiple minimum supports-Correlation rules.

Unit IV: [16 Hrs]

Web Mining: Introduction-Web Content Mining: Crawlers- Harvest system-Virtual web view- Personalization. Web Structure Mining: Page rank-Clever. Web Usage Mining: Preprocessing-Data structures-Pattern discovery-Pattern analyses.

Spatial Mining: Introduction-Spatial data overview: Spatial Queries-Spatial data structures-Thematic maps-Image databases-Spatial Rules-Spatial Classification Algorithm-Spatial Clustering Algorithm: CLARANS Extensions- SD (CLARANS).

Unit V: [15 Hrs]

Data Warehousing: What is data warehouse?-System Process: Introduction-Overview-Typical process flow with in data warehouse-Extract and load process-Clean and Transform data-Backup and Archive process-Query management process.

Process Architecture: Introduction-Load manager-warehouse manager-query manager-Detailed information-Summary information-Meta Data-Data Marting.

Books for Study:

1. Margaret H.Dunham, S.Sridhar-“Data Mining-Introductory and Advanced Topics”, Pearson Education, Reprint 2008.[Module 1-IV]

2. Sam Anahory, Dennis Murray-“Data Warehousing in the Real World”, Pearson Education, Eleventh Indian reprint 2005.[Module V]

Book for Reference:

Pieter Adriaans, Dolf Zantinge,” Data Mining” , Pearson Education Ltd.,2009.

Course Designed By :Ms.V.Vadivu

Course Reviewed By :Mrs.T.Prasanthini

Checked By :Mrs.S.Shobana

B.Sc. Information Technology

Semester VI

Part III – Project and Viva Voce

615GPV

(For the students admitted from the academic year 2015 - 2016 onwards)

Total Hours: 75

Preamble

- To inculcate research skills of the students.
- To enhance the application oriented learning

Project Plan

Selection of Topic and Data collections	- 1 1/2 Months
Rough Draft & Final Draft Submission	- 1 1/2 Months

B.Sc. Information Technology

615GS4

Semester VI

Part IV- Skill Based Course IV: Multimedia– Authoring Tool

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: [35 Hrs]

This paper induces to understand the fundamental concepts of digital video and introduces the techniques of video editing and enhancing.

List of Programs:

- 1.Create a program using Transformation effects.
- 2.Create a program using text and apply different effects.
- 3.Create a program for text to speech.
4. Create text and graphics for production titles.

5. Create a program using sequences.
6. Design a program by importing images as videos.
7. Create a program and apply filter option.
- 8 .Create a program to import video and apply blending and color correction.
9. Design a program to import audio file and apply effects.
- 10.Create a program and use artistic effects.
- 11.Create a program for batch file editor.
- 12.Create a movie with audio and video effects.

Course Designed by : Mrs.N. Sathyapriya

Course Reviewed by: Mrs.G.Neelaveni

Course Checked by : Ms.S.Shobana

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Information Technology
 Scheme of Examination – CBCS Pattern
 Programme: B.Sc.IT
 (For the students admitted during the academic year 2015 – 2016 only)

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	ESE Marks	
Semester I							
115BT1/ 115MY1/ 115HD1/ 115FR1	Part I Language I	6	3	25	75	100	4
115EN1	Part II English I	6	3	25	75	100	4
115G01	Part III Core I – Digital Principles and Computer Architecture	5	3	25	75	100	4
115GP1	Core Practical I -Word Processing and Internet	5	3	40	60	100	4
115AG1	Allied I – Principles of Accountancy	6	3	25	75	100	4
115EVS	Part IV Environmental Studies	2	2	50	-	50	2
Semester II							
215BT2/ 215MY2/ 215HD2/ 215FR2	Part I Language II	6	3	25	75	100	4
215EN2	Part II English II	6	3	25	75	100	4
215G02	Part III Core II-C Programming and Web Designing	6	3	25	75	100	4
215GP2	Core Practical II-C Programming and Web Designing	4	3	40	60	100	4
215AG2	Allied II-Discrete Mathematics	6	3	25	75	100	4
215VEC	Part IV Value Education	2	2	50	-	50	2

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
	Semester III						
	Part III						
315G03	Core III-Object Oriented Programming with C++	4	3	25	75	100	4
315G04	Core IV-Data Structures and Algorithms	5	3	25	75	100	4
315G05	Core V- Operating System Concepts	5	3	25	75	100	4
315GP3	Core Practical III- Object Oriented Programming with C++	5	3	40	60	100	4
315AG3	Allied III- Operations Research	6	3	25	75	100	4
315GS1	Part IV: Skill Based Course I: Multimedia –Image Designing and Graphics Tool	3	3	75	-	75	3
315NTA	Non Major Elective Course I: 2D Animation-Practical	2	2	50	-	50	2
	Semester IV						
	Part III						
415G06	Core VI-.NET Programming	4	3	25	50	75	3
415G07	Core VII-Database Management Systems	5	3	25	50	75	3
415G08	Core VIII-Computer Networking and the Internet	5	3	25	75	100	4
415GP4	Core Practical IV- .NET Programming	5	3	40	60	100	4
415AG4	Allied IV- Principles of Management	6	3	25	75	100	4
415GS2	Part IV Skill Based Course II: Multimedia – Image Editor	3	3	75	-	75	3
415NGA	Non Major Elective Course II: General Awareness (Online)	-	1	50	-	50	2
415GIS	Information Security	2	2	-	-	Grade	Grade
415ALG	Advanced Learners Course I – Enterprise Resource Planning	-	-	-	100	100	4*

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credits
			Dur. Hrs.	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III						
515G09	Core IX-Java Programming	4	3	25	75	100	4
515G10	Core X-Software Engineering and Testing Tools	5	3	25	75	100	4
515G11	Core XI- Cloud Computing	6	3	25	75	100	4
515GP5	Core Practical V- Java Programming and Software Testing	6	3	40	60	100	4
515GE1	Elective I –Computer Graphics	6	3	25	75	100	4
	Part IV						
515GS3	Skill Based Course III: Multimedia - Animation	3	3	75	-	75	3
	Semester VI						
	Part III						
615G12	Core XII – PHP and Python Programming	5	3	25	75	100	4
615G13	Core XIII- Cryptography and Network Security	6	3	25	75	100	4
615GP6	Core Practical VI – Open Source Programming	4	3	40	60	100	4
615GE2	Elective II- Data Mining and Data Warehousing	6	3	25	75	100	4
615GPV	Project and Viva Voce	6	3	25	75	100	4
615GS4	Part IV: Skill Based Course IV: Multimedia – Authoring Tool	3	3	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V: Extension Activities	-	-	50	-	50	2
615ALG	Advanced Learners Course II- Client/Server Technology	-	-	-	100	100	4*

Total Credits:

140

Starred

Credits are treated as additional credits, which are optional

Part III – Core Practical I – Word Processing and Internet
(For the students admitted from the academic year 2015 – 2016 onwards)

List of programs:

[65 Hrs]

MS- Word

17. Prepare a Class Timetable
18. Prepare a Resume.
19. Publish Students' Results using Mail Merge.
20. Create a Newsletter.
21. Create a document using Macros.
22. Create a document and perform,
 - i. Aligning and Formatting
 - ii. Add Page Numbers, Date and Time
 - iii. Find and Replace.

MS- Excel

23. Create employee details using Sort and Filter.
24. Draw graph and Chart for Population Analysis.
25. Prepare a mark list of 5 subjects for a class and consolidate by using the formulae: Sum, Average, Max, Min, Count.
26. Prepare a sheet using date fill option, apply formatting styles and add Header and Footer.
27. Prepare a pivot table for student database.

MS- Power point

28. Prepare Power point slides regarding Sports Day (use Hyperlink).
29. Prepare slides using Custom Animation.
30. Prepare slideshow with different slide Transition and add Sound effects.

MS- Access

31. Prepare a Database maintaining stock in a shop with fields: sno, Product ID(Primary Key), Product Name, Quantity and Price.
32. Prepare a Database for Customer information and generate a report with Customer Name in ascending order.

Internet

17. Create an email account.
18. Post your resume to a job portal.

Hardware

19. Identify the parts in the CPU.
20. Format the system and install the OS.

Course Designed By :Ms.N.Sathyapriya

Course Reviewed By :Ms.G.Neelaveni

Checked By :Mrs.S.Shobana

Part III – Core II – C Programming and Web Designing

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- C has emerged as the language of choice for most applications due to Speed, Portability and Compactness of Code.
- Learn the fundamentals of Ansi C programming and the standard C libraries.

- Unit I:** [14 Hrs]
Overview of C – Constants, Variables and Data Types – Operators and Expressions, Managing Input and Output Operations – Decision Making and Branching – Decision Making and Looping.
- Unit II:** [16 Hrs]
Arrays – Characters Array and Strings – User defined Functions.
- Unit III:** [16 Hrs]
Structures and Unions – Pointers – File Management in C.
- Unit IV:** [15 Hrs]
Internet Basics- Internet Basics –Introduction to HTML-Lists-Adding Graphics to HTML Documents-Tables-Linking Documents- Frames-Forms used by a Website.
- Unit V:** [14 Hrs]
Dynamic HTML:Cascading Style sheets- CLASS – Using the ... Tag- External Style Sheets- Using the <DIV>...</DIV> Tag.

Book for Study:

- 1.E.Balagurusamy, “Programming in Ansi C”, Tata McGraw Hill Publishing, V Edition, 2010.
- 2.Ivan Bayross, “Web Enabled Commercial Application Development Using HTML,JavaScript,DHTML and PHP”, BPB Publications,2005.

Book for Reference:

1. Kelly , “A Book of C “, Pearson Education (2008).
- 2 Deitel, “Internet and World Wide Web, How to Program”, Pearson Education,4th Edition,2013
- 3 Spoken Tutorial Project (C) as e-Resource for learning- IIT, Mumbai under national mission on education through ICT, MHRD, Government of India.

Course Designed By :Ms.V.Vadivu
Course Reviewed By :Ms.N.Sathyapriya
Checked By :Mrs.S.Shobana

**B .Sc Information Technology
Semester II**

**Part III – Core Practical II – C Programming and Web Designing 216GP2
(For the students admitted from the academic year 2016 – 2017
onwards)**

Preamble:

[52 Hrs]

- Learn the fundamentals of C programming and the standard C libraries.
- Learn the basic tags of HTML, DHTML and CSS and provides an idea to create webpages.

List of Programs:

C Programming:

21. Program to find the factorial of the given number.
22. Write a program to generate Fibonacci series.
23. Create a program to perform Matrix Addition.
24. Program to Construct a Pyramid of digits and Reverse the Pyramids.

25. Solve a Quadratic equation for all types of roots.
26. Finding the number of Vowels, Consonants and white spaces in a string.
27. Write a program to sort numbers in ascending and descending order using arrays.
28. Write a program to perform String operation and check for Palindrome.
29. Create a program by passing pointers as arguments to function to Add, Subtract, Multiply and Divide two numbers.
30. Create a program to receive a file name and the names of employees as command line argument and write the text to the File.

Web Designing:

14. Design a Web page with external and internal links and link between two frames.
15. Design a class timetable using HTML tags.
16. Design a web page using image and list tags also use physical and logical styles to display text.
17. Design a webpage in DHTML using cascading style sheets (Use all attributes).
18. Create a webpage in DHTML using class in external style sheets.
19. Design a webpage for a College (Using Forms).
20. Design a webpage showing your biodata.

Course Designed By :Mrs.A.Kalaivani

Course Reviewed By :Ms.N.Sathyapriya

Checked By :Mrs.S.Shobana

B.Sc. Information Technology Semester III

Part III - Core III - Object Oriented Programming With C++ 315G03 (For the students admitted from the academic year 2015 – 2016

onwards)

Preamble:

[52 Hrs]

- C++ has emerged as the language of choice for most applications due to the speed portability and compactness of code.
- To inculcate an in-depth programming knowledge in OOPS.

Unit I:

[11 Hrs]

Principles of Object Oriented Programming - Beginning with C++: What is C++ - Applications of C++ - Structure of C++ program –Creating the source file-Compiling and linking.

Tokens, Expressions and Control Structures - Functions in C++

Unit II:
[11 Hrs]

Classes and objects: C Structures revisited-Specifying a class-Defining member functions-A C++ program with class-Making an outside function inline-Nesting of member functions-Private member functions-Arrays within a class-Memory allocation for classes-Static data members-Static member functions-Arrays of objects-Objects as function arguments-Friendly functions-Returning objects-const member functions-Pointers to members-Local classes.

Constructors and Destructors: Constructors- Parameterized Constructors-Multiple Constructors in class-Constructors with default arguments-Dynamic initialization of objects- Copy Constructor-Dynamic Constructors-Constructing two dimensional arrays-const objects-Destructors

Unit III:**[10 Hrs]**

Operator overloading and Type conversions: Defining Operator Overloading-Overloading Unary operators- Overloading Binary operators- Overloading Binary operators using Friends-Manipulation of Strings using Operators- Rules for overloading operators-Type conversion.

Inheritance: Extending classes: Defining derived classes-Single inheritance-Making a private member inheritable-Multi level Inheritance- Multiple Inheritance-Hierarchical Inheritance-[Hybrid Inheritance]-Virtual base classes- Abstract classes-Constructors in derived classes-Member classes: Nesting of classes.

Unit IV:**[10 Hrs]**

Pointers, virtual functions and polymorphism: Pointers to objects-this Pointers-Pointers to derived classes-Virtual functions- Pure virtual functions.

Managing console I/O operations: C++ Streams –C++ Stream classes-Unformatted I/O operations-Formatted Console I/O operations-Managing output with manipulators.

Manipulating Strings: Creating (String) Objects-Manipulating string objects-Relational Operations-String characteristics-Accessing characters in strings-Comparing and swapping.

Unit V:**[10 Hrs]**

Templates: Introduction –Class templates-Class templates with multiple parameters-Function templates-Function templates with multiple parameters-Overloading of template functions-Member function templates-Non-type template arguments.

Working with files: Classes for File stream operations-Opening and Closing a file-Detecting end -of - file- More about open(): File modes –File Pointers and their manipulations- Sequential Input and Output Operations-Updating a file: Random Access- Error handling during file operations-Command line arguments.

Exception handling: Basics of exception handling-Exception handling mechanism- Throwing mechanism-Catching mechanism-Rethrowing an Exception – Specifying Exceptions.

Book for Study:

E.Balagurusamy , “Object Oriented Programming with C++”, Tata McGraw Hill Publications, Fourth Edition, 6th Reprint 2009.

Book for Reference:

1.Robert Lafore , “Object oriented programming in Turbo C++” , Galgotia Publication.

2. Herbert Schildt, "The Complete Reference C++", Fourth Edition McGraw Hill
4. Spoken Tutorial Project (C++) as e-Resource for learning- IIT, Mumbai under national mission on education through ICT, MHRD, Government of India.

Course Designed By : Ms.N.Sathyapriya
Course Reviewed By : Ms.V.Vadivu
Checked By : Mrs.S.Shobana

B.Sc Information Technology
Semester III

Part III – Core IV – Data Structures and Algorithms 315G04

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble [65 Hrs]

- This paper enriches the students with knowledge in creating and analyzing algorithms.
- It also focuses on the storage mechanism of the data.

Unit I:

[13Hrs]

History of Algorithms – Definition, Structure and Properties of Algorithms- Development of an Algorithm- Data Structures and Algorithms- Data Structure – Definition and Classification.

Analysis of Algorithms: Efficiency of Algorithms - Apriori analysis- Asymptotic Notations – Time Complexity of an Algorithm using O Notation- Polynomial Vs Exponential Algorithms- Average, Best and worst Case Complexities- Analyzing Recursive programs.

Arrays: Array Operations – Number of elements in an Array – Representation of arrays in Memory – Applications.

Unit II:

[14 Hrs]

Stacks: Stack Operations.

Queues: Operation on Queues – Circular Queues – Other types of Queues.

Linked Lists: Singly Linked Lists – Circularly linked Lists- Doubly linked lists- Multiple Linked Lists.

Linked Stacks and Linked Queues: Operations on Linked Stacks and Linked Queues – Dynamic Memory Management and Linked Stacks – Implementation of Linked representations.

Unit III:

[13 Hrs]

Trees and Binary Trees: Trees: Definition and Basic Terminologies- Representation of Trees – Binary trees: Basic Terminologies and Types – Representation of Binary Trees – Binary Tree Traversals – Threaded Binary Trees.

Graphs: Definitions and Basic Terminologies- Representations of Graphs – Graph Traversals - Applications.

Binary Search Trees and AVL Trees: Binary Search Tree: Definition and Operations.

Unit IV:

[13 Hrs]

Hash Tables: Hash Table Structure – Hash Functions – [Linear Open Addressing] – Chaining.

File Organizations: Files – Keys – Basic File Operations – Heap or Pile Organisation – Sequential File Organisation – Indexed Sequential File Organisation – Direct File Organisation.

Unit V:

[12 Hrs]

Searching: Linear Search – Binary Search – Fibonacci search – Other Search Techniques.

Internal Sorting: Bubble sort – Insertion Sort – Selection sort – Merge sort - Quick sort – Heap sort – Radix sort.

External Sorting: External Storage Devices- Sorting with Tapes: Balanced Merge – Sorting with Disks: Balanced Merge.

Book for Study:

G A Vijayalakshmi Pai ,“ Data Structures and Algorithms – Concepts, Techniques and Applications” –Tata McGraw Hill Education Private Limited, New Delhi, Third Reprint 2009.

Book for Reference:

Ellis Horowitz, Sartaj Sahni, ”Fundamentals of Data Structures”, Galgotia Book House Pvt Ltd.

Course Designed By :MsG.Neelaveni

Course Reviewed By :Ms.V.Vadivu

Checked By :Ms.S.Shobana

B.Sc. Information Technology

Semester III

Part III- Core V – Operating System Concepts

315G05

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[65 Hrs]

➤ This paper is unique in presenting the students a comprehensive framework for the design, study and implementation of Operating Systems.

➤ Operating Systems is an exciting software area because the design of an Operating System exerts a major influence on the overall function and performance of the entire computer.

Unit I:

[13 Hrs]

Introduction: What Operating System Do - Computer system Organization- Computer system Architecture - Operating System structure - Operating System Operations - Process Management - Memory Management -Storage Management - Distributed Systems- Computing Environment.

System Structure: Operating System Services-User Operating System Interface - System Calls - Types of System Calls - System Programs-Operating System Structure- Operating System Debugging- System Boot.

Unit II:

[12 Hrs]

Process Concept: Process Concept –Process Scheduling-Operations on Processes - Interprocess Communication-Communication in Client Server Systems. Multithreaded Programming: Overview – Multithreading Models-Thread Libraries- Threading Issues-Operating System Examples.

Unit III:

[14 Hrs]

Process Scheduling: Basic Concepts – Scheduling Criteria-Scheduling Algorithm-Thread Scheduling. Deadlocks: System Model - Deadlock Characterization – Methods for Handling Deadlock-Deadlock Prevention- Deadlock Avoidance- Deadlock Detection- Recovery from Deadlock. Memory Management Strategies: Swapping Contiguous Memory Allocation- Paging- Segmentation- Example: The Intel Pentium.

Unit IV: [13 Hrs]

File- System: File Concept-Access Methods- Directory and Disk Structure- File System Mounting-File Sharing-Protection. Implementing File System: File System Structure – File System Implementation-Directory Implementation-Allocation Methods-Free Space Management.

Unit V: [13 Hrs]

System Protection: Goals of Protection- Principles of Protection-Domain of Protection-Access Matrix-Implementation of Access Matrix-Access Control-Capability Based Systems.

Case Study: System Security: The security Problem-Program Threads-System and Networks Threats- User Authentication.

Book for Study:

Abraham Silberschatz , Peter B.Galvin , Greg Gagne – “Operating System Concepts”, 8th Edition,2010 by John Wiley & Sons.

Book for reference:

3. H.M. Deitel, “Operating System”, Second Edition, Pearson Education incorporation.
4. Abraham Silberschatz & Peter Baer Galvin ,“Operating System Concepts”, 5th Edition Addison Wesley Longman, Inc.

Course Designed By :Mrs.G.Neelaveni

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

B.Sc. Information Technology

Semester III

Part III- Core Practical III– Object Oriented Programming with C++ 315GP3

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Programs:

:

[65 Hrs]

21. Program to find Armstrong number.
22. Program to perform overload Functions add(), sub() and multiply() that handle different data types.
23. Program to find the area of Circle, Rectangle and Square by using Inline Functions.
24. Program to implement Call by reference
25. Program to demonstrate Employee details using classes and array of objects.
26. Program to display the student details using Constructor and Destructor.
27. Program using single inheritance.
28. Program for Payroll processing using Multiple Inheritance.
29. Program using virtual functions and pointers.
30. Program to implement Stack Operation.
31. Program to implement Bubble Sort.
32. Program for reading and writing to the text file.
33. Program to illustrate the concept of Templates.
34. Program to implement Queue Operations.
35. Program to implement Binary Search.
36. Program to illustrate the concept of Friend Function.
37. Program to implement Operator Overloading.
38. Program to implement Quick Sort.
39. Program for exception handling.
40. Program using singly linked list.

Course Designed By : Ms.N.Sathyapriya
Course Reviewed By :Ms.V.Vadivu
Checked By :Mrs.S.Shobana

**B.Sc. Information Technology
Semester III**

**Part IV- Skill Based Course I: Multimedia – Image Designing and Graphics Tool
315GS1**

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[35 Hrs]

This paper gives an idea to create brochures, flyers, newsletters, reports and a variety of other professional-quality documents used for business or educational purposes.

List of Programs:

Image Designing Tool

14. Create a program to work with layers.
15. Create a program using drawing tools.
16. Create a program to import images and apply image effects.
17. Design a program using text tool and apply various format and styles.
18. Create a program for transformation of an object and text.
19. Create a program to work with frames.
20. Create a program for converting text to outlines and to image frame.
21. Graphics Tool
22. Create a program using drawing tools.
23. Create a logo using various tools.
24. Create an invitation for an Inter Collegiate competition.
25. Create a program using Text tool.
26. Create a Banner using Multiple layers.

Course Designed by : Mrs. A. Kalaivani

Course Reviewed by : Mrs. N. Sathyapriya

Course Checked by : Mrs. S. Shobana

**UG Courses
Semester III**

**Part IV – Non Major Elective Course I – 2D Animation-Practical -
315NTA**

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[26Hrs]

This paper emphasize the basics of Image Editing tool to create, edit and composite images and gives an idea on basics of creating different animation effects like tweening, key frame animation.

List of Programs:

Image Editing Tool

7. Design a program to import images and make adjustments.
8. Create a program using clone stamp and healing brush tool.
9. Create a program using Blur, Sharpen, Dodge and Burn tools.
10. Design a program using text, transform and re touching tools.
11. Create a program by filter option.
12. Design the program using layers.

Animation Tool

7. Design scenery using various tools.
8. Design an animation using Frame by Frame Animation.
9. Create a pendulum using Motion Tweening.
10. Create an Album with the help of Buttons.
11. Create folders in the library and add different symbols like doors, windows, roof, walls with different colors etc to the folders. Using those symbols assemble different types of houses.
12. Create a simple story using key frame animation.

Course Designed by : Mrs. R. Nandhini

Course Reviewed by : Mrs. N. Sathyapriya

Course Checked by : Mrs. S. Shobana

B.Sc. Information Technology

Semester IV

Part III-Core VI- .NET Programming

415G06

(For the students admitted from the academic year 2015 – 2016 onwards)

[52 Hrs]

Preamble:

.NET is a Microsoft operating system platform that incorporates applications and a suite of tools and services.

- Students can produce software by combining their own source code with .NET Framework and other libraries. .

Unit I :

[10 hrs]

Introduction To Programming – Getting Started With Visual Basic 2005 – Object Oriented Programming.

Unit II :

[10 hrs]

Windows Forms – Label , Textbox , Button , Combobox And Listbox Controls – Checkbox , Radiobutton And Groupbox Controls.

Unit III :

[11 hrs]

Panel , PictureBox , Progress Bar And Timer Controls – Menus ,Built-In Dialog Boxes , Printing , And Treeview Controls – Mouse Events And Keyboard Events – Handling Errors And Exceptions.

Unit IV : [11 hrs]

ASP.NET 2.0 Essentials – Developing A Web Application – Standard Controls – Navigation Controls – Validation Controls.

Unit V : [10 hrs]

Login Controls – Working With Database : ASP.NET 2.0 Data Display Controls - Accessing Data Using ADO.NET : What Are Database : Working With ADO.NET : Overview Of ADO.NET Objects – Datagrid View Control –Accessing Data Using Server Explorer – Creating A New Data Connection – Accessing Data Using Data Adapters And Datasets – Previewing Data From Data Adapters – Connecting To An MS Jet Database. Data Binding.

Book for study :

Vikas Gupta, “.NET PROGRAMMING”, Kogent Solutions Inc edition ,Dreamtech press, 2007

Books for Reference:

3. Kogent Solutions Inc “.NET 4.5 programming, BLACK BOOK”, Dreamtech press 2013.
4. Matthew MacDonald ASP.NET “complete reference” Tata McGraw – hill edition 2002, second reprint 2003.

Course Designed by: Ms.B.Kalaivani

Course Reviewed by: Ms.V.Vadivu

Course Checked by: Ms.S.Shobana

B.Sc. Information Technology

Semester IV

Part III -Core VII- Database Management Systems 415G07

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: [65 Hrs]

- Database systems are designed to manage large bodies of information.
- This paper provides commercial applications development using oracle products.

Unit I: [12 Hrs]

Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages.Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams - Denormalization –Example of Normalization.

Unit II: [13 Hrs]

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Unit III: [14 Hrs]

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – [Sorting] – Revisiting Substitution Variables – DEFINE

command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

Unit IV: [14 Hrs]

A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. control Structures and Embedded SQL: Control Structures – Nested Blocks –SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes –Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

Unit V: [12 Hrs]

PL/SQL Composite Data Types: Records – Tables –Varrays. Named Blocks: Procedures – Functions – Packages –Triggers –DataDictionary Views.

Books for Study:

Nilesh Shah, “Database Systems Using Oracle”–2nd edition, PHI, 2005.

Books For Reference:

3. Silberschatz , Korth , Sudarshan , “Data base concepts” , Fourth Edition McGraw Hill International Edition.
4. Bipin C. Desai, “An Introduction to database System” Galgotia Publication Pvt-Ltd.

Course Designed By : Ms.G.Neelaveni

Course Reviewed By: Ms.V.Vadivu

Checked By : Ms.S.Shobana

B .Sc Information Technology

Semester - IV

Part III -Core VIII - Computer Networking and the Internet 415G08

(For the students admitted from the academic year 2015 – 2016 onwards)

[65 Hrs]

Preamble:

To study the functions of different layers.

- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks

Unit I : [12 Hrs]

Data Communications and Networking Basics: Overview – Application and Networking terminology – Digital communications basics – Protocol basics – Protocol Stacks.

Unit II: [14 Hrs]

Telephone Networks and modems: Introduction – Transmission Systems: Analog Subscriber lines , PSTN Modems , Digital Subscriber Lines – Access Network Signaling – Trunk Network Signaling – Broadband Modems – Internet Service Providers.

Local Area Networks and Intranets: Introduction – LAN Interconnection Technologies – High Speed LANs – Virtual LANs – LAN Protocols – Multisite LAN Interconnection Technologies.

Unit III: [13 Hrs]

The Internet Protocol: Introduction – IP Datagram – Fragmentation and reassembly – Routing Algorithms – Routing in the Internet: Internet Structure and Terminology , Multicast Routing , M-Bone , Mobile IP.

Transport Protocols: Introduction – TCP/IP Protocol Suite – TCP: User Services, Protocol Operation – UDP – RTP and RTCP - Wireless TCP.

Unit IV: [13 Hrs]

Internet Applications: Introduction – Domain Name System – Electronic Mail – Internet Telephony – SNMP

Wireless Networks: Introduction- Bluetooth – Cellular Radio Networks.

Unit V : [13 Hrs]

Entertainment Networks: Introduction- cable Television Networks – Satellite Television Networks.

Case Study:The World Wide Web: Introduction – Overview – URLs and HTTP – Audio and Video – Wireless Web – Web Operation.

Book for Study:

Fred Halsall, Lingana Gouda Kulkarni, “Computer Networking and the Internet”,
Edition-2011, Pearson Education

Book for Reference:

Andrew S. Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi – IV Edition, 2003.

Course Designed By :Ms.V.Vadivu
Course Reviewed By :Ms.G.Neelaveni
Checked By :Mrs.S.Shobana

B.Sc. Information Technology

Semester IV

Part III-Core Practical IV - .NET Programming 415GP4

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Programs: [65 Hrs]

VB.NET

19. Implement the font application using VB.Net.
20. Develop the notepad application using VB.Net.
21. Create a program for the application of simple calculation using VB.Net.
22. Write a code for the manipulate of file such as send and write.
23. Display the employee details and calculate payroll using Adobe control.

24. ASP.NET

25. A website for employee payroll calculation. Get basic pay as input from the user and to display the net and gross pay by calculating allowances and deductions.
26. A website for job seeker registration and to get the user data as input. Validate the data using validator controls and display the welcome page.
27. A website for Tamilnadu tourism. Get user data like name, country and occupation as input using cookies and query string.
28. A webpage that contains adrotator control with and without key word filter concept.
29. A webpage that can perform file uploading using the file upload control and store the file in a temporary folder.

30. A website to verify the login user and password using data base connectivity.

31. DBMS

32. Create a Table for inserting Customer details and Perform Update, Select, Delete Operations in the Table.

33. Create two tables with relevant details and implement the Integrity Constraints.

34. Write a PL/SQL program for student database and calculate the Total, Average and Result using cursor.

35. Create a program using triggers.

36. Create a program to raise an exception if the actual sales are less than the target sales. If sales condition is satisfied, calculate commission.

Course Designed by : Ms.B.Kalaivani

Course Reviewed by: Ms.G.Neelaveni

Course Checked by : Ms.S.Shoban

B .Sc Information Technology

415GS2

Semester IV

Part IV- Skill Based Course II: Multimedia – Image Editor

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[35 Hrs]

To learn the basics of Image Editing tool to create, edit and composite images that can be used on Web sites and as graphics for movies.

List of Programs:

1. Create a program using drawing tools.
2. Create a GIF Animation.
3. Design a 3D text.
4. Create a program by using clone stamp tools.
5. Create a program by using Transformation tools.
6. Design a program using Paint Tools.
7. Create a program using lighting effects and difference clouds.
8. Create type masking.
9. Create a program by filter option.
10. Design the program using multiple layers.
11. Use a heal brush tool and make changes in an image.
12. Design a college prospectus.

Course Designed by : Mrs. G. Neelaveni

Course Reviewed by : Mrs. N. Sathyapriya

Course Checked by : Mrs. S. Shobana

B .Sc Information Technology

Semester-V

Part III - Core IX – JAVA Programming

515G09

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[52 Hrs]

- The students can develop their programming skills in GUI applications.

- Java is one of the popular programming languages for developing consumer electronic devices.
- It is an object-oriented language that enables students to create real world applications.

Unit I: [10 Hrs]

Overview of JAVA Language - Constants, Variables and Data Types- Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Unit II: [10 Hrs]

Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes Together - Multithreaded Programming.

Unit III: [10 Hrs]

Managing Errors and Exceptions – Applet Programming – Graphics Programming-Managing Input/output files in JAVA.

Unit IV: [12 Hrs]

Introducing the AWT: Working with graphics-Using AWT Controls, Layout Managers

Unit V: [10 Hrs]

Java Beans-Introducing Swing-Exploring Swing.

Books for study:

- 1 E. Balagurusamy, "Programming with JAVA A Primer", Tata McGraw Hill Publishing Company Limited, New Delhi, 4th Edition.
- 2 Herbert Schildt, "JAVA The Complete Reference", Tata McGraw Hill Publishing Company Limited, New Delhi, 7th edition.

Book for Reference :

4. Herbert Scheldt , "JAVA 2 The Complete Reference" , The Tata McGraw Hill Publishing Company Ltd, New Delhi, Fifth Edition.
5. Steven Holzner, "JAVA 2 , Swing , Servlets , JDBC and JAVA Beans Programming Black Box", Dream Tech Press, New Delhi.
6. Spoken Tutorial Project (C) as e-Resource for learning- IIT, Mumbai under national mission on education through ICT, MHRD, Government of India.

Course Designed by : Mrs.V.Vadivu
 Course Reviewed by: Ms.N.Sathyapriya
 Course Checked by : Ms.S.Shobana

B.Sc Information Technology

Semester V

Part III - Core X-Software Engineering and Testing Tools

515G10

(For the students admitted from the academic year 2015 – 2016 [65 Hrs]

onwards)

Preamble:

To improve the quality of software products and to increase the productivity and job satisfaction of software engineers.

- It is a systematic approach for development, operation and maintenance of software.
- Gaining confidence in and providing information about the level of quality

Unit I: [15 Hrs]

Introduction: What is software?-Characteristics of Software-Evolution of Software for Business-Generations of Computers – Programming Languages-Paradigm Shift in Programming Techniques-Software crisis and Emergence of

Software Engineering-Core Aspects of Software Engineering-Salient Features of Software Development. Software Development Process-Software Requirement Engineering-Software Design Approaches.

Unit II: [13 Hrs]

Structured Analysis-Structured Design-Object –Oriented Concepts and Principles: Relationships-Some More Concepts-Modeling Techniques-The Unified Approach to Modeling-Unified Modeling Language.

Unit III: [13 Hrs]

Object-oriented Analysis-Object-oriented Design- Case Study : User Interface Design-Coding and Documentation.

Unit IV: [12 Hrs]

Software Project Estimation. Software Project Management-Software Quality Management-Web Engineering.

Unit V: [12 Hrs]

Software testing process : Psychology of Testing – Verification and Validation – Testing Team and Development Team – Cost of Quality – Characteristics of Test Engineers – Why testing is difficult – Levels of Testing. Types of testing: white box testing-black box testing-Win runner-LoadRunner

Book for Study:

1. Jibitesh Nishra, Ashok Mohanty, “Software Engineering”, Edition – 2012, Pearson Education.
- 2 Dr.K.V.K.K.Prasad,.”Software Testing Tools”, Edition-2010, Dream Tech

Book for Reference:

1. Roger S.Pressman, “Software Engineering:A Practitioner’s Approach”, Sixth Edition, McGraw Hill International Edition-2005.
- 2 Srinivasan Desikan, Gopalaswamy Ramesh.”Software Testing Principles and Practices”, Pearson Education,2009

Course Designed by : Ms.V.Vadivu
Course Reviewed by: Ms.B.Kalaivani
Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester V

Part III – Core XI –Cloud Computing 515G11

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- Learning About Cloud Types, Understanding The Paradigm Shift That Is Cloud Computing, Benefits Of Cloud Computing
- Understanding Service and Applications by its type, how to Work with Cloud –Based Storage

UnitI : [15 Hrs]

Defining Cloud Computing: Defining Cloud Computing-Cloud Types-Examining the Characteristics of Cloud Computing. Assessing the Value Proposition: Measuring the Cloud’s Value- Avoiding Capital Expenditures - Computing the Total Cost of Ownership –Specifying Service Level Agreements-Defining Licensing Models. Understanding Cloud Architecture: Exploring the Cloud Computing Stack-Connecting to the Cloud.

Unit II :**[14 Hrs]**

Understanding Services and Applications by Type: Defining Infrastructure as a Service (IaaS)-Defining Platform as a Service (PaaS)-Defining Software as a Service (SaaS)-Defining Identity as a Service (IDaaS)-Defining Compliance as a Service (CaaS). Using Platforms: Understanding Abstraction And Virtualization: Using Virtualization Technologies –Load Balancing and Virtualization-Understanding Hypervisors-Understanding Machine Imaging-Porting Applications. Exploring Platform as a Service: Defining Services-Using PaaS Application Frameworks.

Unit III :**[16 Hrs]**

Using Amazon Web Services: Understanding Amazon Web Services-Amazon Web Service Components and Services-Working with the Elastic Compute Cloud (EC2)-Working With Amazon Storage Systems-Understanding Amazon Database Services. Using Microsoft Cloud Services: Exploring Microsoft Cloud Services-Defining the Windows Azure Platform-Using Windows Live.

Unit IV :**[15 Hrs]**

Understanding Cloud Security: Securing the Cloud-Securing Data-Establishing Identity and Presence. Understanding Service Oriented Architecture: Introducing Service Oriented Architecture-Defining SOA Communications-Managing and Monitoring SOA-Relating SOA and Cloud Computing. Moving Applications to The Cloud: Applications in the Clouds-Applications and Cloud APIs.

Unit V :**[15 Hrs]**

Working With Cloud-Based Storage: Measuring The Digital Universe-Provisioning Cloud Storage-Exploring Cloud Backup Solutions
Case Study: The Mobile Cloud

Book For Study:

Barrie Sosinsky ,“Cloud Computing bible” Wiley India Pvt Ltd, Reprint:2013

Book For Reference:

1.Rajkumar Buyya, Christian Vecchiola, S.Thamarai Selvi, “Mastering Cloud Computing”, Published by Tata McGraw Hill Education Pvt Ltd, India 2009.

2. Gautam Shroff, ”Enterprise Cloud Computing”, Reprinted 2011,2014 , Cambridge

University press, Printed in India at India Binding House,Noida.

Course Designed by : Ms.G.Neelaveni

Course Reviewed by: Ms.B.Kalaivani

Course Checked by : Ms.S.Shobana

B .Sc Information Technology**Semester-V****Part III-Core Practical V – JAVA Programming and Software Testing 515GP5**

(For the students admitted from the academic year 2015 – 2016 onwards)

List of Programs:**[75 Hrs]****JAVA Programming**

13. Program to generate pascal triangles.
14. Create the multiplication table using arrays.
15. Create a program for manipulating strings.
16. Program using Multithreading.
17. Program to implement employee payroll processing using packages.

18. Generating advertisements using Applets.
19. Program for simple calculator using AWT.
20. Create a program using graphics.
21. Count the number of words, characters, digits, alphabets, special characters and white spaces in a file.
22. Program to implement interfaces.
23. Program to display personal information using swings.
24. Create a java bean program for button control.

Software Testing

11. To prepare an analog recording using win runner tool.
12. To test the standard calculator application using win runner tool.
13. To test the login form in the visual basic using win runner tool.
14. To test batch processing using win runner tool.
15. To test the bitmap check point using win runner tool.
16. To Create a Bitmap Check Point for Screen Area
17. To test the insert function using win runner tool.
18. To test whether the recorded actions works for a set of data by using win runner tool.
19. To creating Vuser Scripting using visual user generator.
20. To Creating virtual users using loadrunner controller.

Course Designed by : Ms.V.Vadivu
 Course Reviewed by: Ms.B.Kalaivani
 Course Checked by : Ms.S.Shobana

B.Sc. Information Technology Semester V

Part III- Elective I – Computer Graphics 515GE1

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- To give students practical experience in the production of 2D computer animation.
- To provide students with an understanding of the algorithms and theories that forms the basis of computer graphics and modeling.
- To give students skills necessary in the production of 3D models, lighting and rendering

Unit I:

[14 Hrs]

Overview of Graphics Systems: Video Display Device-Raster Scan System-Random Scan System – Graphics Monitors and workstations-Input devices-Hard Copy devices. Output Primitives: Points and Lines - DDA - Bresenham's Line Algorithm-Circle Generating Algorithm –Ellipse Generating Algorithm.

Unit II:

[16 Hrs]

Two Dimensional Geometric Transformations: Basic Transformations-Matrix Representations and Homogeneous Coordinates- Composite Transformations –Other Transformation– Two Dimensional Viewing: The viewing pipeline-Viewing Coordinate reference frame-Window to view point coordinates-Clipping operations, point clipping, line clipping: Cohen-Sutherland line clipping, Polygon clipping: Sutherland-Hodgeman Polygon clipping, Curve Clipping, Text Clipping.

Unit III:

[15 Hrs]

Three Dimensional Concepts – Three Dimensional Object Representations: Polygon Surfaces – Curved Lines and Surfaces – Quadric Surfaces – Super Quadrics - Blobby objects – Spline Representations-Fractal-Geometry Methods: Fractal Generation Procedures-Classification of Fractals-Fractal Dimensions.

Unit IV:

[15 Hrs]

Three Dimensional Geometric and Modeling Transformations: Translation-Rotation-Scaling –Other Transformation. Three Dimensional Viewing: Viewing Pipeline-Viewing Co-Ordinates- Projections..

Unit V:

[15 Hrs]

Visible–Surface Detection Methods: Classification of Visible – Surface Detection Algorithms-Back face Detection- Depth –Buffer Method- A-Buffer Method-Scan Line Method-Depth Sorting Method. Computer Animation.

Book for Study:

Donald Hearn, M.Pauline Baker, “Computer Graphics”, Prentice-Hall India Private Limited Second Edition, 2007.

Book for Reference:

Madusu Hanmandlu,”Computer Graphics”,BPB Publications, 2010.

Course Designed by : Ms.V.Vadivu

Course Reviewed by : Ms.G.Neelaveni

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester V

Part IV- Skill Based Course III: Multimedia – Animation

515GS3

(For the students admitted from the academic year 2015- 2016 onwards)

Preamble:

[35 Hrs]

This paper gives an idea on basics of creating different animation effects like tweening, morphing, audio and video.

List of Programs:

13. Draw scenery using Oval, Circle, Rectangle and Pencil tools [use Straight Smooth and Freeform lines].
14. Create a program using text tool and apply different effects.
15. a) Draw a 3D Ring.
b) Create a 3D Tunnel.
16. Create a program with cartoon effects.
17. Create a animated button with a gradient in the up state and a text over it.
18. Create folders in the library and add different symbols like eyes, head, nose, mouth etc to the folders. Using those symbols assemble different types of faces.
19. Draw a pendulum using motion tweening.
20. Convert a ball to a rectangular box using shape tweening (Morphing).
21. Create a program and apply filter option.

22. Create a program using Action Script.
23. Design a scene and add audio, video effect.
24. Create a movie with multiple scenes.

Course Designed by : Mrs. N. Sathyapriya

Course Reviewed by :Mrs. G. Neelaveni

Course Checked by : Mrs. S. Shobana

B.Sc. Information Technology

Semester VI

Part III- Core XII – PHP and Python Programming 615G12

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[65 Hrs]

- Gaining knowledge in Object Oriented Programming paradigm with python, studying about objects, inheritance of the open source language python.
- PHP is an object-oriented open source language that enables students to create real world applications.

UnitI :

[11 Hrs]

Welcome To Python: What Is Python?- Origins- Features-Downloading and installing Python-Running Python-Python Documentation-Comparing Python-Other Implementations. Getting Started :Program Output ,the print Statement, and “Hello World!”-Program Input and the raw_input() Built-in Function-Comments –Operators-Variables and Assignment-Numbers-Strings –Lists and Tuples.Python Basics:Statements and Syntax- Variable Assignment-Identifiers-Basic Style Guidelines –Memory Management.

UnitII :

[13Hrs]

Conditionals And Loops: if Statement-else statement- elif(aka else- if) statements-Conditional Expressions(aka “the Ternary Operator”)-while Statement-for Statement-break Statement-continue Statement-pass Statement-else Statement..Take Two-Iterators and the iter() function.Files And Input/Output:File Objects-File Built-in Functions[open() and file()]-File Built-in Methods-File Built-in Attributes-Standard Files-Command-Line Arguments-File System-File Execution.Errors And Exceptions:What Are Exceptions?-Exceptions in Python-Detecting and Handling Exceptions.

UnitIII:

[13Hrs]

Functions And Functional Programming:What Are functions?-Calling Functions-Creating Functions-Variable Scope-*Recursion. Object-Oriented Programming: Object-Oriented Programming -Classes-Class Attributes-Instances-Instance Attributes-Binding and Method Invocation-Static Methods and Class Methods-Composition-SubClassing and Derivation-Inheritance.

UnitIV:

[15Hrs]

Introduction- Strings: Matching Patterns (Regular Expressions)- Checking the Spelling of a word- Matching Similar Strings- Counting the Number of times certain words Appear. Numbers: Retrieving a Number from a string- Converting Numbers into Roman numerals- Calculating Interest- Temperature Conversion. Time and Date: Calculating the Difference Between two dates- Leap year calculation- Determining Number of business days- Generating a calendar for a given month. Variables: Determining whether a Variable is equal to another- Accessing a

Variable outside a Function, from Within it (global Variables)- keeping a persistent Value Within a Function (static Variables)- having one Variable refer to another (references)- Using a Variable to hold the name of another Variable- declaring a constant instead of a Variable. Functions-Classes and Objects.

Unit V:

[13Hrs]

Files and directories: Generating a full Directory Listing, natural display of File sizes, Renaming all Files Within a Directory, search for File names Within a Directory tree, Handling relative and absolute File paths, reading a File via HTTP or FTP, Watching the contents of a File as it grows (Simulating UNIX tail-f), Generating a difference report Between two Files, locking a File for exclusive use, catching remote Files locally, compressing and uncompressing Files, Automatically including certain Files from the parent tree. Relational Databases: Communicating With MySQL- Communicating With Oracle- Communicating With Sybase- Communicating With Microsoft SQL server- Communicating With Databases through ODBC. User Authentication and Encryption: Generating Random Passwords- Using Encryption to Protect Data- Simple CAPTCHA for Real User Detection- Authenticating Users.

Book for study:

1. Wesley J. Chun, "Core Python Programming", Pearson education Inc. 2nd Edition, 6th impression, 2012. (Unit I, II, III).

2. Elliott White III, Jonathan D. Eisenhamer "PHP 5 IN PRACTICE", Pearson education Inc. 1st impression, 2007. (Unit IV, V).

Book for reference:

1. Peter Norton, Alex Samuel, David Aitel, Eric foster-Johnson, Leonard Richardson, Jason Diamond, Aleatha Parker, Michael Roberts. Edition 2005, Printed at: Unique color carton offset printers.

2. Julie meloni, Matt Telles, PHP6

Course Designed by : Ms. G. Neelaveni

Course Reviewed by: Ms. V. Vadivu

Course Checked by : Ms. S. Shobana

B.Sc Information Technology

Semester -VI

Part III-Core XIII –Cryptography and Network Security 615G13

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble:

[75 Hrs]

- To gain the basic knowledge about the Cryptography and Network Security Protocols and technology
- To know about the important network security tools and applications

Unit I:

[14 Hrs]

Introduction to the Concepts Of Security-Cryptography Techniques-Computer Based Symmetric Key Cryptographic Algorithms: Introduction-Algorithm Types and Modes-An Overview Of Symmetric-Key Cryptography-Data Encryption Standard (DES)-International Data Encryption Algorithm (IDEA).

Unit II:

[15 Hrs]

Computer –Based Asymmetric-Key Cryptography Algorithms: Introduction-An Overview Of Asymmetric-Key Cryptography-The RSA Algorithm- Symmetric – And Asymmetric-Key Cryptography-Digital Signatures-Knapsack Algorithm. Public Key Infrastructure (PKI): Introduction-Digital Certificates.

Unit III: [15 Hrs]
Internet Security Protocols:Introduction-Basic Concepts-Secure Socket Layer(SSL)-Transport Layer Security(TLS)-Secure Hypertext Transfer Protocol(SHTTP)-Secure Electronic Transaction(SET)-SSL Versus SET-3-D Secure Protocol.

Unit IV: [16 Hrs]
User-Authentication Mechanisms-Practical Implementations Of Cryptography/Security-Introduction-Cryptographic Solutions Using Java.

Unit V: [15 Hrs]
Network Security-Case study:Firewalls and Virtual Private Networks(VPN)

Book For Study:
Atul Kahate,"Cryptography and Network Security", 3rd Edition ,Published By McGraw Hill Education(India)Private Limited

Book For Reference :
1. William Stallings ,”Cryptography and Network Security”, Pearson Education,4th Edition.
2. William Stallings ,”Network Security Essentials-Applications and Standards”, Pearson Education Pvt Ltd,Third Indian Print,2005
Course Designed by : Ms.G.Neelaveni
Course Reviewed by: Ms.V.Vadivu
Course Checked by : Ms.S.Shobana

B.Sc. Information Technology Semester VI

**Part III – Core Practical VI – Open Source Programming 615GP6
(For the students admitted from the academic year 2015 – 2016 onwards)**

Listing of Programs [52 Hrs]
PHP

9. Write a program to perform string manipulation
10. Write a program to generate a calendar to a given month.
11. Write a program by using functions concepts.
12. Write a program by using class and objects.
13. Write a connectivity program with Oracle database.
14. Write a connectivity program through ODBC
15. Design a Program to Create (edit) the Blog Spots.
16. Write a program to create a Google Map.

Python

9. Write a program to implement command line arguments.
10. Write a program by using functional arguments.
11. Write a program to implement overloading operators.
12. Write a program to implement Classes.
13. Write a program to implement inheritance concept.
14. Write an Animated banner program.
15. Write a Simple calculator program.
16. Write a program to implement label, scale and button widgets.

Course Designed By : Ms.V.Vadivu
Course Reviewed By : Ms.G.Neelaveni
Checked By : Ms.S.Shobana

B.Sc. Information Technology

Semester VI

Part III - Elective II- Data Mining and Data Warehousing 615GE2 (For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: [75 Hrs]

- Data Mining is the process that results in the discovery of new patterns in large Data sets.
- The overall goal of the data mining process is to extract knowledge from an existing data set and transform it into a human-understandable structure for further use

Unit I: [14 Hrs]

Introduction: Basic Data Mining Tasks-Data Mining versus Knowledge Discovery in Databases-Data Mining Issues-Data Mining Metrics-Social Implications of Data Mining-Data Mining from a Database Perspective-Database/OLTP systems-Fuzzy Sets and Fuzzy Logic-Information Retrieval-Decision Support Systems-Dimensional Modeling-Data Warehousing-OLAP.

Unit II: [15 Hrs]

Data Mining Techniques: Introduction-Statistical perspective on data mining-Similarity measures- Decision trees- Neural Networks-Genetic Algorithm.

Clustering: Introduction-Hierarchical Algorithms: Agglomerative algorithm-Divisive Clustering-Partitional Algorithms ;Minimum spanning tree-Squared error clustering algorithm-K-Means clustering-Nearest neighbor algorithm-PAM algorithm-Bond energy algorithm-Clustering with genetic algorithm- Clustering with neural networks.

Unit III: [15 Hrs]

Association Rules: Introduction-Basic Algorithms: Apriori Alogrithm-Sampling algorithm- Partitioning

Advanced Association Rule Techniques: Generalized association rules-Multiple level association rules-Quantitative association rules-using multiple minimum supports-Correlation rules.

Unit IV: [16 Hrs]

Web Mining: Introduction-Web Content Mining: Crawlers- Harvest system-Virtual web view- Personalization. Web Structure Mining: Page rank-Clever. Web Usage Mining: Preprocessing-Data structures-Pattern discovery-Pattern analyses.

Spatial Mining: Introduction-Spatial data overview: Spatial Queries-Spatial data structures-Thematic maps-Image databases-Spatial Rules-Spatial Classification Algorithm-Spatial Clustering Algorithm: CLARANS Extensions- SD (CLARANS).

Unit V: [15 Hrs]

Data Warehousing: What is data warehouse?-System Process: Introduction-Overview-Typical process flow with in data warehouse-Extract and load process-Clean and Transform data-Backup and Archive process-Query management process.

Process Architecture: Introduction-Load manager-warehouse manager-query manager-Detailed information-Summary information-Meta Data-Data Marting.

Books for Study:

1. Margaret H.Dunham, S.Sridhar-“Data Mining-Introductory and Advanced Topics”, Pearson Education, Reprint 2008.[Module 1-IV]
2. Sam Anahory, Dennis Murray-“Data Warehousing in the Real World”, Pearson Education, Eleventh Indian reprint 2005.[Module V]

Book for Reference:

Pieter Adriaans, Dolf Zantinge,” Data Mining” , Pearson Education Ltd.,2009.

Course Designed By :Ms.V.Vadivu

Course Reviewed By :Mrs.T.Prasanthini

Checked By :Mrs.S.Shobana

B.Sc. Information Technology
Semester VI
Part III – Project and Viva Voce **615GPV**
(For the students admitted from the academic year 2015 - 2016 onwards)
Total Hours: 75

Preamble

- To inculcate research skills of the students.
- To enhance the application oriented learning

Project Plan

Selection of Topic and Data collections	- 1 1/2 Months
Rough Draft & Final Draft Submission	- 1 1/2 Months

B.Sc. Information Technology **615GS4**
Semester VI

Part IV- Skill Based Course IV: Multimedia– Authoring Tool

(For the students admitted from the academic year 2015 – 2016 onwards)

Preamble: **[35 Hrs]**

This paper induces to understand the fundamental concepts of digital video and introduces the techniques of video editing and enhancing.

List of Programs:

- 1.Create a program using Transformation effects.
- 2.Create a program using text and apply different effects.
- 3.Create a program for text to speech.
4. Create text and graphics for production titles.
5. Create a program using sequences.
6. Design a program by importing images as videos.
7. Create a program and apply filter option.
- 8 .Create a program to import video and apply blending and color correction.
9. Design a program to import audio file and apply effects.
- 10.Create a program and use artistic effects.
- 11.Create a program for batch file editor.
- 12.Create a movie with audio and video effects.

Course Designed by : Mrs.N. Sathyapriya

Course Reviewed by: Mrs.G.Neelaveni

Course Checked by : Ms.S.Shobana

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
 Affiliated to Bharathiar University
 Department of Information Technology
 Scheme of Examination – CBCS Pattern
 Programme: B.Sc.IT
 (For the students admitted from the academic year 2014 – 2015 only)

Semester	Title of the course	Examination				Credits
		Dur.Hrs.	CIA Marks	ESE Marks	ESE Marks	
I	Part I –Language I	3	25	75	100	3
	Part II – English I	3	25	75	100	3
	Part III Core I – Principles of Information Technology and Digital Fundamentals	3	25	75	100	4
	Core Practical I – Word Processing and Internet Lab	3	40	60	100	3
	Allied I- Principles of Accountancy	3	25	75	100	5
	Part IV - Environmental Studies	-	50	-	50	2
II	Part I -Language II	3	25	75	100	3
	Part II -English II	3	25	75	100	3
	Part III Core II-C Programming and Web Designing	3	25	75	100	4
	Core Practical II-C Programming and Web Designing Lab	3	40	60	100	3
	Allied II-Discrete Mathematics	3	25	75	100	5
	Part IV -Value Education	-	50	-	50	2
	Advanced Learner's Course I- Principles of Management	3	-	100	100	3*

Semester	Title of the course	Examination				Credits
		Dur.Hrs.	CIA Marks	ESE Marks	ESE Marks	
III	Part III Core III- Object Oriented Programming with C++	3	25	75	100	4
	Core IV- Data Structures and Algorithms	3	25	75	100	5
	Core V- Operating Systems	3	25	75	100	4
	Core Practical III – Object Oriented Programming with C++ Lab	3	40	60	100	2
	Allied III-Operations Research	3	25	75	100	5
	Part IV Skill Based Course Multimedia – Paper I- Page Maker and Corel Draw	-	100	-	100	3
	Non Major Elective Course I	-	75	-	75	2
IV	Part III Core VI - Visual Basic Programming	3	25	75	100	4
	Core VII-Relational Database Management Systems	3	25	75	100	4
	Core VIII- Computer Networks	3	25	75	100	4
	Core Practical IV - Visual Basic and RDBMS Programming Lab	3	40	60	100	3
	Allied IV- Enterprise Resource Planning	3	25	75	100	5
	Part IV Skill Based Course Multimedia – Paper II - Photoshop	-	100	-	100	3
	Non Major Elective Course II- General Awareness	-	75	-	75	2
	Part V – Extension Activities	-	50	-	50	1
	Advanced Learners Course II- Bioinformatics Computing	3	-	100	100	3*

Semester	Title of the course	Examination				Credits
		Dur.Hrs.	CIA Marks	ESE Marks	ESE Marks	
V	Part III Core IX-Java Programming	3	25	75	100	4
	Core X-Software Engineering	3	25	75	100	4
	Core XI- Microprocessor	3	25	75	100	5
	Elective I - Neural Networks and Fuzzy Logic	3	25	75	100	5
	Core Practical V- Java Programming Lab	3	40	60	100	3
	Part IV- Skill Based Course Multimedia –Paper III- Animation	-	100	-	100	3
VI	Part III Core XII-Embedded Systems	3	25	75	100	4
	Core XIII-Software Testing	3	25	75	100	4
	Core XIV-Information Security	3	25	75	100	4
	Elective II- Mobile Communications	3	25	75	100	5
	Project and Viva Voce	3	25	75	100	5
	Part IV Skill Based Course Multimedia – Paper IV- Authoring Tool	-	100	-	100	3
	Advanced Learners Course III- Client/Server Technology	3	-	100	100	3*

Total Credits
140

Starred Credits are treated as additional credits, which are optional.

Non Major Elective Course offered by the Department – 2D Animation Practical

30% of the syllabus in each course should be taught using OHP/LCD
& Seminar

B .Sc Information Technology
(For Candidates admitted from 2014 - 2015 and onwards)
Semester I **114GP1**
Part III – Core Practical I – Word Processing and Internet Lab

List of programs: [75 Hrs]

MS- Word

- 33. Prepare a Class Timetable
- 34. Prepare a Resume.
- 35. Publish Students' Results using Mail Merge.
- 36. Create a Newsletter.
- 37. Create a document using Macros.
- 38. Create a document and perform,
 - i. Aligning and Formatting
 - ii. Add Page Numbers, Date and Time
 - iii. Find and Replace.

MS- Excel

- 39. Create employee details using Sort and Filter.
- 40. Draw graph and Chart for Population Analysis.
- 41. Prepare a mark list of 5 subjects for a class and consolidate by using the formulae : Sum, Average, Max, Min, Count.
- 42. Prepare a sheet using date fill option, apply formatting styles and add Header and Footer.
- 43. Prepare a pivot table for student database.

MS- Power point

- 44. Prepare Power point slides regarding Sports Day (use Hyperlink).
- 45. Prepare slides using Custom Animation.
- 46. Prepare slideshow with different slide Transition and add Sound effects.

MS- Access

- 47. Prepare a Database maintaining stock in a shop with fields: sno, Product ID(Primary Key), Product Name, Quantity and Price.
- 48. Prepare a Database for Customer information and generate a report with Customer Name in ascending order.

Internet

- 17. Create an email account.
- 18. Post your resume to a job portal.

Hardware

- 19. Identify the parts in the CPU.
- 20. Format the system and install the OS.

Course Designed By :Ms.N.Sathyapriya

Course Reviewed By :Ms.G.Neelaveni

Checked By :Mrs.S.Shobana

B .Sc Information Technology
(For Candidates admitted from 2014 - 2015 and onwards)
Semester II **214G02**
Part III – Core II – C Programming and Web Designing

Preamble: [75 Hrs]

- C has emerged as the language of choice for most applications due to Speed, Portability and Compactness of Code.
- Learn the fundamentals of Ansi C programming and the standard C libraries.

- Module I:** [17 Hrs]
 Overview of C – Constants, Variables and Data Types – Operators and Expressions, Managing Input and Output Operations – Decision Making and Branching – Decision Making and Looping.
- Module II :** [17 Hrs]
 Arrays – Characters Array and Strings – User defined Functions.
- Module III:** [16 Hrs]
 Structures and Unions – Pointers – File Management in C.
- Module IV:** [15 Hrs]
 Internet Basics- Internet Basics –Introduction to HTML-Lists-Adding Graphics to HTML Documents-Tables-[Linking Documents]- Frames-Forms used by a Website.
- Module V :** [10 Hrs]
 Dynamic HTML:Cascading Style sheets- CLASS – Using the ... Tag- External Style Sheets- Using the <DIV>...</DIV> Tag.

Book for Study:

3. E.Balagurusamy, “Programming in Ansi C”, Tata McGraw Hill Publishing, V Edition, 2010.
4. Ivan Bayross, “Web Enabled Commercial Application Development Using HTML,JavaScript,DHTML and PHP”, BPB Publications,2005.

Course Designed By :Ms.V.Vadivu
 Course Reviewed By :Ms.N.Sathyapriya
 Checked By :Mrs.S.Shobana

B .Sc Information Technology
(For Candidates admitted from 2014 - 2015 and onwards)
Semester II 214GP2

Part III – Core Practical II – C Programming and Web Designing Lab

List of Programs: [75 Hrs]

C Programming:

31. Check whether the given year is leap year or not.
32. Program to find the Biggest of Three numbers.
33. Program to find the factorial of the given number.
34. Write a program to generate Fibonacci series.
35. Create a program to perform Matrix Addition.
36. Program to Construct a Pyramid of digits and Reverse the Pyramids.
37. Program to convert Decimal to Binary.
38. Solve a Quadratic equation for all types of roots.
39. Finding the number of Vowels, Consonants and white spaces in a string.
40. Write a program to sort numbers in ascending and descending order using arrays.
41. Write a program to perform String operation and check for Palindrome.
42. Write a program using Functions with arguments and return values.
43. Create a program for customer detail using Structure and Union.
44. Create a program by passing pointers as arguments to function to Add, Subtract, Multiply and Divide two numbers.
45. Create a program to receive a file name and the names of employees as command line argument and write the text to the File.

Web Designing:

21. Design a Web page with external and internal links and link between two frames.
22. Design a class timetable using HTML tags.
23. Design a web page using image and list tags also use physical and logical styles to display text.
24. Design a webpage in DHTML using cascading style sheets (Use all attributes).
25. Create a webpage in DHTML using class in external style sheets.
26. Design a webpage for a College (Using Forms).
27. Design a webpage showing your biodata using dreamweaver.

Course Designed By :Ms.V.Vadivu

Course Reviewed By :Ms.N.Sathyapriya

Checked By :Mrs.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014- 2015 and onwards)

Semester - III 314G03

Part III - Core III - Object Oriented Programming With C++

Preamble:**[52 Hrs]**

- C++ has emerged as the language of choice for most applications due to the speed portability and compactness of code.
- To inculcate an in-depth programming knowledge in OOPS.

Module I:**[11 Hrs]**

Principles of Object Oriented Programming - Beginning with C++: What is C++ - Applications of C++ - Structure of C++ program –Creating the source file- Compiling and linking.

Tokens, Expressions and Control Structures - Functions in C++

Module II:**[11 Hrs]**

Classes and objects: C Structures revisited-Specifying a class-Defining member functions-A C++ program with class-Making an outside function inline- Nesting of member functions-Private member functions-Arrays within a class-Memory allocation for classes-Static data members-Static member functions-Arrays of objects-Objects as function arguments-Friendly functions-Returning objects-const member functions-Pointers to members-Local classes.

Constructors and Destructors:Constructors- Parameterized Constructors-Multiple Constructors in class-Constructors with default arguments-Dynamic initialization of objects- Copy Constructor-Dynamic Constructors-Constructing two dimensional arrays-const objects-Destructors

Module III:**[10 Hrs]**

Operator overloading and Type conversions: Defining Operator Overloading-Overloading Unary operators- Overloading Binary operators- Overloading Binary operators using Friends-Manipulation of Strings using Operators- Rules for overloading operators-Type conversion.

Inheritance: Extending classes: Defining derived classes-Single inheritance-Making a private member inheritable-Multi level Inheritance- Multiple Inheritance-Hierarchical Inheritance-[Hybrid Inheritance]-Virtual base classes- Abstract classes-Constructors in derived classes-Member classes: Nesting of classes.

Module IV:**[10 Hrs]**

Pointers, virtual functions and polymorphism: Pointers to objects-this Pointers-Pointers to derived classes-Virtual functions- Pure virtual functions.

Managing console I/O operations: C++ Streams –C++ Stream classes-Unformatted I/O operations-Formatted Console I/O operations-Managing output with manipulators.

Manipulating Strings: Creating (String) Objects-Manipulating string objects-Relational Operations-String characteristics-Accessing characters in strings-Comparing and swapping.

Module V:**[10 Hrs]**

Templates: Introduction –Class templates-Class templates with multiple parameters-Function templates-Function templates with multiple parameters-Overloading of template functions-Member function templates-Non-type template arguments.

Working with files: Classes for File stream operations-Opening and Closing a file-Detecting end -of - file- More about open(): File modes –File Pointers and their manipulations- Sequential Input and Output Operations-Updating a file: Random Access- Error handling during file operations-Command line arguments.

Exception handling: Basics of exception handling-Exception handling mechanism- Throwing mechanism-Catching mechanism-Rethrowing an Exception – Specifying Exceptions.

Book for Study:

E.Balagurusamy , “Object Oriented Programming with C++”, Tata McGraw Hill Publications, Fourth Edition, 6th Reprint 2009.

Course Designed By : Ms.N.Sathyapriya

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

B.Sc Information Technology**(For Candidates admitted from 2014 – 2015 and onwards)****Semester – III****314G04****Part III – Core Course IV – Data Structures and Algorithms****Preamble****[75 Hrs]**

- This paper enriches the students with knowledge in creating and analyzing algorithms.
- It also focuses on the storage mechanism of the data.

Module I:**[15Hrs]**

History of Algorithms – Definition, Structure and Properties of Algorithms-Development of an Algorithm- Data Structures and Algorithms- Data Structure – Definition and Classification.

Analysis of Algorithms: Efficiency of Algorithms - Apriori analysis-Asymptotic Notations – Time Complexity of an Algorithm using O Notation-Polynomial Vs Exponential Algorithms- Average, Best and worst Case Complexities-Analyzing Recursive programs.

Arrays: Array Operations – Number of elements in an Array – Representation of arrays in Memory – Applications.

Module II:**[14 Hrs]**

Stacks: Stack Operations.

Queues: Operation on Queues – Circular Queues – Other types of Queues. Linked Lists: Singly Linked Lists – Circularly linked Lists- Doubly linked lists-Multiple Linked Lists.

Linked Stacks and Linked Queues: Operations on Linked Stacks and Linked Queues – Dynamic Memory Management and Linked Stacks – Implementation of Linked representations.

Module III:

[18 Hrs]

Trees and Binary Trees: Trees: Definition and Basic Terminologies- Representation of Trees – Binary trees: Basic Terminologies and Types – Representation of Binary Trees – Binary Tree Traversals – Threaded Binary Trees.

Graphs: Definitions and Basic Terminologies- Representations of Graphs – Graph Traversals - Applications.

Binary Search Trees and AVL Trees: Binary Search Tree: Definition and Operations.

Module IV:

[14 Hrs]

Hash Tables: Hash Table Structure – Hash Functions – [Linear Open Addressing] – Chaining.

File Organizations: Files – Keys – Basic File Operations – Heap or Pile Organisation – Sequential File Organisation – Indexed Sequential File Organisation – Direct File Organisation.

Module V:

[14 Hrs]

Searching: Linear Search – Binary Search – Fibonacci search – Other Search Techniques.

Internal Sorting: Bubble sort – Insertion Sort – Selection sort – Merge sort - Quick sort – Heap sort – Radix sort.

External Sorting: External Storage Devices- Sorting with Tapes: Balanced Merge – Sorting with Disks: Balanced Merge.

Book for Study:

G A Vijayalakshmi Pai ,“ Data Structures and Algorithms – Concepts, Techniques and Applications” –Tata McGraw Hill Education Private Limited, New Delhi, Third Reprint 2009.

Course Designed By :Ms.D.Preetha

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014-2015 and onwards)
Semester III 314G05
Part III Core V - Operating Systems

Preamble:

[65 Hrs]

➤ This paper is unique in presenting the students a comprehensive framework for the design, study and implementation of Operating Systems.

➤ Operating Systems is an exciting software area because the design of an Operating System exerts a major influence on the overall function and performance of the entire computer.

Module I:

[13 Hrs]

Introduction: What Operating System Do - Computer system Organization- Computer system Architecture - Operating System structure - Operating System Operations - Process Management - Memory Management -Storage Management - Distributed Systems- Computing Environment.

System Structure: Operating System Services-User Operating System Interface - System Calls - Types of System Calls - System Programs-Operating System Structure- Operating System Debugging- System Boot.

Module II: [12 Hrs]

Process Concept: Process Concept –Process Scheduling-Operations on Processes -Interprocess Communication-Communication in Client Server Systems. Multithreaded Programming: Overview – Multithreading Models-Thread Libraries-Threading Issues-Operating System Examples.

Module III: [14 Hrs]

Process Scheduling: Basic Concepts – Scheduling Criteria-Scheduling Algorithm-Thread Scheduling. Deadlocks: System Model - Deadlock Characterization – Methods for Handling Deadlock-[Deadlock Prevention- Deadlock Avoidance- Deadlock Detection- Recovery from Deadlock]. Memory Management Strategies: Swapping Contiguous Memory Allocation- Paging- Segmentation-Example: The Intel Pentium.

Module IV: [13 Hrs]

File- System: File Concept-Access Methods- Directory and Disk Structure-File System Mounting-File Sharing-Protection. Implementing File System: File System Structure – File System Implementation-Directory Implementation-Allocation Methods-Free Space Management.

Module V: [13 Hrs]

System Protection: Goals of Protection- Principles of Protection-Domain of Protection-Access Matrix-Implementation of Access Matrix-Access Control-Capability Based Systems.

System Security: The security Problem-Program Threads-System and Networks Threats- User Authentication.

Book for Study:

Abraham Silberschatz , Peter B.Galvin , Greg Gagne – “Operating System Concepts”, 8th Edition,2010 by John Wiley & Sons.

Course Designed By :Mrs.D.Preetha

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014- 2015 and onwards)
Semester – III 314GP3
Part III Core Practical III– Object Oriented Programming With C++

List of Programs : [75 Hrs]

15. Program to find Armstrong number.
16. Program to perform overload Functions add(), sub() and multiply() that handle different data types.
17. Program to find the area of Circle, Rectangle and Square by using Inline Functions.
18. Program to implement Call by reference
19. Program to demonstrate Employee details using classes and array of objects.
20. Program to display the student details using Constructor and Destructor.

21. Program using single inheritance.
22. Program for Payroll processing using Multiple Inheritance.
23. Program using virtual functions and pointers.
24. Program to implement Stack Operation.
25. Program to implement Bubble Sort.
26. Program for reading and writing to the text file.
27. Program to illustrate the concept of Templates.
28. Program to implement Queue Operations.
29. Program to implement Binary Search.
30. Program to illustrate the concept of Friend Function.
31. Program to implement Operator Overloading.
32. Program to implement Quick Sort.
33. Program for exception handling.
34. Program using singly linked list.

Course Designed By : Ms.N.Sathyapriya

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

B.Sc. Information Technology

(For Candidates admitted from 2014- 2015 and onwards)

Semester III

314GS1

Skill Based Course Multimedia –Paper I- Page Maker and Corel Draw

List of Programs:

[35 Hrs]

Page Maker

8. Create a program to work with layers.
9. Create a program using drawing tools.
10. Create a program to import images and apply photoshop effects.
11. Design a Resume using text tool.
12. Create a program for transformation of an object and text.
13. Create a program to work with frames.
14. Create a program for masking a picture.

Corel Draw

15. Create a program using drawing tools.
16. Create a logo using various tools.
17. Create an invitation for an Inter Collegiate competition.
18. Create a program using Text tool.
19. Create a Banner using Multiple layers.

Course Designed By : Ms.N.Sathyapriya

Course Reviewed By :Ms.G.Neelaveni

Checked By :Mrs.S.Shobana

B.Sc. Information Technology

(For Candidates admitted from 2014- 2015 and onwards)

Semester III

314N2D

Part IV – Non Major Elective Course I Practical – 2D Animation

List of Programs:

[26 Hrs]

Photoshop:

13. Design a program to import images and make adjustments.
14. Create a program using clone stamp and healing brush tool.

15. Create a program using lasso and magic wand tools.
16. Design a program using text, transform and re touching tools.
17. Create a program by filter option.
18. Design the program using layers.

Flash:

19. Design a scenery using various tools.
20. Design an animation using Frame by Frame Animation.
21. Create a pendulum using Motion Tweening.
22. Create an Album with the help of Buttons.
23. Create folders in the library and add different symbols like doors, windows, roof, walls with different colors etc to the folders. Using those symbols assemble different types of houses.
24. Create a simple story using key frame animation.

Course Designed By : Ms.N.Sathyapriya

Course Reviewed By :Mrs.V. Vadivu

Checked By :Mrs.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014 - 2015 and onwards)

Semester IV 414G06

Part III-Core Course VI- Visual Basic Programming

Preamble: [52 Hrs]
 ➤ Visual Basic is one of the popular programming languages for GUI.
 ➤ The students can develop their programming skills in windows applications through this paper.

Module I: [10 Hrs]
 Visual Basic: Background-VB Forms: Data Entry Screens-VB Toolbox In-depth- Variables, Data types and User Defined Types.

Module II: [10 Hrs]
 Dialog Boxes, Conditional Statements and Loops- Modules, Arrays, Collections, Enums -Events: A Closer look-OLE.

Module III: [11 Hrs]
 [Menus, Control Arrays, Multiple Forms]- Advanced Active-X Controls- Windows common Controls: Animation, Updown, Monthview, Dtpicker, Windows Common Controls: Slider, Imagelist, Image Combo, Tool Bar, Status Bar.

Module IV: [11 Hrs]
 Database Creation, ODBC and DAO Programming: Database Creation Using Visdata-Tables Creation Using Visdata-ODBC Overview- DAO- Code Based approach to DAO: Including DAO Library Reference in project-Working with database object-Working with recordset object.

Module V: [10 Hrs]
 Database Programming: ADO and DED: ADO-OLE db Vs ODBC- DED- Adding the DED-ADO Data control- ADO Based Advanced Controls.
 Database Programming : Data Reports.

Books for Study:
 Sanjeev Sharma & Nandan Tripathi, “Visual Basic6”- Excel Books-First Edition 2009.

Course Designed by: Ms.V.Vadivu

Course Reviewed by: Ms.N.Sathyapriya

Course Checked by: Ms.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014 - 2015 and onwards)
Semester IV **414G07**

Part III Core Course VII-Relational Database Management System

Preamble: [65 Hrs]

- Database systems are designed to manage large bodies of information.
- This paper provides commercial applications development using oracle products.

Module I: [13 Hrs]

Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages.Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – Denormalization –Example of Normalization.

Module II: [13 Hrs]

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Module III: [13 Hrs]

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – [Sorting] – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

Module IV: [13 Hrs]

A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators.control Structures and Embedded SQL: Control Structures – Nested Blocks –SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes –Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

Module V: [13 Hrs]

PL/SQL Composite Data Types: Records – Tables –Varrays. Named Blocks: Procedures – Functions – Packages –Triggers –DataDictionary Views.

Books for Study:

Database Systems Using Oracle – Nilesh Shah, 2nd edition, PHI, 2005.

Course Designed By : Ms.G.Neelaveni
Course Reviewed By : Ms.D.Preetha
Checked By : Ms.S.Shobana

B .Sc Information Technology
(For Candidates admitted from 2014- 2015 and onwards)
Semester - IV **414G08**
Part III Core VIII - Computer Networks

Preamble: [65 Hrs]

- To study the functions of different layers.
- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks.

Module I: [12 Hrs]

Introduction: Uses of Computer Networks- Network Hardware – Network Software: Protocol Hierarchies- Design Issues for the Layers – Connection Oriented and Connectionless Services - Reference Models: The OSI Reference Model- The TCP/IP Reference Model.

Module II: [13 Hrs]

The Physical Layer: Guided Transmission Media-Wireless Transmission – The Public Switched Telephone Network: Structure of the Telephone System –Trunks and Multiplexing – Switching.

Module III: [13 Hrs]

The Data Link Layer: The Data Link Layer Design Issues - Error Detection and Correction – Elementary Data Link Protocols.

Module IV: [14 Hrs]

The Network Layer: Network Layer Design Issues: Store-and-Forward Packet Switching, Services Provided to the Transport Layer - Routing Algorithms: [Shortest Path Routing] – Flooding - Distance Vector Routing - Link State Routing - Hierarchical Routing - Broadcast Routing.

Module V: [13 Hrs]

The Transport Layer: The Transport Service - Elements of Transport Protocols: Addressing - Connection Establishment - Connection Release-Flow Control and Buffering.

The Application Layer: DNS –The Domain Name System, Electronic Mail.

Case Study: Presentation Layer.

Book for Study:

Andrew S. Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi – IV Edition, 2003.

Course Designed By :Ms.D.Preetha

Course Reviewed By :Ms.G.Neelaveni

Checked By :Mrs.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014- 2015 and onwards)
Semester IV **414GP4**

Part III-Core Practical IV Visual Basic and RDBMS Programming

List of Programs: [55 Hrs]

Visual Basic

1. Write a Program for Mouse Event Handling.
2. Write a Program to design a Calculator with Various Arithmetic Operators.
3. Write a Program for Text Manipulations (Changing Foreground, Background & Alignment).
4. Create a program for loading a Picture using Drive, Directory & File List Box controls.

5. Program for drawing various shapes and fill color using Scroll bar.
6. Design a form to display the List of Product by declaring Array.
7. Write a Program to create a student mark details using conditional statements.
8. Write a Program to develop an application using OLE Link Control.
9. Create a program using with menu bar and toolbar (New, Open, Save, Close, Color, Font & Font size).
10. Create a program using Windows Common Controls (Animation, Image list, Image Combo, Status bar).
11. Program for printing all combinations of 1,2,3,4,5,6.
12. Write a Program to develop an application for displaying Employee details using Database (Use ADO Control).
13. Prepare an application Program to enter the Customer Details using DAO control and generate the report.
14. Design an online quiz(use timer).

RDBMS

8. Create a Table for inserting Customer details and Perform Update, Select, Delete Operations in the Table.
9. Create two tables with relevant details and implement the Integrity Constraints.
10. Create a table student with fields register number and name and create another table Mark with fields register number, marks of 3 subjects. Merge these two tables and display the output.
11. Write a PL/SQL program for student database and calculate the Total, Average and Result using cursor.
12. Create a program using triggers.
13. Create a program to raise an exception if the actual sales are less than the target sales. If sales condition is satisfied, calculate commission.

Course Designed by: Ms.N.Sathyapriya

Course Reviewed by: Ms.V.Vadivu

Course Checked by: Ms.S.Shobana

B .Sc Information Technology

(For Candidates admitted from 2014-2015 and Onwards)

Semester IV

414GS2

Skill Based Course Multimedia –Paper II- Photoshop

List of Programs:

[35 Hrs]

1. Create a program using drawing and re touching tools.
2. Create a Gif transparency.
3. Design a 3D text.
4. Create a program by using clone stamp tools.
5. Create a program by using Transformation tools.
6. Create a program by lasso tool.
7. Create a program lighting effects and difference clouds.
8. Create type masking.
9. Create a program by filter option.
10. Design the program using multiple layers.
11. Use a heal brush tool and make changes in an image.
12. Design a college prospectus.

Course Designed By :Mrs.V.Vadivu

Course Reviewed By :Ms.N.Sathyapriya

Checked By :Mrs.S.Shobana

Part III - Core Course IX – JAVA Programming

- The students can develop their programming skills in GUI applications.
- Java is one of the popular programming languages for developing consumer electronic devices.
- It is an object-oriented language that enables students to create real world applications.

Overview of JAVA Language - Constants, Variables and Data Types-
Operators and Expressions- Decision Making and Branching- Decision Making and
Looping.

Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces:
Multiple Inheritance – Packages: Putting Classes Together - Multithreaded
Programming.

[Managing Errors and Exceptions] – Applet Programming – Graphics Programming-[Managing Input/output files in JAVA].

Introducing the AWT: Working with graphics-Using AWT Controls, Layout Managers, and Menus.

Java Beans-Introducing Swing-Exploring Swing.

1."Programming with JAVA A Primer", E. Balagurusamy, Tata McGraw Hill Publishing Company Limited, New Delhi, 4th Edition.

2."JAVA The Complete Reference", Herbert Schildt, Tata McGraw Hill
Publishing Company Limited, New Delhi, 7th edition.

Course Designed by: Mrs.V.Vadivu

Course Reviewed by: Ms.N.Sathyapriya

Course Checked by : Ms.S.Shobana

Part III - Core X-Software Engineering

- To improve the quality of software products and to increase the productivity and job satisfaction of software engineers.
- It is a systematic approach for development, operation and maintenance of software.

Introduction: What is software?-Characteristics of Software-Evolution of Software for Business-Generations of Computers – Programming Languages-Paradigm Shift in Programming Techniques-Software crisis and Emergence of Software Engineering-Core Aspects of Software Engineering-Salient Features of Software Development. Software Development Process-Software Requirement Engineering-Software Design Approaches.

- Module II:** [13 Hrs]
 Structured Analysis-Structured Design-Object –Oriented Concepts and Principles: Relationships-Some More Concepts-Modeling Techniques-The Unified Approach to Modeling-Unified Modeling Language.
- Module III:** [13 Hrs]
 Object-oriented Analysis-Object-oriented Design-User Interface Design-Coding and Documentation.
- Module IV:** [12 Hrs]
 Software Testing-Software Metrics-Software Project Estimation.
- Module V:** [12 Hrs]
 Software Project Management-Software Quality Management-Web Engineering.
- Book for Study:**
 “Software Engineering”, Jibitesh Nishra,Ashok Mohanty,Edition – 2012,Pearson Education.
 Course Designed by: Ms.N.Sathyapriya
 Course Reviewed by: Ms.D.Preetha
 Course Checked by : Ms.S.Shobana

B.Sc Information Technology
(For Candidates admitted from 2014 – 2015 and onwards)
Semester -V 514G11
Core Course XI – Microprocessor

- Preamble:** [75 Hrs]
 ➤ This paper deals with the basics of a Microprocessor.
 ➤ It provides a detailed reference to 8085 architecture.
 ➤ It also covers the introduction to 8086, 8088 and Pentium Onwards.
- Module I:** [15 Hrs]
 Basic Concepts : Wheel and the Microprocessor – What is a Microprocessor – 4-8-16-32A....- Evolution of Microprocessors - Organization of Microcomputers – Microprocessor Programming – Digital Logic – Timing Diagram Conventions. Data Representation.
- Module II:** [16 Hrs]
 Programming a Microprocessor: Introduction – Organization of the 8085 – Instruction set of the 8085 – Programming the 8085 – Assembler programming. Semiconductor memories: Introduction – Characteristics of Memories – Static RAMS – Dynamic RAMS – Reprogrammable ROMs – Memory System Reliability.
- Module III:** [16 Hrs]
 Microprocessor Timings: Introduction - Timing and Control Unit – Timings of Intel 8085 – Register Organization. Interfacing memory and I/O devices: Address space partitioning – Memory Interfacing – Data Transfer scheme – Direct memory access data transfer: Multiple DMA Services – DMA Transfer in an 8085 Based System- – Serial data Transfer.
- Module IV:** [15 Hrs]
 Interfacing Devices: Types of Interfacing devices – Address decoding for I/O – Input / Output Ports. Architecture and Programming of 8086 and 8088: Introduction- Organization of 8086 – Programming the 8086/8088 – Bus Structure and Timing of 8086 – Bus structure and Timing of 8088 – Exception Handling – Exception Handling in the 8086/8088.
- Module V:** [13 Hrs]
 Recent Advances in Microprocessor Architectures – A Journey from Pentium Onwards - Pentium 4 – Processor of the next millennium.

Book for Study :

1. Aditya P. Mathur – “Introduction to Microprocessors” III Edition, Tata McGraw Hill Publishers Company Ltd.,
2. A K Ray, K M Bhurchandi – “ Advanced Microprocessors and Peripherals” II Edition, Tata McGraw Hill Publishing Company Limited, New Delhi.

Course Designed by: Ms.G.Neelaveni

Course Reviewed by: Ms.D.Preetha

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

(For candidates admitted from 2014 – 2015 and onwards)

Semester – V

514GE1

Part III - Elective I- Neural Networks and Fuzzy Logic**Preamble:** [75 Hrs]

- This paper focuses on providing fundamental knowledge about Neural Networks.
- Various architecture of neural network on its areas of applications are highlighted.
- Relationship between Fuzzy set Crisp sets are understood through this paper.

Module I : [16 Hrs]

Neural Networks: Fundamentals of Neural Networks – Backpropagation Networks: Architecture of a Backpropagation Network – Backpropagation Learning – Effect of Tuning Parameters of the Backpropagation Neural Network – Selection of Various Parameters in BPN.

Module II : [15 Hrs]

Associative Memory : Autocorrelators – Heterocorrelators: Kosko's Discrete BAM. Adaptive Resonance Theory.

Module III : [13 Hrs]

Fuzzy Logic : Fuzzy Set Theory : Fuzzy versus Crisp – Crisp sets – Fuzzy sets – Crisp Relations – Fuzzy Relations.

Module IV : [14 Hrs]

Fuzzy Systems : Crisp Logic – Predicate Logic – Fuzzy Logic – Fuzzy Rule Based System - Defuzzification Methods.

Module V: [17 Hrs]

Genetic Algorithms : Fundamentals of Genetic Algorithms : Genetic Algorithms History – Basic concepts – Creation of Offsprings – Working Principle – Encoding – Fitness Function.

Hybrid Systems : Integration of Neural Networks, Fuzzy Logic and Genetic Algorithms.

Book for Study:

S. Rajasekaran, G.A. Vijayalakshmi Pai, “Neural Networks, Fuzzy Logic, and Genetic Algorithms- Synthesis and Applications” PHI Learning Pvt Ltd ,2011

Course Designed by: Ms.N.Sathyapriya

Course Reviewed by: Mrs.V.Vadivu

Course Checked by : Ms.S.Shobana

B .Sc Information Technology

(For Candidates admitted from 2014-2015 and onwards)

Semester-V

514GP5

Part III-Core Practical V – JAVA Programming Lab**List of Programs:** [75 Hrs]**JAVA Programming**

25. Program to find the sum of individual digits of a 10-digit numbers until a single digit is Produced.

26. Program to find whether the given number is divisible by 9.
27. Program to generate pascal triangles.
28. Create the multiplication table using arrays.
29. Create a program for manipulating strings.
30. Program using Multithreading.
31. Preparation of mark list using Inheritance.
32. Program to implement employee payroll processing using packages.
33. Generating advertisements using Applets.
34. Program for simple calculator using AWT.
35. Create a program using graphics.
36. Count the number of words,characters,digits,alphapets,special characters and white spaces in a file.
37. Program to implement interfaces.
38. Program to display personal information using swings.
39. Create a javabeen program for button control.

Course Designed by: Mrs.V.Vadivu

Course Reviewed by: Ms.N.Sathyapriya

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester V

Part IV - Skill Based Course Multimedia – Paper III – Animation

514GS3

(For the students admitted during the academic year 2014- 2015 only)

Preamble:

[35 Hrs]

This paper gives an idea on basics of creating different animation effects like tweening, morphing, audio and video.

List of Programs:

1. Draw scenery using Oval, Circle, Rectangle and Pencil tools [use Straight Smooth and Freeform lines].
2. Create a program using text tool and apply different effects.
3. a)Draw a 3D Ring.
b)Create a 3D Tunnel.
4. Create a program with cartoon effects.
5. Create a animated button with a gradient in the up state and a text over it.
6. Create folders in the library and add different symbols like eyes, head, nose,mouth etc to the folders. Using those symbols assemble different types of faces.
7. Draw a pendulum using motion tweening.
8. Convert a ball to a rectangular box using shape tweening (Morphing).
9. Create a program and apply filter option.

10. Create a program using Action Script.
11. Design a scene and add audio, video effect.
12. Create a movie with multiple scenes.

Course Designed by : Mrs. N. Sathyapriya

Course Reviewed by :Mrs. G. Neelaveni

Course Checked by : Mrs. S. Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014-2015 and onwards)
Semester VI **614G12**
Part III Core Course XII – Embedded Systems

Preamble: **[65 Hrs]**

- Embedded system tools and products are evolving rapidly.
- This deals with various approaches to building embedded systems.
- It introduces unified view of hardware and software.
- The aim of this is to make the students aware of various applications of embedded systems.

Module I: **[12 Hrs]**

Introduction to Embedded system:Embedded systems-Processor Embedded into a system-Embedded Hardware Units and devices in a system-Embedded software in a System-Examples of Embedded System-Complex Systems Design and Processors-design process in embedded system-Formalization of System Design-Design Process and Design examples-Classification of Embedded Systems-Skills required for an Embedded System Designer.

Module II: **[14 Hrs]**

Program Concepts and embedded Programming in C,C++ and Java:C Program Elements:Header and Source Files and Preprocessor Directives,Program Elements:Data types,Data structures Modifiers,Statements,Loops and Pointers-Embedded programming in C++ and Java-Program modelling concepts:Program models-DFG Models-State Machine programming Models for event –Controlled Program Flow-Modelling of Multiprocessor systems-UML Modelling.

Module III: **[14 Hrs]**

Interprocess Communication and Synchronization of Process,Threads and Tasks :Multiple Processes in an Application-Multiple Threads in an Application-Tasks-Task States-Task and Data-clear-cut Distinction between Functions, ISRS and Tasks by their characteristics -Concept of Semaphores- Shared Data-Inter Process Communication-Signal Function-Semaphore Functions-Message Queue Functions-Mailbox Functions-Pipe Functions-socket Functions-RPC Functions.

Module IV: **[12 Hrs]**

Real Time operating Systems: OS Services-Process Management –Timer functions-Event Functions-Memory management –RTOS Task Scheduling Models, Interrupt Latency and Response of the Task as Performance Metrics.

Real-time Operating System Programming Windows CE,OSEK and Real time Linux Functions: Windows CE and Linux 2.6 x and RTLinux.

Module V: **[13 Hrs]**

Embedded Software Development Process and Tools:Introduction to Embedded software development Process and Tools-Host and Target Machines-Linking and Locating Software –Getting embedded Software into Target System-

Module I: [13 Hrs]

Introduction: Security Attacks-Security Services-A Model for network security –Internet standards Internet Society-Other RFC Types- Symmetric Encryption and message Confidentiality: Symmetric Encryption Principles-Symmetric Block Encryption Algorithms-Cipher Block Modes of operation-Location of Encryption Devices.

Module II : [13 Hrs]

Public key Cryptography and message Authentication: Approaches to message Authentication – Secure Hash Functions and HMAC-Public Key Cryptography Principles-Public Key Cryptography Algorithms-Key Management-Authentication Applications: X.509 Authentication Services –Public Key Infrastructure.

Module III: [14 Hrs]

Electronic Mail Security: Pretty Good Privacy (PGP)-S/MIME – IP Security: IP Security Overview – IP Security Architecture - Web Security: Secure Socket Layer (SSL) and Transport Layer Security (TLS)-Secure Electronic Transaction (SET).

Module IV: [13 Hrs]

Network Management Security: Basic Concepts of SNMP-SNMPv3-Intruders: Intruders-Intrusion Detection-Password Management.

Module V: [12 Hrs]

Malicious Software : Viruses and Related Threats – Virus Countermeasures – Distributed Denial of Service Attacks – Firewalls : Firewall Design Principles – Trusted Systems.

Case Study : Cyber Law.

Books for Study:

William Stallings, “Network Security Essentials-Applications and Standards”, Published by Pearson Education Pvt Ltd., Third Indian Print, 2005.

Course Designed By : Mrs.V.Vadivu

Course Reviewed By : Ms.N.Sathyapriya

Checked By : Ms.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2014-2015 and onwards)
Semester VI 614GE2

Part III – Elective II – Mobile Communications

Preamble: [75 Hrs]

- To learn the basics of wireless voice and data communication technologies.
- To build working knowledge on various telephone and satellite networks.
- To study the working principles of wireless LAN and its standards.

Module I: [15 Hrs]

Introduction:Applications- A simplified reference model-Wireless transmission: Frequencies for radio transmission-signals-Antennas-Signal propagation-Multiplexing-Modulation-Cellular Systems.

Module II: [15 Hrs]

Medium access control: SDMA-FDMA-TDMA-CDMA- Comparison of S/T/F/CDMA. Telecommunications Systems: GSM-TETRA.

Module III: [15 Hrs]

Satellite Systems:History-Applications-Basics-Routing-Localization-Handover-Broadcast Systems: Overview-Cyclical repetition of data-Digital Audio Broadcasting-Digital Video Broadcasting-Convergence of broadcasting and mobile

communications. Wireless LAN: Infra red Vs radio transmission-Infrastructure and ad-hoc network-Bluetooth.

Module IV: [15 Hrs]

Mobile Network Layer: Mobile IP-Dynamic Host Configuration protocol- Mobile ad-hoc network-Mobile Transport Layer:Traditional TCP-Classical TCP improvements

Module V: [15 Hrs]

Support for mobility: File Systems-World Wide Web-Wireless application protocol-i-mode-SyncML-WAP 2.0 .

Book For Study:

Jochen Schiller, “Mobile Communications”, Second Edition, Pearson Education,2003.

Course Designed by: Ms.G.Neelaveni

Course Reviewed by: Ms.D.Preetha

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester VI

Part IV- Skill Based Course Multimedia – Paper IV - Authoring Tool 614GS4

(For the students admitted from the academic year 2014 – 2015 only)

Preamble: [35 Hrs]

This paper induces to understand the fundamental concepts of digital video and introduces the techniques of video editing and enhancing.

List of Programs:

1. Create a program using Transformation effects.
2. Create a program using text and apply different effects.
3. Create a program for text to speech.
4. Create the text and graphics for production titles.
5. Create a program using sequences.
6. Design a program by importing images as videos.
7. Create a program and apply filter option.
8. Create a program to import video and apply blending and color correction.
9. Design a program to import audio file and apply effects.
10. Create a program and use artistic effects.
11. Create a program for batch file editor.
12. Create a movie with audio and video effects.

Course Designed by : Mrs.N.Sathyapriya

Course Reviewed by: Mrs.G.Neelaveni

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology

Semester wise distribution with Scheme of Examination with Credits

(For the students admitted during the academic year 2012 – 2013) and onwards

Semester	Title of the course	Credits	ESE (Hrs)	Marks		Total
				CIA	ESE	
I	Part I –Language I	3	3	25	75	100
	Part II – English I	3	3	25	75	100
	Part III - Core I-Digital Fundamentals and Computer Architecture	4	3	25	75	100
	Part III-Core Practical I –PC Software Packages	2	3	40	60	100
	Part III-Allied I-Principles of Accountancy	5	3	25	75	100
	Part IV- Environmental Studies	2	-	50	-	50
II	Part I-Language II	3	3	25	75	100
	Part II-English II	3	3	25	75	100
	Part III-Core II-C Programming	4	3	25	75	100
	Part III-Core Practical II- C Programming	3	3	40	60	100
	Part III- Allied II-Discrete Mathematics	5	3	25	75	100
	Part IV-Value Education	2	-	50	-	50
	Advanced Learner's Course I-UNIX	3*	3	-	100	100
III	Part III- Core III-Object Oriented Programming with C++	4	3	25	75	100
	Part III-Core IV-Data Structures and Algorithms	5	3	25	75	100
	Part III-Core V-Operating Systems	4	3	25	75	100
	Part III-Core Practical III-Object Oriented Programming with C++	2	3	40	60	100
	Part III-Allied III-Operations Research	5	3	25	75	100
	Part IV-Skill Based I- HTML, DHTML & Dream weaver	3	-	100	-	100
	Part IV-Non Major Elective	2	-	75	-	75

Semester	Title of the course	Credits	ESE (Hrs)	Marks		Total
				CIA	ESE	
IV	Part III-Core VI-Visual Basic Programming	4	3	25	75	100
	Part III-Core VII-Relational Database Management System	5	3	25	75	100
	Part III-Core VIII-Computer Networks	4	3	25	75	100
	Part III-Core Practical IV- Visual Basic and RDBMS Programming	3	3	40	60	100
	Part III-Allied IV-E-Commerce Concepts	5	3	25	75	100
	Part IV-Skill Based II-PageMaker and Corel Draw	3	-	100	-	100
	Part IV- General Awareness	2	-	75	-	75
	Advanced Learner's Course II- Visual C# Programming	3*	3	-	100	100
	Part V-Extension Activities	1	-	50	-	50
V	Part III- Core IX-JAVA Programming	4	3	25	75	100
	Part III- Core X-Software Engineering	5	3	25	75	100
	Part III- Core XI-Computer Graphics	4	3	25	75	100
	Part III- Core Practical V-JAVA and Computer Graphics Programming	3	3	40	60	100
	Part III-Elective I-Client Server Technology	5	3	25	75	100
	Part IV-Skill Based III-Photoshop	3	-	100	-	100
VI	Part III- Core XII-Web Technology	4	3	25	75	100
	Part III- Core XIII-Software Testing	4	3	25	75	100
	Part III- Core XIV-Network Security and Administration	4	3	25	75	100
	Part III- Elective II-Data Mining and Data Warehousing	5	3	25	75	100
	Part III- Project and Viva Voce	5	3	25	75	100
	Part IV-Skill Based IV-Flash	3	-	100	-	100
	Advanced Learner's Course III- Mobile Computing	3*	3	-	100	100

Total Credits

140

Starred Credits are treated as additional credits, which are optional.

List of Programs:[65 Hrs]

1. Prepare a class Timetable using Ms Word.
2. Prepare Bio-Data using Ms Word.
3. Publish student's results using mail merge.
4. Design an advertisement copy in Ms Word.
5. Create a tool bar using MS Word.
6. Prepare a document and add Bookmarks.
7. Create a Newsletter using MS word.
8. Prepare a document and align it.
9. Create a document using format options
10. Prepare a document using frames options.
11. Prepare a Payroll in Excel using format options.
12. Create employee details using sort and filter option in Excel.
13. Drawing Graphs and charts in Excel.
14. Calculation of Mean, Median, Mode.
15. Calculation of Linear Regression Analysis.
16. One way analysis of Variance.
17. Prepare a mark list of two subjects and consolidate it in Excel.
18. Create a database using the formulas: sum, average, max, min, count in Excel.
19. Prepare a sheet using date fill option.
20. Prepare a sheet and add Header & Footer option.
21. Create an excel sheet using format cells option.
22. Calculation of Simple correlation coefficient
23. Prepare a slide in power point regarding sports day invitation(use hyper link)
24. Prepare a power point slide using animation effects.
25. Prepare a power point slide using custom animation effects.
26. Prepare slide show for News report.
27. Prepare slide show with different slide transitions effects.
28. Design slide show with sound effects.
29. Prepare a database maintaining stock in a shop with fields Serial .no (primary key), name of the product and product code, quantity and price.
30. Prepare a database for customer information and generate a report with customer name in ascending order.

Course Designed by : Ms. B.Antony Jerline
Course Reviewed by : Ms. K.Sangeetha
Course Checked by : Ms.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2012 - 2013)
Semester II
Part III - Core II – C Programming

Subject Code: 212G02

Preamble:

[75 Hrs]

- To learn the fundamentals of ANSI C programming and the standard C libraries.
- Get a solid understanding of C functions.

Module I:

[15 Hrs]

Overview of C: History of C-Importance of C - Basics Structure of C Programming-Programming Style-Executing a C Program. Constants, Variables and Data Types – Operators and Expressions. .

Module II:

[15 Hrs]

Managing Input & Output Operators: Introduction- Reading a Character – Writing a Character – Formatted Input – Formatted Output. Decision Making and Branching- Decision Making and Looping.

Module III:

[14 Hrs]

Arrays: Introduction – One Dimensional Arrays – Declaration of One-Dimensional Arrays- Initialization of One-Dimensional Arrays-Two-Dimensional Arrays-Initializing Two-Dimensional Arrays. Characters Arrays and Strings – User defined Functions.

Module IV:

[16 Hrs]

Structures and Unions – Pointers: Introduction-Understanding Pointers- Accessing the address of the variable-Declaring pointer variables-Initialization of pointer variables- Accessing a variable through its pointer-Chain of pointers-Pointer expressions-Pointer Increments and Scale Factor-Pointer and Arrays-Pointer and Character Strings- Array of pointers-Troubles with pointers.

Module V:

[15 Hrs]

File Management in C- Dynamic Memory Allocation and Linked Lists: Introduction-Dynamic memory allocation-Allocating a block of memory: MALLOC-Allocating multiple blocks of memory: CALLOC-Releasing the used space: FREE-Altering the size of a block: REALLOC-Concepts of Linked lists-Advantage of Linked lists-Types of Linked lists.

Book for Study:

“Programming in Ansi C”, E.Balagurusamy, Tata McGraw Hill Publishing, V Edition, 2010 Reprint.

Course Designed by: Ms. P.Agathieswari

Course Reviewed by: Ms. G.Krishnaveni

Course Checked by : Ms.S.Shobana

List of Programs: (65 Hrs)

1. Check whether given year is leap year or not.
2. Program to find Biggest of three numbers.
3. Program to check whether the given number is Prime or Not.
4. Program to check whether the candidate is eligible to vote or not.
5. Program to reverse the order of a given integer number.
6. Program to find the Sum of Digits of a given integer number.
7. Program to find the Sum of N Numbers.
8. Program to find the factorial of the given number.
9. Program to generate a Fibonacci series.
10. Solve a quadratic equation for all types of roots.
11. Finding the standard deviation and variance.
12. Finding the number of Vowels, Consonants and white spaces in a string
13. Program to find Simple Interest.
14. Program to check whether the given number is Armstrong.
15. Program to perform matrix manipulation.
16. Program to Construct a Pyramid of digits and Reverse the Pyramids
17. Program to convert decimal to binary.
18. Program to check for a palindrome.
19. Program to perform String Operations.
20. Program to Swap two numbers with or without using temporary variables.
21. Write a C program using Functions with arguments and return values
22. Program to illustrate Structure.
23. Program to illustrate Union.
24. Program to illustrate Pointers.
25. Program to receive a file name and the names of employees as command line argument and Write the text to the file.

Course Designed by: Ms.P.Agathieswari

Course Reviewed by: Ms.G.Krishnaveni

Course Checked by : Ms.S.Shobana

Preamble:

- This paper describes the multi-user operating system.
- This describes the Kernel and shell relationships.

Module I:

Getting Started:The Operating System-The UNIX Operating System-Knowing Your Machine-A Brief Session-How It All Clicked-Linux and GNU.

The Unix Architecture and Command Usage:The UNIX Architecture-Features Of UNIX-POSIX and the Single UNIX Specification-Locating Commands-Internal and External Commands-Command Structure-Flexibility Of Command Usage-Man: Browsing the Manual Pages Online-Understanding the Man Documentation

General–Purpose Utilities:cal-date-echo-printf-bc-script-E-mail basics-mailx-passwd-who-uname-tty-stty.

Module II:

The File System: The File-What's in a(file)name?-The Parent-Child Relationship-The HOME Variable-pwd-cd-mkdir-rmdir-Absolute Pathnames-Relative Pathnames-ls-The UNIX File System.

Handling Ordinary Files: cat-cp-rm-mv-more-The lp SubSystem-file-wc-od-cmp-comm-diff-dos2unix and unix2dos-Compressing and Archiving Files-gzip and gunzip-tar-zip and unzip.

Basic File Attributes: ls-l-The -d option-File Ownership-File Permission-chmod-Directory Permission-Changing File Ownership.

Module III:

The vi Editor: vi Basics-Input Mode Entering and Replacing Text-Saving Text and Quitting-The ex Mode-Navigation-Editing Text-Undoing Last Editing Instructions-Repeating the Last Command-Searching for a Pattern-Substitution-Search and Replace.

The Shell: The Shell's Interpretive Cycle-Shell Offerings-Pattern Matching-The Wild Cards-Escaping and Quoting-Redirection-Two Special Files-Pipes-tee-Command Substitution-Shell Variables.

Module IV:

The Process: Process Basics-ps-System Processes-Mechanism of Process Creation-Internal and External Commands-Process State and Zombies-Running Jobs in Background-nice-Killing Processes with signals-Job Control-at and batch-cron-time.

Customizing the Environment: The Shells-Environment Variables-The Common Environmental Variables-Aliases-Command History-In-line Command Editing -Miscellaneous Features-The Initialization Scripts.

Module V:

Essential Shell Programming: Shell Scripts-read-Using Command line Arguments-exit and Exit States Command-The Logical Operators && and | -Conditional Execution-The If Conditional-Using Test and [] to Evaluate Expression-The case Conditional-expr-\$0-while-for-set and shift-The Here Document-trap-Debugging Shell Scripts with Set -x-Sample Validation and Data Entry Scripts.

Book for Study:

Sumitabha Das, "UNIX Concepts & Applications", Tata McGraw Hill, Fourth Edition, 2008.

Course Designed By : Ms. V. Vadivu

Course Reviewed By : Mrs. M. Malini

Checked By : Mrs. Shobana

B.Sc. Information Technology
(For Candidates admitted from 2011- 2012 and onwards)
Semester - III

Subject Code: 311G03

Part III - Core III - Object Oriented Programming With C++

Preamble:**[52 Hrs]**

- C++ has emerged as the language of choice for most applications due to the speed portability and compactness of code.
- To inculcate an in-depth programming knowledge in OOPS.

Module I:**[11 Hrs]**

Principles of Object Oriented Programming - Beginning with C++: What is C++ - Applications of C++ - Structure of C++ program - Creating the source file-Compiling and linking.

Tokens, Expressions and Control Structures - Functions in C++

Module II:**[11 Hrs]**

Classes and objects: C Structures revisited-Specifying a class-Defining member functions-A C++ program with class-Making an outside function inline-Nesting of member functions-Private member functions-Arrays within a class-Memory allocation for classes-Static data members-Static member functions-Arrays of objects-Objects as function arguments-Friendly functions-Returning objects-const member functions-Pointers to members-Local classes.

Constructors and Destructors:Constructors- Parameterized Constructors-Multiple Constructors in class-Constructors with default arguments-Dynamic initialization of objects- Copy Constructor-Dynamic Constructors-Constructing two dimensional arrays-const objects-Destructors

Module III:**[10 Hrs]**

Operator overloading and Type conversions: Defining Operator Overloading-Overloading Unary operators- Overloading Binary operators- Overloading Binary operators using Friends-Manipulation of Strings using Operators- Rules for overloading operators-Type conversion.

Inheritance: Extending classes: Defining derived classes-Single inheritance-Making a private member inheritable-Multi level Inheritance- Multiple Inheritance-Hierarchical Inheritance-Hybrid Inheritance-Virtual base classes- Abstract classes-Constructors in derived classes-Member classes: Nesting of classes.

Module IV:**[10 Hrs]**

Pointers, virtual functions and polymorphism: Pointers to objects-this Pointers-Pointers to derived classes-Virtual functions- Pure virtual functions.

Managing console I/O operations: C++ Streams –C++ Stream classes-Unformatted I/O operations-Formatted Console I/O operations-Managing output with manipulators.

Manipulating Strings: Creating (String) Objects-Manipulating string objects-Relational Operations-String characteristics-Accessing characters in strings-Comparing and swapping.

Module V:**[10 Hrs]**

Templates: Introduction –Class templates-Class templates with multiple parameters-Function templates-Function templates with multiple parameters-Overloading of template functions-Member function templates-Non-type template arguments.

Working with files: Classes for File stream operations-Opening and Closing a file-Detecting end -of - file- More about open(): File modes –File Pointers and their manipulations- Sequential Input and Output Operations-Updating a file: Random Access- Error handling during file operations-Command line arguments.

Exception handling: Basics of exception handling-Exception handling mechanism- Throwing mechanism-Catching mechanism-Rethrowing an Exception – Specifying Exceptions.

Book for Study:

E.Balagurusamy , “Object Oriented Programming with C++”, Tata McGraw Hill Publications, Fourth Edition, 6th Reprint 2009.

Course Designed By :Mrs.T.Prasanthini

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

Part III – Core IV – Data Structures and Algorithms

Preamble

[65 Hrs]

- This paper enriches the students with knowledge in creating and analyzing algorithms.
- It also focuses on the storage mechanism of the data.

Module I:

[13 Hrs]

History of Algorithms – Definition, Structure and Properties of Algorithms- Development of an Algorithm- Data Structures and Algorithms- Data Structure – Definition and Classification.

Analysis of Algorithms: Efficiency of Algorithms - Apriori analysis- Asymptotic Notations – Time Complexity of an Algorithm using O Notation- Polynomial Vs Exponential Algorithms- Average, Best and worst Case Complexities- Analyzing Recursive programs.

Arrays: Array Operations – Number of elements in an Array – Representation of arrays in Memory – Applications.

Module II:

[12Hrs]

Stacks: Stack Operations.

Queues: Operation on Queues – Circular Queues – Other types of Queues.

Linked Lists: Singly Linked Lists – Circularly linked Lists- Doubly linked lists- Multiple Linked Lists.

Linked Stacks and Linked Queues: Operations on Linked Stacks and Linked Queues – Dynamic Memory Management and Linked Stacks – Implementation of Linked representations.

Module III:

[15 Hrs]

Trees and Binary Trees: Trees: Definition and Basic Terminologies- Representation of Trees – Binary trees: Basic Terminologies and Types – Representation of Binary Trees – Binary Tree Traversals – Threaded Binary Trees.

Graphs: Definitions and Basic Terminologies- Representations of Graphs – Graph Traversals - Applications.

Binary Search Trees and AVL Trees: Binary Search Tree: Definition and Operations.

Module IV:

[13 Hrs]

Hash Tables: Hash Table Structure – Hash Functions – Linear Open Addressing – Chaining.

File Organizations: Files – Keys – Basic File Operations – Heap or Pile Organisation – Sequential File Organisation – Indexed Sequential File Organisation – Direct File Organisation.

Module V:

[12 Hrs]

Searching: Linear Search – Binary Search – Fibonacci search – Other Search Techniques.

Internal Sorting: Bubble sort – Insertion Sort – Selection sort – Merge sort - Quick sort – Heap sort – Radix sort.

External Sorting: External Storage Devices- Sorting with Tapes: Balanced Merge – Sorting with Disks: Balanced Merge.

Book for Study:

G A Vijayalakshmi Pai ,“ Data Structures and Algorithms – Concepts, Techniques and Applications” –Tata McGraw Hill Education Private Limited, New Delhi, Third Reprint 2009.

Course Designed By :Mrs.M.Malini

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.Shobana

B.Sc. Information Technology

(For Candidates admitted from 2011- 2012 and onwards)

Subject Code: 311G05

Semester III**Part III Core V - Operating Systems****Preamble :****[65 Hrs]**

- This paper is unique in presenting the students a comprehensive framework for the design, study and implementation of Operating Systems.
- Operating Systems is an exciting software area because the design of an Operating System exerts a major influence on the overall function and performance of the entire computer.

Module I:**[13 Hrs]**

Introduction to operating Systems: What is an operating system -Early history: The 1940's and 1950's - The 1960's-The 1970's - The 1980's-History of the Internet and world wide web - The 1990's-2000 and beyond - Operating system components and goals-Operating System architectures. Process Concepts.

Module II:**[12 Hrs]**

Thread Concepts: Definition of thread - Thread States: Life cycle of thread - Thread operations - Threading models.

Asynchronous concurrent execution: Mutual exclusion - Implementing mutual exclusion primitives - Semaphores. Deadlock and Indefinite postponement.

Module III:**[14 Hrs]**

Processor Scheduling: Scheduling levels-Preemptive versus non-preemptive scheduling-Priorities-Scheduling objectives- Scheduling criteria- [Scheduling algorithms-Multilevel feedback queues-Fair share scheduling]-Deadline Scheduling.

Real Memory organization and management: Memory Organization-Memory management-Memory Hierarchy-Memory management strategies-Contiguous Vs Non-Contiguous Memory allocation-Single user contiguous memory allocation-Fixed partition multi programming-Variable partition multi programming-Multi programming with memory swapping.

Module IV:**[12 Hrs]**

Virtual Memory Organization: Virtual memory: Basic concepts Paging Segmentation. Virtual Memory Management: Locality-Demand paging-Anticipatory paging-Page replacement-Page replacement strategies-working set model - Page release-Page size - Global Vs Local page replacement.

Module V:**[14 Hrs]**

Disk Performance Optimization: Evolution of secondary storage-Characteristics of Moving-Head disk storage-Why disk scheduling is necessary-Disk Scheduling

strategies - Caching and Buffering. File and Database Systems: Files-File organization-File allocation-Case Study: Windows XP: Introduction-History-Design Goals-System architecture-System management mechanisms.

Book for Study :

H.M.Deitel, P.J.Deitel, D.R.Choffnes – “Operating System”, 3rd Edition, Pearson Education Incorporation, 4th Impression 2009.

Course Designed By :Ms.V.Sabareeswari

Course Reviewed By :Mrs.M.Malini

Checked By :Mrs.S.Shobana

**B.Sc. Information Technology
(For Candidates admitted from 2011- 2012 and onwards)
Semester - III**

Subject Code: 311GP3

**Part III Core Practical III– Object Oriented Programming With C++
List of Programs :[52 Hrs]**

1. Program to read a set of numbers using arrays and to sort them in ascending order.
2. Program to perform overload Functions add(), sub() and multiply() that handle different data types.
3. Program to find the area of Circle, Rectangle and Square by using Inline Functions.
4. Program to implement Call by reference
5. Program to demonstrate Employee details using classes and array of objects.
6. Program to display the student details using Constructor and Destructor.
7. Program using single inheritance.
8. Program for Payroll processing using Multiple Inheritance.
9. Program for student details using multilevel inheritance.
10. Program using virtual functions and pointers.
11. Program to implement Stack Operation.
12. Program to implement Bubble Sort.
13. Program for reading and writing to the text file.
14. Program to illustrate the concept of Templates.
15. Program to implement Queue Operations.
16. Program to implement Binary Search.
17. Program to illustrate the concept of Friend Function.
18. Program to implement Operator Overloading.
19. Program to implement Quick Sort.
20. Program using Singly linked list.

Course Designed By :Mrs.T.Prasanthini

Course Reviewed By :Ms.V.Vadivu

Checked By :Mrs.S.Shobana

**B.Sc Computer Science
(For B.Sc Computer Science / Information Technology / Computer Applications)
Semester III
Part IV Skill Based Course I-HTML, DHTML & Dream weaver
S.C:311SS1**

**(For the Candidates admitted during the academic year 2011-2012 Onwards)
38 Hrs**

Preamble:

- Information plays a vital and dynamic role in HTML and DHTML

- DHTML is a new and emerging technology that has evolved to meet the increasing demand for eye catching and mind catching web sites.
- Dream weaver is a web development application allows users to preview websites in locally installed web browsers.

Module I: [10 Hrs]

Introduction to Html-Hypertext markup language (HTML)-commonly used HTML commands-Titles & footers-Text formatting-Emphasizing material in a web page-Text styles-Other text effects.

Module II: [7 Hrs]

Lists: Type of lists, Adding graphics to HTML Documents.

Module III: [7 Hrs]

Tables-linking documents-frames

Module IV: [7 Hrs]

Dynamic HTML-Cascading style sheets –Class-Using the ... -External style sheets-Using the <DIV>... </DIV>

Module V: [7 Hrs]

Get Started with DreamWeaver>Create a Page with Text-Add Images and Hyperlinks to your Web Page

Books for study

1. Ivan Bayross, “HTML, DHTML, Java Script, perl, CGI”,BPB Publications, New Delhi, Reprinted 2011.
2. Michael Meadhra,”DreamWeaver 8 A Beginner’s Guide”,Dream Tech Press, Edition 2006.

List of programs:

- 1.Design a web page which displays text in physical & logical styles.
- 2.Create a web page with external and internal links.
- 3.Design a timetable using HTML tags.
- 4 Design a web page for hospital.
- 5 Create a web page with links between two frames.
- 6.Write a HTML program using image and list tags.
- 7.Create a web page in DHTML using Cascading Style Sheets (use all attributes).
- 8.Design a web page in DHTML using class in external style sheets.
- 9.Design a web page for online recruitment process using dreamweaver.
- 10.Design a web page showing your bio-data using dreamweaver.

Course Designed by: Ms.K.Sangeetha Priya

Course Reviewed by: Ms.K.Sangeetha

Course Checked by: Ms.B.Sreemathi

B.Sc. Information Technology
(For Candidates admitted from 2011- 2012 and onwards)
Semester IV
Part III - Core VI – Visual Basic Programming

Subject Code: 411G06

Preamble: [52 Hrs]

- Visual Basic is one of the popular programming languages for GUI.
- The students can develop their programming skills in windows applications through this paper.

Module I: [10 Hrs]

Visual Basic: Background-VB Forms: Data Entry Screens-VB Toolbox In-depth- Variables, Data types and User Defined Types.

Module II: [10 Hrs]
Dialog Boxes, Conditional Statements and Loops- Modules, Arrays, Collections, Enums -Events: A Closer look-OLE.

Module III: [11 Hrs]
Menus, Control Arrays, Multiple Forms- Advanced Active-X Controls- Windows common Controls: Animation, Updown, Monthview, Dtpicker, Windows Common Controls: Slider, Imagelist, Image Combo, Tool Bar, Status Bar.

Module IV: [11 Hrs]
Database Creation, ODBC and DAO Programming: Database Creation Using Visdata-Tables Creation Using Visdata-ODBC Overview- DAO- Code Based approach to DAO: Including DAO Library Reference in project-Working with database object-Working with recordset object.

Module V: [10 Hrs]
Database Programming: ADO and DED: ADO-OLE db Vs ODBC- DED- Adding the DED-ADO Data control- ADO Based Advanced Controls.
Database Programming : Data Reports.

Books for Study:
Sanjeev Sharma & Nandan Tripathi, “Visual Basic6”- Excel Books-First Edition 2009.

Course Designed by: Ms.D.Pavithra
Course Reviewed by: Ms.J.Arulmary
Course Checked by: Ms.S.Shobana

Subject Code: 411G07

B.Sc. Information Technology

(For Candidates admitted from 2011- 2012 and onwards)

Semester IV

Part III - Core VII-Relational Database Management System

Preamble: [65 Hrs]

- Database systems are designed to manage large bodies of information.
- This paper provides commercial applications development using oracle products.

Module I: [13 Hrs]
Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages.Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams - Denormalization – Another Example of Normalization.

Module II: [13 Hrs]
Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Module III: [13 Hrs]
Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing

Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations. UIT 26

Module IV:

[13 Hrs]

A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. control Structures and Embedded SQL: Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

Module V:

[13 Hrs]

PL/SQL Composite Data Types: Records – Tables – Varrays. Named Blocks: Procedures – Functions – Packages – Triggers – Data Dictionary Views.
Books for Study:

Database Systems Using Oracle – Nilesh Shah, 2nd edition, PHI.

Course Designed By : Ms.M.Maheshwari

Course Reviewed By : Ms. P.Manonmani

Checked By : Ms.S.Shobana

B .Sc Information Technology

(For Candidates admitted from 2011- 2012 and onwards)

Semester - IV

Subject Code: 411G08

Part III Core VIII - Computer Networks

Preamble:

[52 Hrs]

- To study the functions of different layers.
- To make the students to get familiarized with different protocols and network components.
- Create awareness about different communication media and different security measures that provided to networks.

Module I:

[11 Hrs]

Introduction: Uses of Computer Networks- Network Hardware – Network Software: Protocol Hierarchies- Design Issues for the Layers – Connection Oriented and Connectionless Services - Reference Models: The OSI Reference Model- The TCP/IP Reference Model.

Module II:

[10 Hrs]

The Physical Layer: Guided Transmission Media-Wireless Transmission – The Public Switched Telephone Network: Structure of the Telephone System –Trunks and Multiplexing – Switching – The Mobile Telephone System – Cable Television.

Module III:

[10 Hrs]

The Data Link Layer: The Data Link Layer Design Issues - Error Detection and Correction – Elementary Data Link Protocols- Example Data Link Protocols.

Module IV:

[11 Hrs]

The Network Layer: Network Layer Design Issues : Store-and-Forward Packet Switching, Services Provided to the Transport Layer - Routing Algorithms: Shortest Path Routing – Flooding - Distance Vector Routing - Link State Routing - Hierarchical Routing - Broadcast Routing.

Module V:**[10 Hrs]**

The Transport Layer: The Transport Service - Elements of Transport Protocols: Addressing - Connection Establishment - Connection Release-Flow Control and Buffering.

The Application Layer: DNS –The Domain Name System, Electronic Mail.

Book for Study:

Andrew S. Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi – IV Edition, 2003.

Course Designed By :Ms.V.Vadivu

Course Reviewed By :Ms.V.Sabareeswari

Checked By :Mrs.S.Shobana

B.Sc. Information Technology

(For Candidates admitted from 2011- 2012 and onwards)

Subject Code: 411GP4

Semester IV**Part III-Core Practical IV Visual Basic and RDBMS Programming****List of Programs:[65 Hrs]****Visual Basic**

15. Write a Program to create a Window Using Event Handling.
16. Write a Program to design a Calculator with Various Arithmetic Operators.
17. Write a Program for Text Manipulations (Changing Foreground, Background & Alignment).
18. Create a program to develop an Application for loading a Picture using Drive, Directory & File List Box controls.
19. Design a form to display the List of Product by declaring Array.
20. Write a Program to create a student mark details using conditional statements.
21. Write a Program to develop an application using OLE Link Control.
22. Create a program using menu editor (New, Open, Save, Close, Color, Font & Font size)
23. Create a program using Windows Common Controls (Animation, Slider, Image list, Image Combo, Status bar)
24. Program for printing all combinations of 1,2,3,4,5,6.
25. Program for drawing various shapes and fill color to that shapes using Scroll bar.
26. Write a Program to develop an application for displaying Employee details using Database(Use ADO Control).
27. Prepare an application Program to enter the Customer Details using DAO control and generate the report.

RDBMS

14. Create a Table for inserting Customer details and Perform Update, Select, Delete Operations in the Table.
15. Create two tables with relevant details and implement the Integrity Constraints.
16. Create a table student with fields register number and name and create another table Mark with fields register number, marks of 3 subjects. Merge these two tables and display the output.
17. Write a PL/SQL program for employee payroll
18. Write a PL/SQL program for student database and calculate the Total, Average and Result.

Course Designed by: Ms.D.Pavithra
Course Reviewed by: Ms.J.Arulmary
Course Checked by : Ms.S.Shobana

B.Sc Computer Science
(For B.Sc Computer Science / Information Technology / Computer Applications)
Semester IV

Part IV Skill Based Course II - PageMaker and CorelDraw S.C: 411SS2
(For the Candidates admitted during the academic year 2011-2012 Onwards)

Preamble: **38 Hrs**

- This Paper enlighten the students with the knowledge of CorelDraw And PageMaker
- This software helps the students to work and edit along with the images and pictures.

Module I: **[10 Hrs]**

What's new in CorelDraw 12? – Interfacing with CorelDraw. Getting Started with CorelDraw12: Measuring and Drawing Helpers - Zooming and Viewing – Essential Objects Commands.

Module II: **[7 Hrs]**

Working with object tools: Creating Basic Shapes – Drawing with Line Tools – Cutting, Shaping and Reshaping objects – Arranging and organizing objects.

Module III: **[7Hrs]**

PageMaker Basics – Working with Publications – Drawing tools – Text tools.

Module IV: **[7 Hrs]**

Importing Graphics – Transformations - Master Pages – Utilities

Module V: **[7 Hrs]**

Working with Text – The Story Editor -Working with Frames – Working with Layers.

Book for Study:

1. SteveBain with Nick Wilkinson, "CorelDraw 12" DreamTech Publications.
2. Satish jain , "Trainning Guid – PageMaker 7", BPB, Publications

List of Programs:

Corel Draw:

1. Create a program using Drawing Tools
2. Create a logo using Corel Draw.
3. Create an invitation for college day.

PageMaker:

1. Create a program to work with Layers.
2. Create a program using Drawing Tools
3. Create a program using Text tools.
4. Create a program to Import Images and align the images.
5. Create a program for Transformation of an object.
6. Create a program to work with Frames.
7. Create a program for masking a picture.

Course Designed by: Ms. J.ArulMary
Course Reviewed by: Ms.S.UmaMaheshwari
Course Checked by: Ms. B.Sreemathi

B .Sc Information Technology
(For Candidates admitted from 2011- 2012 and onwards)
Semester- IV
Advanced Learner's Course II – Visual C# Programming

Subject Code: 411ALG

Preamble:

- Visual C# is heavily used by ASP.NET web sites and standalone applications based on the .NET Framework
- To inculcate an in-depth programming knowledge in OOPS and GUI.

Module I:

Introduction to Microsoft Visual C# Programming: A Demonstration of Visual C# 2008-Common Elements in Visual C# 2008-C# Core language features. Types: Classes-Structures-Enumeration-Equivalence versus Identity-Class Refinement.

Module II:

Inheritance: Inheritance Example-*System.Object-Employee* Class-Implementing Inheritance-Overriding Inherited Behavior-The *new* Modifier-Abstract Classes- Sealed Classes- Constructors and Destructors-Interfaces-Polymorphism-Casting-Attribute Inheritance-Visual Studio 2008.

Module III:

Introduction to Visual Studio 2008: Migrating to Visual Studio 2008-Integrated Development Environment-Class Hierarchies-Code Editor-Code Snippets-Refactoring-Building and Deployment-Arrays and Collections.

Module IV:

Arrays and Collections:Arrays-LINQ.Introduction to LINQ: C# Extensions-LINQ Essentials-LINQ to objects-LINQ Operators-Generics

Module V:

Generics-Generic Types- Generic methods-Constraints-Casting-Inheritance-Static members-Enumerators.Enumerators:Enumerable Objects-Generic Enumerators-Iterators-Operator Overloading.

Book for Study:

Donis Marshall, “Programming Microsoft Visual C# 2008: The Language”, Microsoft Press, 2008 .

Course Designed By :Ms.T.Prasanthini

Course Reviewed By :Ms.M.Malini

Checked By :Mrs.S.Shobana

B .Sc Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester - V
Part III – Core IX – JAVA Programming

Subject Code: 510G09

Preamble:

[52 Hrs]

- Java is a general-purpose, concurrent, class-based, object-oriented language.
- To inculcate the basic knowledge about the platform independent language.

Module I:

[10Hrs]

Overview of JAVA Language-Constants, Variables and Data Types-Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Module II:

[11 Hrs]

Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes Together - Multithreaded Programming

Module III: [10 Hrs]
Managing Errors and Exceptions – Applet Programming – Graphics Programming.

Module IV: [10 Hrs]
AWT - Text Fields, Buttons, Checkboxes, Radio Buttons and Layouts. AWT - Lists, Choices, Text Areas, Scrollbars and Scroll Panes –AWT - Windows, Menus and Dialog Boxes.

Module V: [11 Hrs]
Managing Input/Output files in JAVA - Swing: Combo Boxes, Progress Bars, Tool tips, Separators and Choosers – Understanding RMI.

Books for study:

Book 1: "Programming with JAVA A Primer", E. Balagurusamy, Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.

Book 2: "JAVA 6 Programming Black Book", KOAGENT Solutions Inc., DreamTech Press, New Delhi, 2009.

Course Designed by: Ms.J.ArulMary

Course Reviewed by: Ms.L.SankaraMaheswari

Course Checked by : Ms.S.Shobana

B .Sc Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester V

Subject Code: 510G10

Part III - Core X-Software Engineering

Preamble: [75 Hrs]

- To improve the quality and to increase the productivity of software products.
- It is a systematic approach for development, operation and maintenance of software.

Module I: [15 Hrs]

Introduction to Software Engineering – A Generic view of Process – Process Models: The Waterfall Model – Incremental Process Models – Evolutionary Process Models – Specialized Process Models-The Unified Process – An Agile View of Process: What is an Agile Process?- Agile Process Models.

Module II: [15 Hrs]
System Engineering: System Engineering Hierarchy- System Modeling. Requirements Engineering: Requirements Engineering Tasks- Initiating the Requirements Engineering Process- Eliciting Requirements-Developing Use Cases- Negotiating Requirements-Validating Requirements. Building the Analysis Model: Data Modeling Concepts.

Module III: [15 Hrs]
Design Engineering: Design concepts- The Design model-Pattern based software design. Creating an Architectural Design: Data Design-Architectural Design- Mapping data Flow into a Software Architecture. Modeling Component - Level design: What is a Component- Designing Class Based Components- Designing Conventional Components.

Module IV: [15 Hrs]
Testing Strategies: A Strategic Approach to Software Testing- Strategic Issues. Testing Tactics: Software Testing Fundamentals- Black Box and White Box Testing-White Box Testing- Basis Path Testing – Control Structure Testing- Black Box Testing- Testing for Specialized Environments, Architectures and Applications – Testing Patterns.

Module V: [15 Hrs]

Estimation: Observations on Estimation- The Project Planning Process- Software Scope and Feasibility- Resources- Software Project Estimation- Decomposition Techniques- Empirical Estimation Models- Specialized Estimation Techniques. Quality Management: Quality Concepts –Software Quality Assurance- Software Reviews-Formal Technical Reviews. Change Management: Software Configuration Management- The SCM Repository.

Book for Study:

Roger S.Pressman “Software Engineering: A Practitioner’s Approach”, Sixth Edition, McGraw-Hill International Edition-2005.

Course Designed By : Ms.M.Maheshwari

Course Reviewed By : Ms. A.Manjula

Checked By : Ms.S.Shobana

B .Sc Information Technology

(For Candidates admitted from 2010-2011 and Onwards)

Semester - V

Part III Core XI – Computer Graphics

Subject Code: 510G11

Preamble: [65 Hrs]

- To give students practical experience in the production of 2D computer animation.
- To provide students with an understanding of the algorithms and theories that forms the basis of computer graphics and modeling.
- To give students skills necessary in the production of 3D models, lighting and rendering

Module I: [13 Hrs]

Overview of Graphics Systems: Video Display Device-Raster Scan System-Random Scan System – Graphics Monitors and workstations-Input devices-Hard Copy devices. Output Primitives: Points and Lines - DDA - Bresenham’s Line Algorithm-Circle Generating Algorithm –Ellipse Generating Algorithm.

Module II: [13 Hrs]

Two Dimensional Geometric Transformations: Basic Transformations-Matrix Representations and Homogeneous Coordinates- Composite Transformations –Other Transformation– Two Dimensional Viewing: The viewing pipeline-Viewing Coordinate reference frame-Window to view point coordinates-Clipping operations, point clipping, line clipping: Cohen-Sutherland line clipping, Polygon clipping: Sutherland-Hodgeman Polygon clipping, Curve Clipping, Text Clipping.

Module III: [13 Hrs]

Three Dimensional Concepts – Three Dimensional Object Representations: Polygon Surfaces – Curved Lines and Surfaces – Quadric Surfaces – Super Quadrics - Blobby objects – Spline Representations-Fractal-Geometry Methods: Fractal Generation Procedures-Classification of Fractals-Fractal Dimensions.

Module IV: [13 Hrs]

Three Dimensional Geometric and Modeling Transformations:Translation-Rotation-Scaling –Other Transformation. Three Dimensional Viewing: Viewing Pipeline-Viewing Co-Ordinates- Projections..

Module V: [13 Hrs]

Visible–Surface Detection Methods: Classification of Visible – Surface Detection Algorithms-Back face Detection- Depth –Buffer Method- A-Buffer Method-Scan Line Method-Depth Sorting Method. Computer Animation.

Book for Study:

“Computer Graphics”, Donald Hearn, M.Pauline Baker, Prentice-Hall India Private Limited Second Edition, 2007.

Course Designed by : Ms.V.Devi

Course Reviewed by : Ms.S.Anitha

Course Checked by : Ms.S.Shobana

B.Sc Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester-V

Subject Code: 510GP5

Core Practical V – JAVA and Computer Graphics Programming

List of Programs:[75 Hrs]**JAVA Programming**

- 1.Program to find the sum of individual digits of a 10-digit number until a single digit is produced.
- 2.Program to find whether the given number is divisible by 9.
- 3.Program to generate Pascal Triangle.
- 4.Program using Multithreading.
- 5.Preparation of Mark list using Inheritance.
- 6.Program to implement Employee Payroll Processing using packages.
- 7.Generating advertisements using Applets.
- 8.Program for simple calculator using AWT.
- 9.Count the number of words, characters, digits, alphabets, special characters and white spaces in a file.
- 10.Program to implement interfaces.
- 11.Program to display personal information using Swings.
- 12.Program to sort list of names using RMI.

Computer Graphics

1. Write a program to display a bar chart. The input to the program includes the data points and the labeling for the x and y-axes. The data points are to be scaled by the program to fit the screen area.
2. Write a program to draw line using DDA Algorithm.
3. Write a program to draw a circle using Bresenham Algorithm.
4. Write a program to draw a line using Bresenham Algorithm.
5. Write a program to implement composite transformations (Scaling, Rotation, and Translation) of a Two-Dimensional object.
6. Write a program to implement the Transformations reflection and shearing of a Two Dimensional objects.
7. Write a program to clip lines against a window using Cohen-Sutherland Algorithm.

Course Designed by : Ms.S.Anitha.

Course Reviewed by: Ms.L.SankaraMaheswari

Course Checked by : Ms.S.Shobana

B.Sc Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester -V

Subject Code: 510GE1

Part III – Elective I- Client Server Technology

Preamble:**[75 Hrs]**

- To make the students to know to know about the types of client and server.
- This paper describes the client/server with distributing object.

- The client/server characteristic describes the relationship of cooperating programs in an application

Module I: [13 Hrs]

What is client/server? – File servers – Database servers – Transaction servers – Groupware servers – object servers – Web servers – Fat servers or fat clients – client/server building blocks : Inside the building blocks – The road to bandwidth heaven : Bridges, Routers and Gateways.

Module II: [13 Hrs]

Client, servers and operating systems : The anatomy of a server program – Server scalability – The OS wars: Client OS: OS/2 warp connect – windows 95 – Windows NT workstation – Mac OS – Server OS: Netware 4.1 – NT server – OS/2 warp server – UNIX.

Module III: [17 Hrs]

SQL Database servers: SQL Database server architecture – stored procedure, triggers and rules – SQL middleware and federated databases: SQL middleware options – single vendor options – multi vendor option – open SQL gateways: IBI EDA/SQL – ISO/SAG RDA – IBM DRDA.

Module IV: [17 Hrs]

Client/server transaction processing: The ACID properties – transaction models: client/server groupware: What is groupware – components of groupware: Electronic imaging client/server architecture –groupware multimedia document management – workflow – workflow models – workflow routes – workflow split & joins – electronic mail component – electronic mail infrastructure – scheduling & calendaring – conferencing –client/server with distributed objects: distributed objects & components.

Module V: [15 Hrs]

Client/server and the internet: Web client/server the hypertext era: What is URL? – HTTP – 3-tier client/server, web style – JAVA client and CORBA ORBs – The DCOM/OLE object web – CORBA object web.

Book for Study:

Robert Orfali, Dan Harkey, Jerry Edwards, “The Essential Client/server Survival Guide”, II edition, Golgotia Publication Pvt ltd, 2004.

Course Designed By : Ms.M.Malini

Course Reviewed By : Ms.T.Prasanthini

Checked By :Mrs.S.Shobana

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester V

Part IV Skill Based Course III – Photoshop

S.C

:511SS3

(For the Candidates admitted during the academic year 2011-2012 Onwards)

38 Hrs

Preamble:

- Photoshop is an important tool for graphic designers and professionals who have to work with images.
- The syllabus starts with the basics of Photoshop and subsequently studies every aspect in detail.
- Different kinds of image effects can be developed with the Photoshop.

- The practical programs develop the skill to expert with Photoshop, which is a basic tool for multimedia and animation.

Module I: [10 Hrs]

Starting Photoshop CS2: Getting started with Photoshop CS2– Opening an existing file- The Photoshop program window- Guidelines for working with toolbox- Screen modes- Creating a new file- Saving files.

Working with images: Vector and bitmap images- Opening recently used files- Image size- Editing images- Opening files created in illustrator or freehand- Color modes- Setting a current foreground and background colors- File formats.

Module II:[7 Hrs]

Making selections: Making selection-The selection tools- The magnetic lasso tool- The grow and similar commands- Moving a portion of an image- Editing selections- Copying a selection into another image- Filling a selection – Transforming selections.

Module III:[7 Hrs]

Painting, drawing and retouching tools: The painting tools- The drawing tools- The retouching tools.

Module IV:[7 Hrs]

Layers: Layers palette- Working with layers- New layer via cut- New layer via copy- Hiding/showing layers- Repositioning layers- Flattening images-Working with adjustment layers- Layer effects.

Type: Creating type- Type tool- Converting point type to paragraph type- Converting type layers to standard layers- Type masking.

Module V:[7 Hrs]

Filters: The filter menu- Filter gallery- Extract filter- Vanishing point filter- Artistic filters- Blur filters- Distort filters- Noise filters- Pixelate filters- Lighting effects.

Book for study:

“Photoshop CS2 in simple steps”, Shalini Gupta, Adity Gupta, Published by Dream tech press, 2006.

List of programs:

1. Create a GIF transparency.
2. Design a 3D text.
3. Use the heal brush and make changes in an image.
4. Build a glow effect with stroke path.
5. Show/ Hide a layer.
6. Merge two or more layers.
7. Create different layer effects.
8. Build lighting effects and difference clouds.
9. Annotate files with text and audio.
10. Create type masking.
11. Build a filter based GIF animations.
12. Create an advertisement.
13. Design a student identity card.
14. Create a newsletter.
15. Create an invitation.

Course Designed By : Ms.V.Devi

Course Reviewed By : Ms.D.Pavithra

Checked By :Ms.B.Sreemathi

B.Sc. Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester - VI
Part III Core XII - Web Technology

Subject Code: 610G12

Preamble:

[65 Hrs]

- ASP.NET is a programming framework used to create enterprise-class Web Applications.
- ASP.NET applications run faster and counters large volumes of users without performance problems
- PHP can be deployed on most web servers, many operating systems and platforms, and can be used with many relational database management systems.
- PHP can also be used for command-line scripting and client-side GUI applications.

Module I:

[13 Hrs]

Getting setup: What is ASP.NET?-The Development Environment –ASP.NET Programming Language. Programming Basics: How Dynamic website Application work. Programming ASP.NET with Visual Basic.NET: Request Object –Response Object – ASP Server Object.

Module II:

[13 Hrs]

Web forms and ASP.NET: Web Forms. ASP.NET Configuration, Scope and State: ASP.NET and State – The Application Object – ASP Sessions- The Session Object. ASP.NET Objects and Components: The Scripting Object Model.

Module III:

[13 Hrs]

ASP.NET and SQL Server: Using Databases in ASP.NET Application – Activex Data Objects – The ADO.NET Object Model. The ADO.NET Connection – Related Objects: Interactivity and Latency. The ADO/ADO.NET Record set and Dataset –Related Objects: The Record set Objects.

Module IV:

[13 Hrs]

Essential PHP: Creating Your Development Environment-Creating a First PHP Page-Running Your First PHP Page – Printing Some Text – More Echo Power – Command Line PHP – Working With Variable – Storing Data in Variables – Understanding PHP's Internal Data Types. Operators and Flow Control.

Module V:

[13 Hrs]

Strings and Arrays: Building Yourself some Array – Modifying the Data in Arrays. Creating Function: Creating Function in PHP – Passing Functions Some Data.- Returning Data from Functions. Working with Database: Creating MySQL Database - Creating a New Table – Putting Data into New Database – Accessing the Database in PHP.

Book for study:

Book 1: Dave Mercer – “ASP.NET A Beginner's Guide”, Tata McGRAW-Hill Edition,

2002.

Book 2: Steve Holzner-“ The Complete Reference PHP”, Tata McGRAW-Hill Edition,

2008.

Course Designed by : Ms.B.Antony Jerline

Course Reviewed by : Ms. P.Agathieswari

Course Checked by : Ms.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester VI
Part III - Core XIII– Software Testing

Subject Code: 610G13

Preamble: [65 Hrs]

- To explain the basics of software testing
- To highlight the strategies for software testing
- To stress the need and conduct of testing levels
- To bring out the ways and means of controlling and monitoring testing activity

Module I: [13 Hrs]

Introduction: The Purpose of Testing. Some Dichotomies: Testing Vs Debugging. - A Model for Testing the Taxonomy of Bugs.

Module II: [13 Hrs]

Flow/Graphs and Path Testing: Path Testing Basics: Path Testing – Loops - Predicate, Paths Predicates and Achievable paths – Path Instrumentation – Implement and Application of path Testing – Transaction Flow Testing Techniques – Data Flow Testing Strategies.

Module III: [13 Hrs]

Domain Testing: Domains and Paths – Domains and Interface Testing. Metrics and Complexity: Linguistic Metrics – Structural Metric - Path Products and Path Expressions.

Module IV: [13 Hrs]

Syntax Testing: A Grammar for Formats – Test Case Generation. Logic Based Testing: Decision Tables. States, State Graphs and Transition Testing: State Graphs - State Testing.

Module V: [13 Hrs]

Software Testing Process: Verification and Validation - Levels of Testing – Testing Approaches – Types of Testing – Test Plan. Software Testing Tools: WinRunner – QTP.

Book for Study

1. B. Beizer , 2009, Software Testing Techniques, II Edn., DreamTech India, New Delhi. (Module I,II,III,IV)
2. K.V.KK. Prasad , 2008, Software Testing Tools, DreamTech. India, New Delhi. (Module V)

Course Designed by : Ms.P.Ashvini

Course Reviewed by: Ms.B.Sasikala

Course Checked by: Ms.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester VI

Subject Code: 610G14

Part III – Core XIV - Network Security and Administration

Preamble: [65 Hrs]

- This paper emphasis on applications that are widely used on the Internet.
- Network security involves the authorization of access to data in a network.
- It secures the network, as well as protecting and overseeing operations being done.

Module I: [13 Hrs]

Introduction: Security Attacks-Security Services-A Model for network security –Internet standards Internet Society-Other RFC Types- Symmetric Encryption and message Confidentiality: Symmetric Encryption Principles-Symmetric Block Encryption Algorithms-Cipher Block Modes of operation-Location of Encryption Devices.

Module II : [13 Hrs]

Public key Cryptography and message Authentication: Approaches to message Authentication – Secure Hash Functions and HMAC-Public Key Cryptography Principles-Public Key Cryptography Algorithms-Key Management-Authentication Applications: X.509 Authentication Services –Public Key Infrastructure.

Module III: [14 Hrs]

Electronic Mail Security: Pretty Good Privacy (PGP)-S/MIME – IP Security: IP Security Overview – IP Security Architecture - Web Security: Web Security Considerations -Secure Socket Layer (SSL) and Transport Layer Security (TSL)-Secure Electronic Transaction (SET).

Module IV: [13 Hrs]

Network Management Security: Basic Concepts of SNMP-SNMPv1 CommModuley Facility-SNMPv3-Intruders: Intruders-Intrusion Detection-Password Management.

Module V: [12 Hrs]

Malicious Software : Viruses and Related Threats – Virus Countermeasures – Distributed Denial of Service Attacks – Firewalls : Firewall Design Principles – Trusted Systems.

Books for Study:

William Stallings, “Network Security Essentials-Applications and Standards”, Published by Pearson Education Pvt Ltd., Third Indian Print, 2005.

Course Designed By : Ms.P.Manonmani

Course Reviewed By : Ms.A.Manjula

Checked By : Ms.S.Shobana

B.Sc. Information Technology
(For Candidates admitted from 2010-2011 and Onwards)
Semester-VI

Subject Code: 610GE2

Elective II-Data Mining and Data Warehousing

Preamble: [75 Hrs]

- Data Mining is the process that results in the discovery of new patterns in large Data sets.
- The overall goal of the data mining process is to extract knowledge from an existing data set and transform it into a human-understandable structure for further use

Module I: [15 Hrs]

Introduction: Basic Data Mining Tasks-Data Mining versus Knowledge Discovery in Databases-Data Mining Issues-Data Mining Metrics-Social Implications of Data Mining-Data Mining from a Database Perspective- Database/OLTP systems-Fuzzy Sets and Fuzzy Logic-Information Retrieval-Decision Support Systems-Dimensional Modeling-Data Warehousing-OLAP.

Module II: [15 Hrs]

Data Mining Techniques: Introduction-Statistical perspective on data mining-Similarity measures- Decision trees- Neural Networks-Genetic Algorithm.

Clustering: Introduction-Hierarchical Algorithms: Agglomerative algorithm-Divisive Clustering-Partitional Algorithms ;Minimum spanning tree-Squared error clustering algorithm-K-Means clustering-Nearest neighbor algorithm-PAM algorithm-Bond energy algorithm-Clustering with genetic algorithm- Clustering with neural networks.

Module III: [15 Hrs]

Association Rules: Introduction-Basic Algorithms: Apriori Alogrithm-Sampling algorithm- Partitioning

Advanced Association Rule Techniques: Generalized association rules-Multiple level association rules-Quantitative association rules-using multiple minimum supports-Correlation rules.

Module IV: [15 Hrs]

Web Mining: Introduction-Web Content Mining: Crawlers- Harvest system-Virtual web view- Personalization. Web Structure Mining: Page rank-Clever. Web Usage Mining: Preprocessing-Data structures-Pattern discovery-Pattern analyses.

Spatial Mining: Introduction-Spatial data overview: Spatial Queries-Spatial data structures-Thematic maps-Image databases-Spatial Rules-Spatial Classification Algorithm-Spatial Clustering Algorithm: CLARANS Extensions- SD (CLARANS).

Module V: [15 Hrs]

Data Warehousing: What is data warehouse?-System Process: Introduction-Overview-Typical process flow with in data warehouse-Extract and load process-Clean and Transform data-Backup and Archive process-Query management process.

Process Architecture: Introduction-Load manager-warehouse manager-query manager-Detailed information-Summary information-Meta Data-Data Marting.

Books for Study:

1. Margaret H.Dunham, S.Sridhar-“Data Mining-Introductory and Advanced Topics”, Pearson Education, Reprint 2008.[Module 1-IV]
2. Sam Anahory, Dennis Murray-“Data Warehousing in the Real World”, Pearson Education, Eleventh Indian reprint 2005.[Module V]

Course Designed By :Ms.V.Vadivu

Course Reviewed By :Mrs.T.Prasanthini

Checked By :Mrs.S.Shobana

B.Sc Computer Science

(For B.Sc Computer Science / Information Technology / Computer Applications)

Semester VI

Part IV Skill Based IV –Flash

S.C:611SS4

(For the Candidates admitted during the academic year 2011-2012 Onwards)

38 Hrs

Preamble:

- This paper gives introductory knowledge about Flash and its application areas.
- The students are capable of doing Animation.
- Publishing a Flash Movie is also given.
- Flash Component technology helps the user to create forms to bind data and to stream video easily using predefined components.

Module I: [10Hrs]

Introduction: Hierarchy of Flash movie-The work space-Toolbars-Toolbox-Timeline-Panels: Menus.

Module II:**[7 Hrs]**

Panels: Design panels-Development panels-Other panels-Project Panels.
Graphic Tools in Flash: Drawing tool-Object Selection Tools-Color Selection Tools-Viewing Tools.

Module III:**[7 Hrs]**

Advanced Editing Techniques: Reshaping the Objects-Optimizing the Curves-Expand and insert the file-Softening the edges-Converting the lines to fills-Editing the gradient fill and the bitmap fill-Transformation-Arranging the elements-Aligning objects-Handling text-3D Graphics in Flash. Frames, Layers and Scenes: Frames-Layers-Scenes-Documents Properties.

Module IV:**[7 Hrs]**

Symbols: Movies clip-Buttons-Graphic-Methods of creating symbols-Editing the symbol-Changing the behavior of the symbol-Instances-Animated symbol-Symbol from other Movie files-Library-Importing Pictures-Importing video clips-Component definition-Shared Library. Animation: Frame-by-Frame animation-Motion tweening – Shape tweening-Hybrid tweening-Text animation-3D Animation.

Module V:**[7 Hrs]**

Adding sound to animation: Characteristics of digital sound's-Importing sound files-Exporting sound files-Sound effect settings-Editing the sound envelop-Synchronizing the sound with animation-Exporting the sound with animation. Publishing flash movie: Testing flash movies-File formats for publishing-Publish Preview command-Publish Command.

Book for Study:

“Flash MX 2004” V.V.Thiyagarjan and B.Anubumani, Tata McGraw-Hill Publishing Company Limited-New Delhi.

List of Programs:

1. Draw a Butterfly using Oval tool, Circle tool and Pencil tool.
2. Create a shape with Pencil tool (Using Straight smooth and free form lines).
3. Draw a Pentagon using Vector Graphics Method.
4. Create a Drop Shadow effect with depth.
 - i) Create a text along a curved path.
 - ii) Draw a 3D Ring.
5. Create a 3D Tunnel.
6. Draw a picture in multiple frame use Onion Skin Effect.
7. Create an animated button with a gradient in the upstate and a text over it.
8. Create folders in the library with names, eyes, heads, mouth and nose. Create symbols with different types of eyes, head etc., and store in the corresponding folders. Using those symbols assemble different types of Faces.
9. Using multiple motion tweening effect, draw a pendulum.

Course Designed By : Ms.K.Sangeetha

Course Reviewed By : Ms.S.Anitha

Checked By : Ms.B.Sreemathi

B.Sc. Information Technology
(For Candidates admitted from 2010-2011 and Onwards)

Subject Code: 610ALG

Semester VI**Advanced Learner's Course III- Mobile Computing****Preamble**

- To learn the basics of Wireless voice and data communications technologies.
- To build working knowledge on various telephone and satellite networks.

- To study the working principles of wireless LAN and its standards.

Module I

Introduction – Applications – A simplified reference model - Overview - Wireless transmission – Frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – Cellular Systems.

Module II

Medium Access Control – SDMA – FDMA – TDMA – CDMA – Comparison of S/T/F/CDMA. Telecommunication systems – GSM – DECT – TETRA- UMTS and IMT-2000- Satellite Systems - Basics – Routing- Localization-Handover.

Module III

Broadcast Systems – Overview-Cyclical repetition of data – Digital audio broadcasting – Digital Video broadcasting – Convergence of broadcasting and mobile communications - Wireless LAN-IEEE 802.11-HIPERLAN.

Module IV

Mobile Network Layer -Mobile IP – Dynamic Host Configuration Protocol – Mobile ad-hoc Networks- Mobile Transport Layer – Traditional TCP – Classical TCP improvements.

Module V

Support for mobility – File systems – World Wide Web – Wireless application protocol –i-mode –SyncML-WAP 2.0.

Book for Study:

Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, Second Edition, 2003.

Course Designed By : Ms.P.Manonmani

Course Reviewed By : Ms.A.Manjula

Checked By : Ms.S.Shobana

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Statistics
B.Sc. Statistics
Scheme of Examination – CBCS Pattern
[For students admitted during the academic year 2017-2018 and onwards]

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credit
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
117TA1/ 117MY1/ 117HD1/ 117FR1 117EN1	Semester I Part I: Language I	6	3	25	75	100	4
117EN1	Part II: English I	6	3	25	75	100	4
117W01	Part III: Core I: Descriptive Statistics - I	4	3	25	75	100	4
117W02	Core II: Descriptive Statistics - II	4	3	25	75	100	4
217WP1	Core Practical I: Statistical Practical I	2	-	-	-	-	-
117AW1	Allied I : Mathematics for Statistics I	6	3	25	75	100	4
117EVS	Part IV: Environmental Studies	2	3	50	-	50	2
217TA2/ 217MY2/ 217HD2/ 217FR2 217EN2	Semester II Part I: Language II	6	3	25	75	100	4
217EN2	Part II: English II	6	3	25	75	100	4
217W03	Part III: Core III: Applied Statistics	6	3	25	75	100	4
217WP1	Core Practical I: Statistical Practical I	4	3	25	50	75	3
217AW2	Allied II : Mathematics for Statistics II	6	3	25	75	100	4
217VEC	Part IV: Value Education	2	3	50	-	50	2

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credit
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
317TA3/ 317MY3/ 317HD3/ 317FR3 317EN3 317W04 317W05 317AW3 317NSA 317WS1	Semester III Part I: Language III	6	3	25	75	100	4
	Part II: English III	6	3	25	75	100	4
	Part III:						
	Core IV : Demographic methods	3	3	25	75	100	4
	Core V: Probability Distribution-I	3	3	25	75	100	4
	Allied III: Computer programming for Statistical Analysis-I	5	3	25	50	75	3
	Allied Practical - C & C++ programming	2	-	-	-	-	-
	Part IV :						
	NME - Statistical Analysis	2	2	50	-	50	2
	Skill Enhancement Course I : Actuarial Statistics - I	3	3	75	-	75	3
417TA4/ 417MY4/ 417HD4/ 417FR4 417EN4 417W06 417WP2 417AW4 417AWP 417NGA 417WS2 417GIS	Semester IV Part I: Language IV	6	3	25	75	100	4
	Part II: English IV	6	3	25	75	100	4
	Part III:						
	Core VI: Probability Distribution-II	4	3	25	75	100	4
	Core Practical II: Statistical Practical II	2	3	25	50	75	3
	Allied IV : Computer programming for Statistical Analysis-II	5	3	25	50	75	3
	Allied Practical - C & C++ programming	2	3	20	30	50	2
	Part IV :						
	General Awareness	-	1	50	-	50	2
	Skill Enhancement Course II: Actuarial Statistics - II	3	3	75	-	75	3
	Information Security	2	2	50	-	Grade	Grade

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credit
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III:						
517W07	Core VII : Statistical Inference I	5	3	25	7	100	4
517W08	Core VIII: Basic Sampling theory	5	3	25	5	100	4
517W09	Core IX : Design of Experiments	5	3	25	75	100	4
	Core Practical III: Statistical Practical III	2	-	-	-	-	-
517W10	Core X: Numerical Mathematics	5	3	25	75	100	4
517WE1	Elective I: Psychological Statistics	5	3	25	75	75	3
	Part IV :						
517WS3	Skill Enhancement Course III : Actuarial Statistics – III	3	3	75	50	75	3
	Semester VI						
	Part III:						
617W11	Core XI: Statistical Inference II	5	3	25	75	100	4
617W12	Core XII: Statistical Quality Control	5	3	25	75	100	4
617WP3	Core Practical III: Statistical Practical III	2	3	25	50	75	3
617WE2	Elective II: Elements of Econometrics	5	3	25	50	75	3
617WE3	Elective III: Operations Research	5	3	25	50	75	3
617WP4	Core Practical IV: Statistical Practical IV	5	3	40	60	100	4
	Part IV :						
617WS4	Skill Enhancement Course IV: Actuarial Statistics - IV	3	3	75	-	75	3
617EX1/ 617EX2/ 617EX3/ 617EX4/ 617EX5	Part V : Extension	-	-	50	-	50	2
Total						3500	140

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Statistics
B.Sc. Statistics
Scheme of Examination – CBCS Pattern
[For students admitted during the academic year 2016-2017 only]

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credit
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
315TA3/ 315MY3/ 315HD3/ 315FR3 315EN3 316W05 316W06 316AW3 316WS1	Semester III						
	Part I: Language III	6	3	25	75	100	4
	Part II: English III	6	3	25	75	100	4
	Part III:						
	Core V : Demographic methods	3	3	25	75	100	4
	Core VI: Probability Distribution-I	3	3	25	75	100	4
	Allied III: Computer programming for Statistical Analysis-I	5	3	25	50	75	3
	Allied Practical: C and C++ programming for statistical Analysis	2	-	-	-	-	-
	Part IV : NMEC	2	2	50	-	50	2
	Skill Based Course I : Actuarial Statistics- I	3	3	75	-	75	3
415TA4/ 415MY4/ 415HD4/ 415FR4 415EN4 416W07 416WP2 416AW4 416AWP 416NGA 416WS2 415GIS	Semester IV						
	Part I: Language IV	6	3	25	75	100	4
	Part II: English IV	6	3	25	75	100	4
	Part III:						
	Core VII: Probability Distribution-II	4	3	25	75	100	4
	Core Practical II-(Manual Calculation)	2	3	25	50	75	3
	Allied IV : Computer programming for Statistical Analysis-II	5	3	25	50	75	3
	Allied Practical: C and C++ programming for statistical Analysis	2	3	25	50	75	3
	Part IV : General Awareness (Online)	-	1	50	-	50	2
	Skill Based Course II: Actuarial Statistics - II	3	3	75	-	75	3
	Information Security	2	2	50	-	Grade	Grade

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credit
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester V						
	Part III:						
516W08	Core VIII : Statistical Inference I	6	3	25	75	100	4
516W09	Core IX: Basic Sampling theory	6	3	25	75	100	4
516W10	Core X : Design of Experiments	6	3	25	75	100	4
	Core Practical III: Statistical software package	3	-	-	-	-	-
516WE1	Elective I: Psychological Statistics	6	3	25	50	75	3
	Part IV :						
516WS3	Skill Based Course III : Actuarial Statistics – III	3	3	75	-	75	3
	Semester VI						
	Part III:						
616W11	Core XI: Statistical Inference II	5	3	25	75	100	4
616W12	Core XII: Statistical Quality Control	5	3	25	75	100	4
616WP3	Core Practical III: Statistical software package	2	3	25	50	75	3
616WE2	Elective II: Elements of Econometrics	5	3	25	50	75	3
616WE3	Elective III: Operations Research	5	3	25	50	75	3
616WP4	Core Practical IV (Manual Calculation)	5	3	40	60	100	4
	Part IV :						
616WS4	Skill Based Course IV: Actuarial Statistics - IV	3	3	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V : Extension	-	-	50	-	50	2
Total						3500	140

Curriculum Design
SRI GVG VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)
Affiliated to Bharathiar University
Department of Statistics
B.Sc. Statistics
Scheme of Examination – CBCS Pattern
[For students admitted from the academic year 2016-2017 onwards]

Course Code	Course Title	Ins. Hrs/ Week	Examination				Credit
			Dur. Hrs	CIA Marks	ESE Marks	Total Marks	
115TA1/ 115MY1/ 115HD1/ 115FR1 115EN1 116W01 116W02 116AW1 115EVS	Semester I						
	Part I: Language I	6	3	25	75	100	4
	Part II: English I	6	3	25	75	100	4
	Part III:						
	Core I: Basic Statistics	4	3	25	75	100	4
	Core II: Descriptive Statistics	4	3	25	75	100	4
	Core Practical I: Statistical Practical I	2	-	-	-	-	-
	Allied I : Mathematics for Statistics I	6	3	25	75	100	4
	Part IV: Environmental Studies	2	2	50	-	50	2
215TA2/ 215MY2/ 215HD2/ 215FR2 215EN2 216W03 216W04 216WP1 216AW2 215VEC	Semester II						
	Part I: Language II	6	3	25	75	100	4
	Part II: English II	6	3	25	75	100	4
	Part III:						
	Core III: Time Series and Index Numbers	4	3	25	75	100	4
	Core IV: Numerical Analysis	4	3	25	75	100	4
	Core Practical I: Statistical Practical I	2	3	20	30	50	2
	Allied II : Mathematics for Statistics II	6	3	25	75	100	4
	Part IV: Value Education	2	2	50	-	50	2

B.Sc Statistics
Semester II
Part III – Core III – APPLIED STATISTICS

217W03

[For students admitted during the academic year 2017 – 2018 and onwards]

75 Hours

The objective of this course is

- to learn the measures of forecasting and analyze the data relating to economics and demography.

Unit I (Time series) (15 Hours)

Concept – components of time series – additive and multiplicative models – Resolving components of a time series – measuring trend: Graphic, semi – averages, moving average and principle of least squares methods.

Chapter 2: (Sections 2.1 - 2.4.6)

Unit II (Time series) (15 Hours)

Seasonal variation – measuring seasonal variation: method of simple averages, ratio to trend method, ratio to moving average method and link relative method – Cyclical and Random fluctuations – variate difference method.

Chapter 2: (Sections 2.5, 2.6 & 2.9)

Unit III (Index Numbers) (15 Hours)

Index numbers and their definitions – construction and uses of fixed and chain based index numbers – simple and weighted index numbers – Laspeyre's, Paache's, Fisher's, and Marshall – edge – worth index numbers – optimum tests for index numbers – Cost of living index numbers.

Chapter 3: (Sections 3.1 – 3.5)

Unit IV (Demographic methods) (15 Hours)

Demography – definition – sources of demographic data: vital registration – population census – population register – demographic surveys – population data as aid to social, economic and healthy planning – process of Indian Civil registration and census.

Chapter 9: (Sections 9.1 – 9.3)

Unit V (Demographic methods) (15 Hours)

Fertility measurements: Fertility as a component of population change – crude birth rate – general, specific and total fertility rates – gross and net reproduction rates and their interpretation.

Chapter 9: (Sections 9.7 & 9.8)

Book for Study:

Fundamentals of applied Statistics by Gupta S.C and Kapoor, V.K
(Sultan chand & Sons) (2017)

Books for Reference:

1. Applied general statistics by Croxton, F.E & Cowden, D.J (Prentice Hall)
2. Fundamentals of applied Statistics by Goon.A.M, Guptha.M.K & Das Guptha
3. The advanced theory of Statistics by Kendall, M.G and Stuart, A Vol III
(Charles criffin)

Course Outcomes:

Upon the successful completion of this course, the students will be able to

CO1: know about different time series forecasting models: graphic, semi-average, moving average and principles of least square.

- CO2:** know about price indices and the difference between aggregated and un aggregated indexes.
- CO3:** identify and compare the advantages and disadvantages of the different sources of demographic data.
- CO4:** present appropriate techniques to ensure comparability of the measures across the population.
- CO5:** define and differentiate the demographic concepts, terminology and formulas.

	PO1	PO2	PO3	PO4	PO5	Knowledge level
CO1	H	H	H	H	H	U
CO2	H	H	H	M	H	U
CO3	H	H	H	H	H	A
CO4	H	H	H	H	H	A
CO5	H	H	H	M	H	K

B.Sc Statistics

Semester III

Part III – Core V – DEMOGRAPHIC METHODS

316W05

[For students admitted during the academic year 2016 – 2017 only] 39 Hours

Subject description:

This course introduces the concepts, methods and analysis of data relating to vital events such as births, deaths, marriage, migration etc.

Goal: To enable the students to have an exposure on the application of Statistical methods to analyze the demographic problems.

Objective:

On successful completion of the course the students should have understood about registered information of vital events, measurement of the events such as birth and death rates, life tables and population projection techniques.

Unit I

(8 Hours)

Mortality measurements: crude death rate – specific death rates – standardized death rates – direct and indirect methods.

Book 1: Chapter 9 (Sections 9.4.1–9.4.3)

Unit II

(8 Hours)

Comparative mortality index – infant mortality rate – maternal mortality rate – cause of death rate – case fatality rate – force of mortality – graduation of mortality rates – Gompertz and Makeham's laws.

Book 1: Chapter 9 (Sections 9.4.3, 9.5.4, 9.9)

Unit III

(7 Hours)

Assumptions, description and construction of various columns of a life table and their relationships – uses of a life table – age pyramid.

Book 1: Chapter 9 (Sections 9.5, 9.5.5, 9.5.6)

Unit IV

(8 Hours)

Construction of an abridged life table – Reid and Merrell method – Greville's method – migration – factors effecting migration – gross and net migration rates.

Book 1: Chapter 9 (Sections 9.6, 9.6.1, 9.6.2)

Book 2: Chapter 10

Unit V

(8 Hours)

Population projection – population estimates and projection – arithmetic, geometric and exponential growth rates – logistics curves – Pearl and Reed method – method of Rhodes – Basic ideas of stationary and stable population.

Book 1: Chapter 9 (Sections 9.5.1, 9.5.2)

Books for Study

1. Fundamentals of Applied Statistics by Gupta.S.C and Kapoor ,V.K (Sultan Chand & Sons) (2017)
2. Principles of Population studies by Asha A.Bende and Tara karitkar (Himalaya publishing)(2006)

Books for Reference

1. Indian Population Problems by Agarwala, S.N(Tata Mc Graw Hill, Bombay)
2. Fundamentals of Statistics Vol.II by Goon A.M, Guptha.M.K and Das Guptha (World press)
3. An introduction to the study of population by Mishra D.E (South India publishers, Madras)
4. Fundamentals of Demography by Dr..Hansraj (Surjeet publications Delhi)

B.Sc Statistics

Semester III

Part IV – Skill Based Course I – ACTUARIAL STATISTICS - I 316WS1

[For students admitted during the academic year 2016 – 2017 only] 39 Hours

Subject description:

This course introduces the underlying principles, history of life insurance

Goal: To enable the students to understand the sound financial line insurance.

Objective:

On completion of this course the students should have understood the principal terms used and major life insurance products covered in Indian life insurance and the selection and purpose of risk, and how mortality table is essential for life insurance.

Unit I

(8 Hours)

Principles of Life Assurance: Nature of Insurance – Classification of Insurance – History of Life Insurance in India.

Chapter 1 (Pages 3 – 7), Chapter 2 (Pages 8 – 11)

Unit II

(8 Hours)

Definition of whole life assurance – term assurance – pure endowment – endowment assurance – critical illness assurance – whole life level annuity – temporary level annuity premium, benefit – assurance and annuity contracts.

Chapter 6 (Pages 43 – 50), Chapter 7 (Pages 82 – 84)

Unit III

(8 Hours)

Selection of Risk – Purpose of selections – Factors affecting risks – Sources of risk information – Insurance of ladies and minors – Non-medical business – Classes of risk – Methods of risk classification – Measurement of Risk – Treatment of sub-standard risks – Methods of treating sub-standard risks – Mortality table – Features – Construction of death rate on yearly basis – Sources of mortality information – Construction of mortality table – Types of mortality tables – Interest factor.

Chapter 8 (Pages 85 – 100), Chapter 9 (Pages 103 – 113),
Chapter 11 (Pages 128 – 131)

Unit IV

(8 Hours)

The Reserve: Nature, definition, origin, sources, need - Methods of calculating Reserve – Investment of funds: Need, Sources – Problems of investment – The principles of investment – Suitability of various types of investments – Surrender value – Basis of calculating surrender value – Forms of payment – Valuation and Surplus – The calculation process – Sources of surplus – Difference between surplus and profit – Bases of allotment of profit – Distribution of surplus – Bonus – Classification – Options.

Chapter 12 (Pages 132 – 138), Chapter 13 (Pages 140 – 146),

Chapter 14 (Pages 156 – 159), Chapter 15 (Pages 160 – 165)

Unit V

(7 Hours)

Policy condition – Life insurance for under privileged – Industrial life insurance – Group life insurance – Disability Benefit policies – Social security schemes – Pension Plans – Micro life insurance.

Chapter 16 (Pages 166 – 171), Chapter 17 (Pages 178 – 191)

Book for Study

Insurance Principle and practice : M.N. Mishra and S.B. Mishra
S. Chand & Co, New Delhi) (21st edition)(2014)

B.Sc Statistics

Semester IV

Part IV – Skill Based Course II – ACTUARIAL STATISTICS – II 416WS2

[For students admitted during the academic year 2016 – 2017 only] 39 Hours

Subject description:

This course introduces the types of marine insurance products and premium calculations

Goal: To enable the students to gain more knowledge in life insurance products.

Objective:

On completion of this course the students should have understood various concepts relating to marine insurance and the types, policy conditions and payments of marine insurance.

Unit I

(8 Hours)

Marine insurance – Definition – Subject matter – Hull insurance – Cargo insurance – Freight insurance – Liability insurance – Documents of marine insurance – Procedure to effect marine insurance – Elements of marine insurance – History – Marine publications – Marine insurance policies – Classes of policies.

Chapter 19 (Pages 267 – 286), Chapter 20 (Pages 287 – 291)

Unit II

(8 Hours)

Policy conditions – Lloyd's form of policy – Description of the clauses – Risk covered by ICC (A) – Premium calculation – Rate making in marine insurance – Return of premium.

Chapter 21 (Pages 292 – 298), Chapter 22 (Pages 299 – 302)

Unit III

(8 Hours)

Marine losses – Marine perils – Total loss – Partial loss – Particular average loss – Illustration – General average – Types of general average loss – General average contribution – Application of general average to insurance – Expenses.

Chapter 23 (Pages 303 – 314)

Unit IV (7 Hours)

Payment of claims – Documents Required for claim – Documents in different types of claims – Extent of liability – Some practical problems.

Chapter 24 (Pages 315 – 321)

Unit V (8 Hours)

Marine insurance business in India – Business of Indian Insurers progress before Nationalization – Indian Insurers – Gross direct premium income – Net premium income – Underwriting experiences in Marine insurance – Some articles in marine insurance.

Chapter 25 (Pages 322 – 350)

Book for Study

Insurance Principle and practice: M.N. Mishra and S.B. Mishra

(S. Chand & Co, New Delhi) (21 Edition, 2014)

B.Sc. Statistics

Semester II

Part III - Core III-TIME SERIES AND INDEX NUMBERS 216W03

[For students admitted from the academic year 2016-2017 onwards]

Preamble 52 Hours

The main objective of this course is to acquaint student with knowledge on time series and index numbers. Index number is very useful in measuring the relative changes in the value of money and also it is helpful for the guidance and formulation of economic policies.

In time series analysis, there are two main goals

- identifying the nature of the phenomenon represented by the sequence of observations
- forecasting (predicting future values of the time series variable).

Unit I (10 Hours)

Analysis of time series: components of time series – Trend- Irregular (or Random) Component- Analysis of time series- Measurement of trend.

Book 1: Chapter 2 (Pages 2.1 to 2.36)

Unit II (11 Hours)

Measurement of Seasonal Variation: Methods of simple average – Ratio to trend Methods – Ratio to Moving average methods – Link relative methods – Measurement of cyclic variation – Random components in a time series.

Book 1: Chapter 2 (Pages 2.41 to 2.67)

Unit III (10 Hours)

Index Number: Uses of Index Numbers – Problems in the construction index numbers – Miscellanies Illustrations.

Book 2: Chapter 13 (Pages 516 to 537)

Unit IV (10 Hours)

Index Number: Value Index Numbers – Tests of Adequacy of Index Number Formulae – Chain Index Number – Consumer Price Index Numbers – Index Number of Industrial Production – Miscellaneous Illustrations.

Book 2: Chapter 13 (Pages 545 to 587)

Unit V (11 Hours)

National Income Statistics: Methods of Calculation- Computational difficulties in India- Uses of National Income Estimates. National Sample Survey: Scope and working of

National Sample Survey - National Sample Survey Organisation.

Book 3: Chapter 9 (Pages 1034 to 1052), Book 3: Chapter 10 (Pages 1053 to 1061)

Books for Study :

Book 1: For Units I and II: S.C. Gupta and V.K. Kapoor, Fundamentals of Applied Statistics- Sultan Chand & Sons, Forth Edition, Reprint, 2015.

Book 2: For Units III and IV: S.P. Gupta – Statistical Methods- Sultan Chand & Sons.

Book 3: For Unit V: D. N. Elhance, Fundamentals of Statistics.-Twentieth Edition (1978).

Books for Reference:

1. Croxton and Cowden, Applied General Statistics, prentice – Hall of India (Private)Ltd, Second edition, 1956, New Delhi.
2. B.L.Agarwal, Programmed statistics, New Age International, Chennai.
3. D. N. Elhance, Fundamentals of Statistics.-Twentieth Edition(1978).

Course Designed by : S.AZHAGESWARI

Course Reviewed by : A.ANIS FATHIMA

Course Checked by : A.ANIS FATHIMA

B.Sc. Statistics

Semester II

Part III-Core IV - NUMERICAL ANALYSIS

216W04

[For students admitted from the academic year 2016-2017 onwards]

Preamble

52 Hours

The study of Numerical Methods has become very important due to the wide spread use of these methods by scientists and engineers.

This course is designed in such a way that

- it develops the problem solving skills of the students .
- it provides confidence and motivation to solve problems with higher degree of complexity.

Unit I

(11 Hours)

Finite differences: First difference-Express any value of y in term of y_n and the backward differences of y_n – Differences of a polynomial – Factorial polynomial. Interpolation (for Equal Intervals): Introduction – Gregory-Newton forward Interpolation formula – Gregory-Newton backward Interpolation Formula – Equidistant terms with one or more missing values.

Chapter 5 (Sections 5.1-5.4) Chapter 6 (Sections 6.1-6.3, 6.7)

Unit II

(10 Hours)

Central Difference Interpolation formulae (For Equal Intervals): Central differences and central difference table – Central difference interpolation formula – Gauss's forward interpolation formula – Gauss's backward interpolation formula – Stirling's formula – Bessel's formula – Laplace-Everett formula – Relation between Bessel's and Everett's formulae.

Chapter 7 (Sections 7.1-7.8)

Unit III

(11 Hours)

Interpolation With Unequal Intervals: Introduction – Divided differences – Properties of divided differences – Relation between divided differences and forward differences – Theorem: Newton's interpolation formula for unequal intervals – Deduction: Deduce

Gregory Newton interpolation forward formula for equal intervals – Lagrange's interpolation formula (for unequal intervals) – Different form of Lagrange's interpolation formula – Inverse Interpolation.

Chapter 8 (Sections 8.1-8.8)

Unit IV

(10 Hours)

Numerical differentiation and Integration: Introduction – Newton's forward difference formula to get the derivative – Newton's backward difference formula to compute the derivative – Derivative using Stirling's formula – Caution – To find maxima and minima of the function given the tabular values.

Chapter 9 (Sections 9.1-9.6)

Unit V

(10 Hours)

Numerical Integration: Introduction – Trapezoidal rule – Simpson's one-third rule – Simpson's three-eighths rule. Numerical Solution of Ordinary Differential Equations: Introduction – Solution by Taylor Series (Type I) – Euler's Series – Runge-Kutta Method.

Chapter 9 (Sections 9.7, 9.9, 9.13 and 9.14). Chapter 11 (Sections 11.5, 11.9, 11.12).

Book for study

Dr.P.Kandasamy, Dr. K.Thilagavathy, Dr. K.Gunavathi, Numerical Methods, S.Chand & Company limited, Third Revised Edition Reprint(2010).

Books for Reference

1. Dr.M.K.Venkataraman, Numerical Methods in Science and Engineering, National Publishing company, fifth edition, 1995.
2. H.C.Saxena, Finite differences and Numerical Analysis, S.Chand & Company limited, New Delhi,2001.

Course Designed by : T.VANJIKKODI

Course Reviewed by : A.SAMSATH

Course Checked by : A.ANIS FATHIMA

Programme - B.A Economics with Logistics and Freight Management

Scheme of Examination – CBSE Pattern

(For the Students admitted from the academic year 2017-2018 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
117TA1/ 117MY1/ 117HD1/ 117FR1	Part I – Language I	6	3	25	75	100	4
117EN1	Part II – English I	6	3	25	75	100	4
117T01	Part III Core I – Managerial Economics –I	5	3	25	75	100	4
117T02	Core II - Logistics Management	5	3	25	75	100	4
117AT1	Allied I – Principles of Management	6	3	25	75	100	4
117EVS	Part IV – Environmental Studies	2	2	50	-	50	2
217TA2/ 217MY2/ 217HD2/ 217FR2	Semester II Part I – Language II	6	3	25	75	100	4
217EN2	Part II – English II	6	3	25	75	100	4
217T03	Part III Core III– Managerial Economics II	5	3	25	75	100	4
217T04	Core IV – Logistics Information System	5	3	25	75	100	4
217AT2	Allied-II- Organisational Behaviour	6	3	25	75	100	4
217VEC	Part IV – Value Education	2	2	50	-	50	2
317TA3/ 317MY3/ 317HD3/ 317FR3	Semester III Part I – Language III	6	3	25	75	100	4
317EN3	Part II – English III	6	3	25	75	100	4
317T05	Part III Core V– Macro Economics	4	3	25	75	100	4
317T06	Core VI – Supply Chain						

	Management	3	3	25	50	75	3
317AT3	Allied III-Mathematical Methods	6	3	25	75	100	4
317NCT	Part IV Non Major Elective - Introduction to Logistics	2	2	50	-	50	2
317TS1	Management Skill Enhancement Course I – Communication Skills for Business	3	3	75	-	75	3
417TA4/ 417MY4/ 417HD4/ 417FR4	Semester IV Part I – Language IV	6	3	25	75	100	4
417EN4	Part II – English IV	6	3	25	75	100	4
417T07	Part III Core VII– Monetary Economics	3	3	25	50	75	3
417T08	Core VIII- Materials Management	4	3	25	75	100	4
417AT4	Allied IV–Business Statistics	6	3	25	75	100	4
417NGA 417TS2	Part IV General Awareness Skill Enhancement Course II – Tally Accounting Programme- Practical	- 3	1 3	50 75	- -	50 75	2 3
417GIS	Information Security	2	2	50	-	Grade	Grade
417ALT	ALC I - Subject Viva Voce	-	-	-	100	100	4*

*Starred Credits are treated as additional credits which are optional.

Yellow colour denoted Skilled based courses, Employment oriented and Entrepreneurship skilled.

2017-2018

B.A. Economics with Logistics and Freight Management

Semester I

Part III – Core I – Managerial Economics I

117T01

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 65

Course Objectives:

The course aims to

- equip the students with the fundamental tools of economic analysis

- to acquire skills in applying the tools of economic analysis in forecasting demand and deciding production.

Unit I (13 Hours)

Managerial Economics – Definition, Nature and Scope – Decision-Making Process- Five Basic Principles – Objectives of the Firm – Role and Responsibilities of Managerial Economists.

Unit II (13 Hours)

Consumption and Utility Analysis: Wants- Characteristics-Classification-Concept of Utility-Law of Diminishing Marginal Utility – Law of Equi - Marginal Utility – Indifference Curve Analysis – Properties – Marginal Rate of Substitution – Consumer's Equilibrium – Consumer's Surplus.

Unit III (13 Hours)

Demand Analysis and Forecasting: Law of Demand – Elasticity of Demand – Types, Measurement, Applications – Demand Function – Demand Forecasting – Types, Objectives and Purpose of Forecasting – Methods of Forecasting.

Unit IV (13 Hours)

Production Analysis: Production Function – Assumptions – Cobb – Douglas Production Function – Use of Production Function in Decision Making – Isoquants – Laws of Production: Laws of Variable Proportions – Laws of Returns to Scale – Law of Supply, Economies of Scale.

Unit V (13 Hours)

Cost Concepts: Concepts and Classifications – Cost - Output Relationship –Revenue - Concepts, Types, Curves under Perfect and Imperfect Competition – Break Even Analysis.

Book for Study:

1. Sankaran. S, Managerial Economics, Margham Publications, Chennai, 2016.

Books for Reference:

1. Cauvery & Others, Managerial Economics, S. Chand and Company, New Delhi, 2013.
2. Metha.P.L, Managerial Economics Analysis Problems and Cases, Sultan Chand & Sons New Delhi, 2014.

B.A. Economics with Logistics and Freight Management

Semester I

Part III – Core II – Logistics Management 117T02

(For the students admitted from the academic year 2017-2018 onwards)

Credits:4

Hours:65

Course Objectives:

The course aims

- to equip the students with the knowledge of Logistics Management
- to acquire the information related to the practical application of Logistics

Unit I (13 Hours)

Logistics Management - Nature and concepts – Logistical mission and objectives – Components – Functions – Integrated Logistics System.

Unit II (12 Hours)

Warehousing – Concept of warehousing – Types – Functions- Warehousing strategies – Warehouse design.

Unit III

(12 Hours)

Inventory – Concept and Types of inventory – Functions of inventory – Elements of inventory cost- Inventory models DRP, VMI.

Unit IV

(14 Hours)

Packaging-Introduction – Protective functions of packaging- New emerging Packaging alternatives- Packaging for material handling efficiency- Material handling- Principles- Equipments for material handling- Important factors in materials handling decisions.

Unit V

(14 Hours)

Transportation – Functions – Elements of Transportation cost – Modes of Transport – Multi – Modal Transport – Transportation Decision – Outsourcing: Definition of 3PL Services offered – 4PL Service providers – 7PL concept.

Books for Study

1. Agrawal. D.K., Distribution and Logistics Management-A Strategic marketing Approach, Macmillan Publishing, 2016. (Unit-I, II and III)
2. Bhattacharyya. S.K, Logistics Management, S. Chand& Co Ltd, New Delhi, 2013. (Unit-IV and V)

Books for Reference

1. Donald J. Bowersox& David J. Closs, Logistical Management, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2016
2. Satish C Ailawadi ,Rakesh P. Singh, Logistics Management, PHI learning Private Limited, New Delhi-2013

B.A. Economics with Logistics and Freight Management**Semester I****Part III - Allied I – Principles of Management 117AT1**

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4**Hours: 75****Course Objective:**

This course endeavours to impart the basic knowledge of organizing and managing a firm in an efficient manner.

Unit I

(15 Hours)

Management: Definition – Features – Functions – Importance - Administration and Management - Manager: Functions – Role – Responsibilities - Entrepreneur and Manager.

Unit II

(15 Hours)

Planning: Definition – Characteristics – Objectives - Advantages and Limitations - Steps in Planning Process - Management by Objectives (MBO) - Decision Making - Decision Making Process.

Unit III

(15 Hours)

Organisation: Functions – Nature – Importance - Classification of Organisation: Formal and Informal Organisation - Difference between Formal and Informal Organisation - Directing: Meaning and Principles.

Unit IV

(15 Hours)

Delegation: Elements – Principles – Types – Advantages - Problems. Decentralization – Advantages – Disadvantages - Departmentation: Need – Factors - Basis.

Unit V (15 Hours)

Controlling – Steps - Requirements of Effective Control System – Features - Need – Advantages – Limitations - Coordination - Features – Importance – Types - Problems- Steps for effective Co-ordination.

Book for Study:

1. Ramasamy. T, Principles of Management, Himalaya Publishing House, Mumbai, 2017

Book for Reference:

1. Tripathi. P.C & Reddy. P.N, Principles of Management, Tata McGraw Hill Ltd., New Delhi, 2015.

B.A. Economics with Logistics and Freight Management

Semester II

Part III – Core III – Managerial Economics II 217T03

(For the students admitted from the academic year 2017-2018 onwards)

Credits: 4

Hours: 65

Course Objectives:

The course aims to

- equip the students with the knowledge of pricing under different market conditions.
- develop the skills in managing capital and profit.
- impart skills in risk management.

Unit I (13 Hours)

Market Structure and Pricing Decisions: Classification of Markets – Pricing Under Perfect Competition – Pricing Under Monopoly – Price Discrimination – Dumping – Pricing Under Monopolistic Competition – Pricing Under Oligopoly (Limited to Kinked Demand Curve Model) – Cournot Model of Duopoly – Monopsony.

Unit II (14 Hours)

Advanced Topics in Pricing Theory: Peak-Load Pricing- Pricing over the Life-Cycle of a Product- Pioneer Pricing- Skimming Pricing- Penetration Pricing- Pricing at the Marketing Stage of the Product- Multi-Product Pricing- Product Line Pricing- General Consideration- Special Consideration in Pricing.

Unit III (14 Hours)

Profit Management: Meaning – Theories of Profit – Hawley's Theory – Knight's Uncertainty Theory – Schumpeter's Innovation Theory – Concepts of Profit – Accounting and Economic Profits – Functional Role of Business Profit – Profit Policies. Planning and Forecasting.

Unit IV (11 Hours)

Capital Management: Capital Budgeting – Cost of Capital – Project Profitability.

Unit V (13 Hours)

Managerial Decision Making – Risk and Uncertainty – Types of Uncertainties – Elements of Decision Theory – Decision Making Model – Procedure – Classification of Managerial Decision Problems – Analysis of Decisions. Decision Taking Under – Certainty and Uncertainty – Probability Theory Approach

Books for Study:

1. Sankaran. S, Managerial Economics, Margham Publications, Chennai, 2016 (Unit I, III, IV and V)
2. Mehta. P.L, Managerial Economics –Analysis, Problems and Cases, Sultan Chand & sons, New Delhi, 2014. (Unit II)

Books for Reference:

1. Cauvery & others, Managerial Economics, S. Chand & Company, New Delhi, 2016.
2. Sankaran, Business Economics, Margham Publications, Chennai, 2016.

B.A. Economics with Logistics and Freight Management**Semester II****Part III – Core IV – Logistics Information System 217T04****(For the students admitted from the academic year 2017-2018 onwards)****Credits: 4****Hours: 65****Course Objectives:**

The course aims to teach

- the forms of logistics information
- the information functionality and information forecasting
- the application of information technology in logistics

Unit I**(13 Hours)**

Logistics Information: Meaning-Definition-Need &Forms - LIS- Information functionality - Activities involved in transaction system- Principles of designing or evaluating LIS applications.

Unit II**(12 Hours)**

Information forecasting: Definition- Process- Component-Characteristic of forecast component-Approaches-Forecast techniques- Forecast error.

Unit III**(14 Hours)**

Information Technology and Logistics: Electronic Data Interchange-Personal Computers-Artificial Intelligence/Expert system-Communications Bar coding and Scanning. Electronic Data Interchange standards.

Unit IV**(13 Hours)**

Quality Customer Service and Integrated Logistics Service: Importance of customer service- Elements- The Order Cycle System. Channels of Distribution: Types- Designing the channels of Distribution.

Unit V**(13 Hours)**

Informational Issues in Integrated Logistics: E-Commerce- Categories of E-Commerce- E-Commerce levels- Order fulfillment in E-Commerce. Integrated Logistics Accounting: Purpose of Accounting- Types of costs- Activity- Based Management- Activity- Based Costing.

Books for Study:

1. Satish C. Ailawadi and Rakesh Singh, Logistics Management, Prentice-Hall of India Pvt. Ltd., New Delhi, 2013. (Units I, II and III)
2. David J. Bloomberg, Stephen LeMay& Joe B. Hanna, Logistics, Prentice-Hall of India Pvt. Ltd., New Delhi, 2017.(Unit IV and V)

Books for Reference:

1. Donald J. Bowersox and David J. Closs, Logistical Management, Tata McGraw Hill Ltd, New Delhi, 2016
2. Donald Waters, Logistics. Palgrave Macmillan, New York, 2009.

**B.A. Economics with Logistics and Freight Management
Semester II**

Part III - Allied II – Organizational Behaviour 217AT2

(For the students admitted from the academic year 2017 -2018 onwards)

Credits: 4**Hours: 75****Course Objectives:**

- To gain a solid understanding of human behaviour in the workplace from an individual, group, and organizational perspective.
- To obtain frameworks and tools to effectively analyze and approach various organizational situations.

Unit I**(15 Hours)**

Organizational Behaviour: concept – Nature and scope – role – disciplines contributing OB – Hawthorne Experiments – Human Behaviour Approach – OB Models - Emerging challenges and opportunities for Organizational Behaviour – Nature of human behaviour: Process of behaviour – Individual differences – Factors.

Unit II**(15 Hours)**

Personality: Concept – Theories of personality – determinants of personality – Personality and behaviour – organizational applications of personality. Perception – concept – Managerial applications of personality.

Unit III**(15 Hours)**

Attitude: Concept – factors in attitude formation – attitude change. Motivation: Concept – nature – Motivation and behaviour – theories of Motivation: X, Y and Z theories, Maslow's need hierarchy theory, Herzberg's theory, Vroom's Expectance theory - Financial and non financial Motivation.

Unit IV**(15 Hours)**

Job Satisfaction: Determinants – effects of Job Satisfaction. Group Dynamics: Concept: Types of Groups – group Norms – Factors influencing Norms – Group Cohesiveness – Factors affecting Group Cohesiveness. Organizational Conflict: Concept – Stages of Conflict – Types – Merits and Demerits of Conflict – Conflict Management.

Unit V**(15 Hours)**

Leadership: Concept – Functions - Importance – Qualities of a good leader – Leadership styles – theories of leadership: Trait theory, Managerial Grid, Fiedler's Contingency model. Organizational Culture and Climate – Meaning – Importance – Features.

Book for study:

1. Prasad. L.M, Organizational Behaviour, Sultan Chand & Sons, New Delhi, 2015.

Books for Reference:

1. Aswathappa .K, Organizational Behaviour, Himalaya Publishing House, 2016.
2. Stephan. P Robbins, Organizational Behaviour, Timothy A. Judge, Neharika Vohra, Pearson Indian Education Services Pvt. Ltd. 2016

2016-2017

CURRICULUM DESIGN

Sri G.V.G. Visalakshi College For Women (Autonomous), Udumalpet

Affiliated to Bharathiar University

Department of Economics with Logistics and Freight Management

Programme-B.A. Economics with Logistics and Freight Management

Scheme of Examination – CBCS Pattern

(For the Students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
115TA1/ 115MY1/ 115HD1/ 115FR1/	Part I – Language I	6	3	25	75	100	4
115EN1	Part II – English I	6	3	25	75	100	4
115T01	Part III Core I – Managerial Economics and Decision Making I	5	3	25	75	100	4
115T02	Core II - Logistics Management	5	3	25	75	100	4
115AT1	Allied I – Principles of Insurance	6	3	25	75	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
215TA2/ 215MY2/ 215HD2/ 215FR2/	Semester II Part I – Language II	6	3	25	75	100	4
215EN2	Part II – English II	6	3	25	75	100	4
215T03	Part III Core III– Managerial Economics and Decision Making II	5	3	25	75	100	4
215T04	Core IV – Logistics Information System	5	3	25	75	100	4
215AT2	Allied II – General Insurance and Risk Coverage	6	3	25	75	100	4
215VEC	Part IV – Value Education	2	2	50	-	50	2
315TA3/ 315MY3/ 315HD3/	Semester III Part I – Language III	6	3	25	75	100	4

315FR3/							
315EN3	Part II – English III	6	3	25	75	100	4
315T05	Part III Core V– Macro Economics	4	3	25	75	100	4
315T06	Core VI – Supply Chain Management	3	3	25	50	75	3
315AT3	Allied III – Business Statistics	6	3	25	75	100	4
315TS1	Part IV Skill Based Course I – Communication Skills for Business	3	3	75	-	75	3
315NCT	Non Major Elective Course I - Introduction to Logistics Management	2	2	50	-	50	2
415TA4/ 415MY4/ 415HD4/ 415FR4/	Semester IV Part I – Language IV	6	3	25	75	100	4
415EN4	Part II – English IV	6	3	25	75	100	4
415T07	Part III Core VII– Monetary Economics	3	3	25	50	75	3
415T08	Core VIII- Materials Management	4	3	25	75	100	4
415AT4	Allied IV – Mathematical Methods	6	3	25	75	100	4
415TS2	Part IV Skill Based Course II – Management Information System	3	3	75	-	75	3
415NCT	Non Major Elective Course II- General Awareness (Online)	-	1	50	-	50	2
415GIS	Information Security	2	2	-	-	Grade	Grade
415ALT	ALC I - Subject Viva Voce	-	-	-	100	100	3*
515T09	Semester V Part III Core IX – Fiscal Economics	6	3	25	75	100	4
515T10	Core X– Production and Operations Management	6	3	25	75	100	4
515T11	Core XI- Marketing Management	5	3	25	75	100	4

515T12	Core XII – Foreign Trade Procedures and Documentation	5	3	25	75	100	4
515TE1	Elective I -E- Commerce	5	3	25	75	100	4
515TS3	Part IV Skill Based Course III – Computer Applications in Business-Practical	3	3	75	-	75	3
615T13	Semester VI Part III Core XIII– Global Marketing	6	3	25	75	100	4
615TE2	Elective II- Total Quality Management	6	3	25	75	100	4
615TE3	Elective III – Freight Management	6	3	25	75	100	4
615TPV	Group Project	9	-	100	100	200	8
615TS4	Part IV –Skill Based Course IV –Computerized Tally-Practical	3	3	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V – Extension	-	-	50	-	50	2
615ALT	ALC II - Subject Viva Voce	-	-	-	100	100	3*
	Total					3500	140

*Starred Credits are treated as additional credits which are optional.

Yellow colour denoted Skilled based courses, Employment oriented and Entrepreneurship skilled.

2015-2016

B.A. Economics with Logistics and Freight Management

Semester I

Part III – Core I – Managerial Economics and Decision Making I 115T01 (For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims to

- equip the students with the fundamental tools of economic analysis
- to acquire skills in applying the tools of economic analysis in forecasting demand and deciding production.

Unit I (13Hours)

Managerial Economics – Definition, Nature and Scope – Decision-Making Process- Five Basic Principles – Objectives of the Firm – Role and Responsibilities of Managerial Economists.

Unit II (13 Hours)

Consumption and Utility Analysis: Wants- Characteristics-Classification-Concept of Utility-Law of Diminishing Marginal Utility – Law of Equi - Marginal Utility – Indifference Curve Analysis – Properties – Marginal Rate of Substitution – Consumer's Equilibrium – Consumer's Surplus.

Unit III (13 Hours)

Demand Analysis and Forecasting: Law of Demand – Elasticity of Demand – Types, Measurement, Applications – Demand Function – Demand Forecasting – Types, Objectives and Purpose of Forecasting – Methods of Forecasting.

Unit IV (13Hours)

Production Analysis: Production Function – Assumptions – Cobb – Douglas Production Function – Use of Production Function in Decision Making – Isoquants – Laws of Production: Laws of Variable Proportions – Laws of Returns to Scale – Law of Supply, Economies of Scale.

Unit V (13 Hours)

Cost Concepts: Concepts and Classifications – Cost - Output Relationship –Revenue - Concepts, Types, Curves under Perfect and Imperfect Competition – Break Even Analysis.

Book for Study:

1.S. Sankaran : Managerial Economics, Margham Publications, Chennai, 2015.

Books for Reference:

1. Cauvery &Others : Managerial Economics, S. Chand and Company, New Delhi, 2013.
2. Metha.P.L : Managerial Economics Analysis Problems and Cases, Sultan Chand & Sons, New Delhi, 2011.

B.A. Economics with Logistics and Freight Management

Semester I

Part III – Core II – Logistics Management

115T02

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims

- to equip the students with the knowledge of Logistics Management
- to acquire the information related to the practical application of Logistics

Unit I (13 Hours)

Logistics Management - Nature and concepts – Logistical mission and objectives – Components – Functions – Integrated Logistics System.

Unit II (12 Hours)

Warehousing – Concept of warehousing – Types – Functions- Warehousing strategies – Warehouse design.

Unit III (12 Hours)

Inventory – Concept and Types of inventory – Functions of inventory – Elements of inventory cost- Inventory models DRP, VMI.

Unit IV (14 Hours)

Packaging- Introduction – Protective functions of packaging- New emerging Packaging alternatives- Packaging for material handling efficiency- Material handling- Principles- Equipments for material handling- Important factors in materials handling decisions.

Unit V (14 Hours)

Transportation – Functions – Elements of Transportation cost – Modes of Transport – Multi – Modal Transport – Transportation Decision – Outsourcing: Definition of 3PL Services offered – 4PL Service providers – 7PL concept.

Books for Study

1.D.K.Agrawal , Distribution and Logistics Management, S.Chand& Co, 2009

(Unit-I, II and III)

3.S.K.Bhattacharyya ,Logistics Management, S.Chand& Co Ltd, New Delhi, 2008.

(Unit-IV and V)

Books for Reference

1.Donald J. Bowersox& David J. Closs , Logistical Management, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2014

2.Satish C Ailawadi ,RakeshP.Singh, Logistics Management, PHI learning Private Limited, New Delhi-2013

3.David J. Bloomberg, Stephen LeMay& Joe B. Hanna , Logistics, Prentice-Hall of India Pvt Ltd., New Delhi, 2003.

**B.A. Economics with Logistics and Freight Management
Semester I**

Part III - Allied I –Principles of Insurance 115AT1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course aims

- to provide knowledge about Insurance
- to learn the principles, practices, procedures and treatment of Life Insurance Products

Unit I (15 Hours)

Introduction-Definition and Nature of Insurance-Terms Used in Insurance-Role and Importance of Insurance-Principles of Insurance-Insurance in India. Types of Insurance: Life, Non-Life and Miscellaneous-Insurance Organization: LIC, GIC, ESI, UTI and SBI

Unit II (15Hours)

Contract and Principles of Insurance-Meaning and Definition-Elements-Kinds of Contract-Principles-Insurance Documents: Proposal Form-Policy Form, Cover Note-Certificate of Insurance-Endorsement-Cancellation.

Unit III (15 Hours)

Insurance Intermediaries: Insurance Broker-Functions of Broker-Insurance Agents-Duties of Agents-Procedure for becoming Agent-Pre-Requisites for obtaining a License, Duration of License,

Cancellation of License-Termination of Agent Appointment. Code of Conduct: Unfair Practices - Procedures regarding Settlement of Policy Claims.

Unit IV (15 Hours)

LIC of India: Origin-Meaning and Objectives-Need for Life Insurance –Benefits of Life Insurance –Procedure for taking a Policy – Kinds of Policies - Riders on Policies- Role of Private Players in India.

Unit V (15 Hours)

Group Insurance –Group Gratuity Insurance – Group Super Annuity Insurance, Group Savings Linked Insurance, Unit Linked Insurance Plan, Senior Citizen Plan, Children Savings Plan.

Book for Study:

1 P.Periyasamy, Principles and Practice of Insurance, Himalaya Publishing House, Mumbai, 2011.

Books for Reference:

1. Mishra, M.N&S.B.Mishra, Insurance, Principles and Practice, S. Chand & Co. Ltd., New Delhi, 2007.
2. Inderjit Singh, Rakesh Kartyal, Sanjay Arora, Insurance, Principles and Practice, Kalyani Publishers, New Delhi, 2003.
3. B.D. Bhargava, Insurance Theory and Practice, Pearl Books, New Delhi, 2008.

Course Designed by : Mrs. J. Karunambikai

Course Reviewed by : Mrs. M. Mehar Banu

Checked by : Dr. R. Radhika

**B.A. Economics with Logistics and Freight Management
Semester II**

**Part III – Core III – Managerial Economics and Decision Making II 215T03
(For the students admitted from the academic year 2015-2016 onwards)**

Credits: 4

Hours: 65

Preamble:

The course aims to

- equip the students with the knowledge of pricing under different market conditions.
- develop the skills in managing capital and profit.
- impart skills in risk management.

Unit I (13 Hours)

Market Structure and Pricing Decisions: Classification of Markets – Pricing Under Perfect Competition – Pricing Under Monopoly – Price Discrimination – Dumping – Pricing Under Monopolistic Competition – Pricing Under Oligopoly (Limited to Kinked Demand Curve Model) – Cournot Model of Duopoly – Monopsony.

Unit II (14 Hours)

Advanced Topics in Pricing Theory: Peak-Load Pricing- Pricing over the Life-Cycle of a Product- Pioneer Pricing- Skimming Pricing- Penetration Pricing- Pricing at the Marketing Stage

of the Product- Multi-Product Pricing- Product Line Pricing- General Consideration- Special Consideration in Pricing.

Unit III (14 Hours)

Profit Management: Meaning – Theories of Profit – Hawley’s Theory – Knight’s Uncertainty Theory – Schumpeter’s Innovation Theory – Concepts of Profit – Accounting and Economic Profits – Functional Role of Business Profit – Profit Policies. Planning and Forecasting.

Unit IV (11 Hours)

Capital Management: Capital Budgeting – Cost of Capital – Project Profitability.

Unit V (13 Hours)

Managerial Decision Making – Risk and Uncertainty – Types of Uncertainties – Elements of Decision Theory – Decision Making Model – Procedure – Classification of Managerial Decision Problems – Analysis of Decisions. Decision Taking Under – Certainty and Uncertainty – Probability Theory Approach

Books for Study:

1.S. Sankaran, Managerial Economics, Margham Publications, Chennai, 2012

(Unit I, III, IV and V)

2.P.L. Mehta, Managerial Economics –Analysis, Problems and Cases, Sultan Chand & sons,(New Delhi, 2010. (Unit II)

Book for Reference:

1.Cauvery & others : Managerial Economics, S.Chand& Company, New Delhi, 2011.

B.A. Economics with Logistics and Freight Management

Semester II

Part III – Core IV – Logistics Information System

215T04

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims to teach

- the forms of logistics information
- the information functionality and information forecasting
- the application of information technology in logistics

Unit I (13 Hours)

Logistics Information: Meaning-Definition-Need &Forms - LIS- Information functionality - Activities involved in transaction system- Principles of designing or evaluating LIS applications.

Unit II (12 Hours)

Information forecasting: Definition- Process- Component-Characteristic of forecast component-Approaches-Forecast techniques- Forecast error.

Unit III (14 Hours)

Information Technology and Logistics: Electronic Data Interchange-Personal Computers-Artificial Intelligence/Expert system-Communications Bar coding and Scanning. Electronic Data Interchange standards.

Unit IV (13 Hours)

Quality Customer Service and Integrated Logistics Service: Importance of customer service- Elements- The Order Cycle System. Channels of Distribution: Types- Designing the channels of Distribution.

Unit V (13 Hours)

Informational Issues in Integrated Logistics: E-Commerce- Categories of E-Commerce- E-Commerce levels- Order fulfillment in E-Commerce. Integrated Logistics Accounting: Purpose of Accounting- Types of costs- Activity- Based Management- Activity- Based Costing.

Books for Study:

- 1.Satish C. Ailawadi and Rakesh Singh , Logistics Management, Prentice-Hall of India Pvt Ltd.,New Delhi, 2005 (**Units I, II and III**)
- 2.David J. Bloomberg, Stephen LeMay &Joe B. Hanna, Logistics, Prentice-Hall of India Pvt Ltd., New Delhi, 2003. (**Unit IV and V**)

Books for Reference:

- 1.Donald J. Bowersox and David J. Closs, Logistical Management, Tata McGraw Hill Ltd, New Delhi, 2014
2. Donald Waters, Logistics. Palgrave Macmillan, New York, 2004.

**B.A. Economics with Logistics and Freight Management
Semester II**

Part III - Allied II – General Insurance and Risk Coverage 215AT2

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The objective of this course is

- to understand the basic concepts of General Insurance
- to provide an overall view of the risk management and control systems

Unit I (15 Hours)

Introduction-Basic Concepts –Growth of General Insurance-Types of General Insurance-Fire Insurance: Principles- Types and Policy Conditions- - Claims- Loss of stock- loss of profit-important terms for claims

Unit II (15 Hours)

Marine Insurance –Essential Elements of Marine Insurance- Re Insurance-Mutual Insurance- Kinds and Policy Conditions – Important Clauses in Marine Policy-Marine Losses- Total and Partial Losses-Payment of Claims- Motor Insurance –Kinds of Policies-Procedures of Motor Insurance-Benefits.

Unit III (15 Hours)

Introduction to Risk –Concept –Risk and Uncertainty –Types of Risks -Classifying Pure Risks - Methods of Handling Pure Risk –Principles of Risk -Classification –Risk Management and Control –Conceptual Framework- Objectives – Risk Management Information Systems. Risk Management by Individual – Factors affecting Individual's demand for Insurance.

Unit IV (15 Hours)

Settlement of Claims in Insurance Claims in Life Insurance: Death, Maturity, Survival, Claims in Non-Life: Fire –Motor Vehicle, Marine Insurance, Claims on Consignment by Rail and Road, Marine and Cargo, Engineering Insurance.

Unit V

(15Hours)

Reinsurance : Introduction to Reinsurance – Role of reinsurers-Techniques-Nature of Reinsurance Risks. Enterprise Risk Management –ERM Basics identifying risk exposures - ERM in Insurance –Risk Management Information Systems (RMIS). Information Technology in Insurance – Need, Technology and Applications.

Books for Study:

- 1.P. Periyasamy, Principles and Practice of Insurance, Himalaya Publishing House, Mumbai, 2011.
2. Gupta P.K, Insurance Risk Management, Himalaya Publishing House, Mumbai 2004.

Books for Reference:

- 1.Bodla, B.S., Garg M.C. & Singh, Insurance, Fundamentals ,Environmental Procedures, Deep & Deep Publications, New Delhi, 2003.
2. Gupta , P.K ,Insurance Management, Himalaya Publishing, Mumbai , 2004.
3. Mishra, M.N, Insurance, Principles and Practice,S. Chand& Co Ltd., Delhi, 2005.
4. R.Haridas, Life Insurance In India, New Century Publications, 2011.
5. Inderjit Singh, Rakesh Kartya, Sanjay Arora, Insurance, Principles and Practice, Kalyani Publishers, Delhi, 2003.

**B.A. Economics with Logistics and Freight Management
Semester III**

Part III – Core VI – Supply Chain Management 315T06

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The course aims

- to equip the student with the knowledge of Supply Chain Management
- to teach new opportunities in SCM

Unit I

(7 Hours)

Understanding the supply chain: Meaning-Objectives-Importance-Decision phases-process-Supply chains with illustrations.

Unit II

(7 Hours)

Supply chain performance: Achieving strategic fit- Challenges to achieving and maintaining strategic fit-Indian scenario.

Unit III

(8 Hours)

Supply chain drivers & Metrics: Drivers of supply chain performance- Framework for structuring drivers- Role of inventory in supply chain- Components of inventory decision.

Unit IV

(8 Hours)

Managing uncertainty in a supply chain safety inventory: Role of safety inventory in a supply chain- Impact of supply uncertainty on safety inventory- Impact of replenishment policies on safety inventory.

Unit V

(8 Hours)

Information technology in a supply chain: The role of Information technology in a supply chain – The supply chain and IT framework- Internal supply chain management- Supplier relationship management- Transaction management -Foundation future of IT in supply chain.

Book for Study:

1. Sunil Chopra and Peter Meindl&D.V.Karla ,Supply Chain Management-Strategy Planning and Operation, Pearson Education, 2012.

Books for Reference:

1. Janat Shah, Supply Chain Management – Text and Cases, Pearson Education, 2012.
2. R.P Mohanty& S.G Deshmuki, Supply Chain Management, Biztantra, New Delhi, 2011.

**B.A. Economics with Logistics and Freight Management
Semester III**

Part III – Allied III – Business Statistics

315AT3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble

This course aims at

- analyzing and interpreting data
- applying the statistical tools for solving economic problems

Unit I (15 Hours)

Definition – Importance – Functions and Limitations of Statistics – Primary and Secondary Data, Census and Sampling Methods – Collection of Data -Frequency Distribution – Classification and Tabulation of Data – Diagrammatic and Graphical Representation – Ogive and Lorenz Curves.

Unit II (15 Hours)

Measures of Central Tendencies – Functions of an Average – Essentials of an Ideal Average – Arithmetic Mean – Geometric Mean – Median – Mode – Relationship between different Averages – Appropriateness of an Average.

Unit III (15 Hours)

Measures of Dispersion – Range – Quartile Deviation – Mean Deviation – Standard Deviation – Coefficient of Variation – Skewness – Kurtosis.

Unit IV (15 Hours)

Simple Correlation – Meaning and Types – Measurement of Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Method of Least Square with one Independent Variable.

Unit V (15 Hours)

Index numbers – Laspeyre's, Paasche's, Fisher's Ideal Index Numbers – Cost of Living Numbers – Time Series Analysis – Components and Measurements of Time Series limited to Moving Average and Least Square Methods.

Note: Theory carries 25 marks and problems carry 50 marks

Book for Study:

1.R.S.N. Pillai and V. Bagavathi, Statistics, S. Chand & Co. Ltd., New Delhi, 2012.

Book for Reference:

1.S.P. Gupta, Statistical Methods, Sultan Chand & Sons, New Delhi, 2012.

B.A. Economics with Logistics and Freight Management

Semester III

Part IV-Skill Based Course I-Communication Skills for Business 315TS1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The objective of the course is

- ❖ to develop self-confidence in managing the business
- ❖ to equip the students with correct and effective Communication Skills for successful entrepreneurship

Unit I (7 Hours)

Communication - Meaning – Importance - Objectives – Principles of Communication - Media of Communication.

Unit II

(7 Hours)

Oral Communication , Verbal, Non verbal and Audio-Visual Presentation, Telephone Skills and Etiquettes.

Unit III

(8 Hours)

Written Communication –Kinds of business letter – Essentials of a business letter – Enquiries and replies - Orders and their execution- Sales letters - Application letters.

Unit IV

(8 Hours)

Agency correspondence – Insurance - Bank Correspondence – Correspondence with public authorities and other agencies- Letter to the editor of news papers.

Unit V

(8 Hours)

Report writing - Importance - Kinds – Characteristics of a good report -Report by individuals and committees.

Books for Study:

1.Reddy,Appannaiah&Nagaraj and Raja Rao ,Essentials of Business Communication, Himalaya Publishing House, New Delhi, 2003

Books for Reference:

- 1.RajendraPal&J.S.Korlahalli ,Essentials of Business Communication, Sultan Chand and Sons, New Delhi, 1997.
- 2.Krishna Mohan &MeeraBanerji, Developing Communication Skills, Rajiv Beri for Macmillan Indian Ltd., Chennai,1987
- 3.M.S.Ramesh&.C.Pattenshetti,BusinessCommunication,S.Chand&Co,Delhi, 2000.
- 4.L.A.Woolcott&W.R.Unwin,MasteringBusinessCommunication, Macmillan Education Ltd, Chennai.2002.

**B. A. Economics with Logistics and Freight Management
Semester IV**

Part III – Core VIII – Materials Management 415T08

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4**Hours: 52****Preamble**

The course aims at

- understanding the role of materials used for logistics services
- analyzing the planning and budgeting materials for inventory management

Unit I

(10 Hours)

Materials Management: Introduction- Management in relation to materials function- Functions of management- Management of material resources- Objectives- Achieving objectives- Effects of business changes.

Integrated Materials management- Activities-Importance of materials department- Costs- Need –Areas of materials management- production control-Inspection of purchased items- Advantages.

Unit II

(9 Hours)

Classification and Codification of materials: Need- Classification- Nature of codification- Process- Merits and Demerits of Codification systems- Alphabetical system-Numerical system- Decimal system.

Unit III

(10 Hours)

Material planning: Definition- Importance-Flow chart- Techniques: Past consumption analysis- Material requirements planning.

Budgeting and Material Planning: Master Budget- Sales budget- Production budget- Materials budget- Labour budget- Maintenance budget- Overhead budget- Administrative budget- Capital- Expenditure budget.

Unit IV

(12 Hours)

Stores and Store Keeping: Objectives- Functions- Features of successful store- keeping- Relationship of store department with other departments- Benefits of store keeping- Stores organisation-Location- Layout- Receipt section- Types of stores- Preservation of stores- Stock taking. Storage Equipment: Types- Selection. Marking of stores: Colour marking- Secret marking.

Unit V

(11 Hours)

Principles of Material Handling: Planning principles- Operating principles-Principles related with equipment- Cost reduction- General principles-Classification of Material Handling Equipment- Material Handling Equipment.

Selective Inventory Control: Importance and scope- Selective treatment- ABC Categorization- VED Analysis- Three- dimensional Approach for selective control of Inventory.

Book for Study:

1.A.K.Chitale&R.C.Gupta , Material Management- Text and Cases, PHI Learning Pvt.Ltd., New Delhi, 2013.

Books for Reference:

- 1.S.C.Sharma, Materials Management&Materials,Handling, Khanna Publishers, Delhi, 2008.
- 2.M.M.Varma, Materials Management, Sultan Chand& Sons, New Delhi,2010.

B.A. Economics with Logistics and Freight Management**Semester IV****Part III – Allied IV – Mathematical Methods****415AT4****(For the students admitted from the academic year 2015-2016 onwards)****Credits: 4****Hours: 75****Preamble:**

The course helps the students

- to gain the application of mathematical knowledge in Economic theories
- to know the application of mathematical techniques used in business

Unit I: Mathematical Economics and Algebra

(15 Hours)

Nature and scope of Mathematical Economics – Mathematical operations with decimal and fractions– Ratios and proportions– Variations – Progression – Arithmetic progression – Harmonic progression – Geometric progression – Binomial progression.

Unit II: Number system and equation

(15 Hours)

Number system – Prime numbers – Integers – Rational numbers – Operations with fractions - Real number system – Properties of real number system Equation – Linear and Quadratic – Solutions to linear and quadratic equations.

Unit III: Matrix Algebra (15Hours)

Matrix – Types – Addition – Subtraction – Multiplication – Determinants – Transpose of matrix – Inverse of matrix – Solution of simultaneous equation – Crammer's rule – Matrix inversion method (3*3).

Unit IV: Differentiation (15 Hours)

Geometry of Marginal analysis – Process of Differentiation – Rules of Differentiation – Some Standard results – Exponential and logarithmic – Derivatives of Higher Order – Sign of differential coefficient – Application of second order derivatives and nature of curve – maximum and minimum values of a function (single variable) – Order conditions for maximum and minimum values.

Unit V: Mathematics of finance (15 Hours)

Simple interest, Compound interest – Depreciation – Discounting – Annuity – Perpetuity – Amortization – Sinking fund – Percentage – Cost, Sales, Profit – Purchase discount – Trade, Quantity and Cash – Commission.

Note : Theory carries 25 marks and problem carries 50 marks.

Books for Study:

- 1.B.C. Metha and B.C.Madnani , Mathematics for Economists, Sultan Chand & sons, New Delhi 2010.
- 2.B.Navaneetham& others , Business Mathematics, Anand Publications, Trichy,2014.

B.A. Economics with Logistics and Freight Management

Semester V

Part III – Core X – Production and Operations Management 515T10

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The aim of this course is

- to provide a broad introduction to the field of operations management and explain the concepts, strategies, tools, and techniques for managing the transformation process that can lead to competitive advantage.

Unit I (15 Hours)

Introduction to Production and Operations Management: Meaning- Characteristics of Modern Production and Operations function- Recent trend in Production and Operations Management.

Unit II (15 Hours)

Manufacturing and Service operations: Selection process- Service operation-Difference between manufacturing and service operations- Classification of manufacturing process- Characteristics of modern manufacturing- Challenges facing by operations managers.

Unit III (15 Hours)

Design of production systems: Product design- Process design- Production design- Factors & approaches to product design- Legal, ethical and environmental issues in product design- Design of work systems: Objectives of work study- Relationship of time & motion study- Basic work study procedure- Method study- Motion study.

Unit IV (15 Hours)

Long range capacity planning & Resource requirements planning – MRP or MRP I- MRP II-General overview of MRP-DRP.

Unit V (15 Hours)

Project management-Project planning and controlling techniques- Project scheduling techniques- Program evaluation and review technique (PERT) – CPM- CPM Time analysis.

Book for Study:

1.K.Aswathappa&K.ShridharaBhat, Production and Operations Management, Himalaya Publishing House, New Delhi,2012

Books for Reference:

- 1.M.ArokiarajJohn&G.BalaSenthikumar,OperationManagement,ARS Publications,Chennai, 2013.
- 2.WilliamJ.Stevenson, Operations Management, Tata McGraw Hill,New Delhi, 2009.
- 3.B.Mahadevan , Operations Management, Dorling Kindersley(India) Pvt.Ltd.,2010

**B.A. Economics with Logistics and Freight Management
Semester V**

**Part III – Core XII – Foreign Trade Procedures and Documentation 515T12
(For the students admitted from the academic year 2015-2016 onwards)**

Credits: 4

Hours: 65

Preamble

The objective of this course is

- ❖ to expose the students to export and import trade and
- ❖ to familiarize the students with procedures of export-import trade

Unit I (13Hours)

Foreign Trade – Need – its role in Economic Development – Growth and Structure of India's Foreign Trade Policy- Main Features, Phases - Export-Import Policy 2012 – Objectives- Key Strategies- Highlights.

Unit II (13Hours)

Export Procedures-Registration Stage-Pre-Shipment Stage-Quality Control and Pre-Shipment Inspection-Sales Tax Exemption- Realization of Export Proceeds - Realization of Incentives.

Unit III (13Hours)

Export Documentation-Aligned Documentation System-Proforma Invoice-Commercial Invoice-Letter of Credit-Meaning-Types-Advantages-Packing List-Mate's Receipt-Bill of Lading-Certificate of Origin-Shipping Bill-Consular Invoice-Bill of Entry-Airway Bill-GR Form.

Unit IV (13Hours)

Import procedure-Liberalization of Imports-Categories of Importers-Special Scheme for Importers-Classification of Goods for Import Policy and Assessment of Duty-Legal Dimensions of Import Procedures-Customs Clearance – Bill of Entry-Forward Contract.

Unit V-Practice Workshop (13Hours)

1. Master Document
2. Documents related to import of Goods

- a) Invoice b) Packing List c) Certificate of Origin
- d) Receipt e) Bill of Lading f) Shipping Bill/ Airway Bill
- g) Export of Goods under claim for Duty drawback
- 3. Documents Related to payment
 - a) Letter of Credit b) Bill of Exchange c) Bank Certificate of Payments
- 4. Documents Related to Foreign Exchange
 - a) Exchange control Declaration (GR Form)
- 5. Documents Related to Insurance
 - a) Marine Insurance Certificate b) Marine Insurance Declaration
 - c) Shipment Advice d) Shipping Order
 - e) Format of Registration-Membership Certificate f) Income Tax Return

Books for Study:

1. B.K.Chaudari&O.P.Agarwal, A Book for Study of Foreign Trade and Foreign Exchange, Himalaya Publishing House, Mumbai, 2007.
2. S.Khushapat Jain, Export, Import Procedures and Documentation, Himalaya Publishing House, 2005.

Books for Reference:

1. R.Sharma& Dr.S.Sachdeva, Export Management, Agra Educational Publishers, 2008.
2. D.C.Kapoor, Export Management, Vikas Publishing House Pvt. Ltd., Noida, 2010.

B.A Economics with Logistics and Freight Management Semester V

Part III- Elective I - E- Commerce

515TE1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The objective of the course is

- to provide basic knowledge about Electronic Commerce
- to impart knowledge about applications of e- commerce in business.

Unit I

(13 Hours)

E-commerce – Meaning – Definition – Evolution – Concept – Nature –Objectives- Features of e-commerce – Need – Types of e-commerce –Essential requirement for e-commerce- Levels of e-commerce-e-commerce procedure- Critical factors for e-commerce success – Steps for building an e-commerce system –Advantages – Disadvantages.

Unit II

(13 Hours)

Business Models of E-Commerce and Infrastructure: Models-SCM-Need for supply chain management software-Product and Service Digitization-Steps-Benefits-Gain & loss-kinds- Remote servicing and Procurement-Pros and Cons of E-marketing-E-Commerce resources and infrastructure.

Unit III

(13 Hours)

E-business: Workflow Management-Mass Customization and Product differentiation- Logistics distribution- Knowledge Management.

Unit IV

(13 Hours)

E-Online Banking : Meaning – Need – Automatic Teller Machine – Electronic Fund Transfer – Tele Banking – E-Cheque – E-Banking in India – Security of Internet Banking – Advantages – Limitations.

Unit V

(13 Hours)

Encryption – Origin – Meaning – Process – Cryptogram-Cryptography- Types of cipher system- Digital Certificates – Digital Signature and Electronic signature – How to ensure secure electronic Signature -Secure Electronic Transaction (SET) – Advantages.

Books for Study:

1. Dr. C. S. Rayudu, Commerce & E Business, Himalaya Publishing Mumbai, 2004
(Unit I, Unit IV & V).
2. Gurvindersingh & Rachh Paul Singh, E-Commerce, Kalyani Publishers, 2004
(Unit II, III, IV & V).

**B.A. Economics with Logistics and Freight Management
Semester V**

**Part IV-Skill Based Course III - Computer Applications in Business 515TS3
(For the students admitted from the academic year 2015-2016 onwards)**

Credits: 3**Hours: 38****Preamble:**

The course covers the essential skills for using all the programs to

- equip the students to develop their own application using Graphical user Interface
- learn Power Point Presentation
- acquire knowledge of Microsoft Access as Database Management System to organizing staggering information about personal and business life

List of Practical:**MS Word**

(10 Hours)

1. Type a paragraph and perform the following changes:
Font Size, Font style, Line spacing, Page setup (margin), Text color, Center heading
Under line a text, Bullets/numbering, Alignment (Justify, centre, left, right)
2. Type a document and perform the following:
Insert header, Find and replace, Cut, copy and paste, Change case
3. Prepare an advertisement for a product
4. Send an application to many companies for suitable job using mail merge option

MS Excel

(9 Hours)

5. Prepare Payroll for employee
6. Draw a Chart using Excel with the details : Student Name and Marks of 5 subjects

MS Power point

(9 Hours)

7. Design a Sports Day Invitation and prepare Slides describing various events in Power Point.
8. Display various departments and courses offered in our college using Power point

MS Access

(10 Hours)

9. Create a database for Employee Details and generate a report for Pay Slip using MS Access
10. Create a database for Customer Information and generates a report with the customer name in ascending order.

Books for Study:

1. R. Parameswaran ,Computer Application in Business, S.Chand& Company Ltd., New Delhi, 2012.
- 2 .Sanjay Saxena, MS Office 2007 in a Nutshell, Vikas Publishing House,New Delhi, 2013.

Book for Reference:

1. Ron Mansfield ,Working in Microsoft Office, Tata McGraw Hill Publishing Co.Ltd.Delhi, 2005.

**B.A. Economics with Logistics and Freight Management
Semester I**

Part III - Allied I –Principles of Insurance

115AT1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course aims

- to provide knowledge about Insurance
- to learn the principles, practices, procedures and treatment of Life Insurance Products

Unit I

(15 Hours)

Introduction-Definition and Nature of Insurance-Terms Used in Insurance-Role and Importance of Insurance-Principles of Insurance-Insurance in India. Types of Insurance: Life, Non-Life and Miscellaneous-Insurance Organization: LIC, GIC, ESI, UTI and SBI

Unit II

(15Hours)

Contract and Principles of Insurance-Meaning and Definition-Elements-Kinds of Contract-Principles-Insurance Documents: Proposal Form-Policy Form, Cover Note-Certificate of Insurance-Endorsement-Cancellation.

Unit III

(15 Hours)

Insurance Intermediaries: Insurance Broker-Functions of Broker-Insurance Agents-Duties of Agents-Procedure for becoming Agent-Pre-Requisites for obtaining a License, Duration of License, Cancellation of License-Termination of Agent Appointment. Code of Conduct: Unfair Practices - Procedures regarding Settlement of Policy Claims.

Unit IV

(15 Hours)

LIC of India: Origin-Meaning and Objectives-Need for Life Insurance –Benefits of Life Insurance –Procedure for taking a Policy – Kinds of Policies - Riders on Policies- Role of Private Players in India.

Unit V

(15 Hours)

Group Insurance –Group Gratuity Insurance – Group Super Annuity Insurance, Group Savings Linked Insurance, Unit Linked Insurance Plan, Senior Citizen Plan, Children Savings Plan.

Book for Study:

- 1 P.Periyasamy, Principles and Practice of Insurance, Himalaya Publishing House, Mumbai, 2011.

Books for Reference:

1. Mishra, M.N&S.B.Mishra,Insurance,Principles and Practice, S. Chand & Co. Ltd., New

- Delhi, 2007.
2. Inderjit Singh, RakeshKartyal, Sanjay Arora, Insurance, Principles and Practice, Kalyani Publishers, New Delhi, 2003.
 3. B.D. Bhargava, Insurance Theory and Practice, Pearl Books, New Delhi, 2008.

Course Designed by : Mrs. J. Karunambikai
Course Reviewed by : Mrs. M. MeharBanu
Checked by : Dr. R.Radhika

B.A. Economics with Logistics and Freight Management Semester II

Part III – Core III – Managerial Economics and Decision Making II 215T03 (For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims to

- equip the students with the knowledge of pricing under different market conditions.
- develop the skills in managing capital and profit.
- impart skills in risk management.

Unit I

(13 Hours)

Market Structure and Pricing Decisions: Classification of Markets – Pricing Under Perfect Competition – Pricing Under Monopoly – Price Discrimination – Dumping – Pricing Under Monopolistic Competition – Pricing Under Oligopoly (Limited to Kinked Demand Curve Model) – Cournot Model of Duopoly – Monopsony.

Unit II

(14 Hours)

Advanced Topics in Pricing Theory: Peak-Load Pricing- Pricing over the Life-Cycle of a Product- Pioneer Pricing- Skimming Pricing- Penetration Pricing- Pricing at the Marketing Stage of the Product- Multi-Product Pricing- Product Line Pricing- General Consideration- Special Consideration in Pricing.

Unit III

(14 Hours)

Profit Management: Meaning – Theories of Profit – Hawley's Theory – Knight's Uncertainty Theory – Schumpeter's Innovation Theory – Concepts of Profit – Accounting and Economic Profits – Functional Role of Business Profit – Profit Policies. Planning and Forecasting.

Unit IV

(11 Hours)

Capital Management: Capital Budgeting – Cost of Capital – Project Profitability.

Unit V

(13 Hours)

Managerial Decision Making – Risk and Uncertainty – Types of Uncertainties – Elements of Decision Theory – Decision Making Model – Procedure – Classification of Managerial Decision Problems – Analysis of Decisions. Decision Taking Under – Certainty and Uncertainty – Probability Theory Approach

Books for Study:

- 1.S. Sankaran, Managerial Economics, Margham Publications, Chennai, 2012
(Unit I, III, IV and V)

2.P.L. Mehta, Managerial Economics –Analysis, Problems and Cases, Sultan Chand & sons,(New Delhi, 2010. (**Unit II**)

Book for Reference:

1.Cauvery & others : Managerial Economics, S.Chand& Company, New Delhi, 2011.

**B.A. Economics with Logistics and Freight Management
Semester VI**

Part III – Elective III – Freight Management 615TE3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is to

- ❖ provide knowledge about the basic concepts of Freight Management
- ❖ acquire adequate knowledge and skills in Shipping and Port management

Unit I: Freight Structure and Practice (15 Hours)

Introduction- Freight or Tariff rates- Freight rebates- Factors involved in rate making- Determination of freight rates- Contracts of Afreightment - Sea freight -Types of sea freight rates- Liner freight rates- Tramp freight rates – Types of freight- Ship owner's lien for freight.

Unit II: General structure of Shipping Industry (15 Hours)

Introduction- Different types of ship: General or Dry cargo ships- Expedition ships- Coasters-Bulk carriers-Tankers-Refrigerated Vessels and Reefers-LNG carriers- Car carriers- Container ships-Ro-Ro Vessels-Shipping formalities: Booking of Shipping space-Conference, Non-conference shipping-Charter shipping- Charter party-Shipping stowage-Ocean shipping procedure.

Unit III: Shipping and Airline intermediaries (15 Hours)

Custom brokers: Freight forwarders and Consolidators- Functions of freight forwarders- Shipping agents-Customs House Agents-Stevedores-Air cargo: Air cargo chain-Role of International Air Cargo Association- Air Cargo Tariff Structure-Air Freight rate classification.

Unit IV: Major Ports and Airports (15 Hours)

Introduction-Important sea routes-World's major ports-Major ports in India (in brief)- Airport classification-International Air Transport-International Air Transports of India-Types of Aircraft

Unit V: Shipping Association and Act (15 Hours)

Shipping Association: Meaning-Shipper's organization-FIB-Shipping corporation of India-Products and services-Bulk carriers- LNG carriers- The Major Port Trust Act 1963-ICS- INSA-Recent developments of Port sector in India-Recent changes in the regime governing in Indian Shipping Industry

Books for Study:

- 1.Reji Ismail, Logistics Management, Excel Books, NewDelhi,2008. (**Unit I**).
- 2.S.Sudalaimuthu&S.Anthony Raj , Logistics Management for International Business, PHI Learning (P) Ltd., New Delhi,2009. (**Unit II,III,IV**).

3.Ruchika Rajput ,A Text on International Logistics Management, Virinda Publication(P) Ltd., 2012. (Unit V).

Book for Reference:

1.Krishnaveni Muthiah ,Logistics Management &World Sea borne Trade, Himalaya Publishing House, Mumbai, 1999.

**B.A. Economics with Logistics and Freight Management
Semester VI**

Part IV- Skill Based Course IV- Computerized Tally 615TS4

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

The objective of the course is

- ❖ to familiarize the students with accounting skills using tally software.

List of Practical:

1. Company creation, Enabling Accounting Features
2. Pre-defined groups
3. Creation and Alteration of New Groups (Single and Multiple)
4. Creation and Alteration of Ledger (Single and Multiple)
5. Creation and Alteration of Cost categories and Cost centre
6. Accounting Vouchers (Payment, Receipt, Contra, Journal)
7. Altering Inventory Features
8. Creation and Alteration of Stock Group (Single and Multiple)
9. Creation and Alteration of Stock Category (Single and Multiple)
10. Creation and Alteration of Units of Measure
11. Creation and Alteration of Stock Item (Single and Multiple)
12. Creation and Alteration of Godown
13. Display of Stock summary
14. Accounting Voucher (Purchase, Sales)
15. Display of Books, Trial Balance, Profit and Loss Account and Balance Sheet

Books for Study:

1. Namrata Agarwal and Sanjay Kumar, Financial Accounting on Computers using Tally, Dreamtech Press, New Delhi, 2010
2. Vishnu Priya Singh, Tally up to 9 Release 3.0 with CD, Computech Publishers, 2009.

2015-2016
CURRICULUM DESIGN

Sri G.V.G. Visalakshi College For Women (Autonomous), Udumalpet
Affiliated to Bharathiar University

Department of Economics with Logistics and Freight Management
Programme-B.A. Economics with Logistics and Freight Management
Scheme of Examination – CBCS Pattern

(For the Students admitted from the academic year 2015-2016 onwards)

Course Code	Course Title	Ins. Hrs/ week	Examination				Credits
			Dur Hrs	CIA Marks	ESE Marks	Total Marks	
	Semester I						
115TA1/ 115MY1/ 115HD1/ 115FR1/	Part I – Language I	6	3	25	75	100	4
115EN1	Part II – English I	6	3	25	75	100	4
115T01	Part III Core I – Managerial Economics and Decision Making I	5	3	25	75	100	4
115T02	Core II - Logistics Management	5	3	25	75	100	4
115AT1	Allied I – Principles of Insurance	6	3	25	75	100	4
115EVS	Part IV – Environmental Studies	2	2	50	-	50	2
215TA2/ 215MY2/ 215HD2/ 215FR2/	Semester II Part I – Language II	6	3	25	75	100	4
215EN2	Part II – English II	6	3	25	75	100	4
215T03	Part III Core III– Managerial Economics and Decision Making II	5	3	25	75	100	4
215T04	Core IV – Logistics Information System	5	3	25	75	100	4
215AT2	Allied II – General Insurance and Risk Coverage	6	3	25	75	100	4
215VEC	Part IV – Value Education	2	2	50	-	50	2
315TA3/ 315MY3/ 315HD3/	Semester III Part I – Language III	6	3	25	75	100	4

315FR3/							
315EN3	Part II – English III	6	3	25	75	100	4
315T05	Part III Core V– Macro Economics	4	3	25	75	100	4
315T06	Core VI – Supply Chain Management	3	3	25	50	75	3
315AT3	Allied III – Business Statistics	6	3	25	75	100	4
315TS1	Part IV Skill Based Course I – Communication Skills for Business	3	3	75	-	75	3
315NCT	Non Major Elective Course I - Introduction to Logistics Management	2	2	50	-	50	2
415TA4/ 415MY4/ 415HD4/ 415FR4/	Semester IV Part I – Language IV	6	3	25	75	100	4
415EN4	Part II – English IV	6	3	25	75	100	4
415T07	Part III Core VII– Monetary Economics	3	3	25	50	75	3
415T08	Core VIII- Materials Management	4	3	25	75	100	4
415AT4	Allied IV – Mathematical Methods	6	3	25	75	100	4
415TS2	Part IV Skill Based Course II – Management Information System	3	3	75	-	75	3
415NCT	Non Major Elective Course II- General Awareness (Online)	-	1	50	-	50	2
415GIS	Information Security	2	2	-	-	Grade	Grade
415ALT	ALC I - Subject Viva Voce	-	-	-	100	100	3*
515T09	Semester V Part III Core IX – Fiscal Economics	6	3	25	75	100	4
515T10	Core X– Production and Operations Management	6	3	25	75	100	4
515T11	Core XI- Marketing Management	5	3	25	75	100	4

515T12	Core XII – Foreign Trade Procedures and Documentation	5	3	25	75	100	4
515TE1	Elective I -E- Commerce	5	3	25	75	100	4
515TS3	Part IV Skill Based Course III – Computer Applications in Business-Practical	3	3	75	-	75	3
615T13	Semester VI Part III Core XIII– Global Marketing	6	3	25	75	100	4
615TE2	Elective II- Total Quality Management	6	3	25	75	100	4
615TE3	Elective III – Freight Management	6	3	25	75	100	4
615TPV	Group Project	9	-	100	100	200	8
615TS4	Part IV–Skill Based Course IV –Computerized Tally-Practical	3	3	75	-	75	3
615EX1/ 615EX2/ 615EX3/ 615EX4/ 615EX5	Part V – Extension	-	-	50	-	50	2
615ALT	ALC II - Subject Viva Voce	-	-	-	100	100	3*
	Total					3500	140

*Starred Credits are treated as additional credits which are optional.

Yellow colour denoted Skilled based courses, Employment oriented and Entrepreneurship skilled.

2015-2016

B.A. Economics with Logistics and Freight Management

Semester I

Part III – Core I – Managerial Economics and Decision Making I 115T01

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims to

- equip the students with the fundamental tools of economic analysis

- to acquire skills in applying the tools of economic analysis in forecasting demand and deciding production.

Unit I (13Hours)

Managerial Economics – Definition, Nature and Scope – Decision-Making Process- Five Basic Principles – Objectives of the Firm – Role and Responsibilities of Managerial Economists.

Unit II (13 Hours)

Consumption and Utility Analysis: Wants- Characteristics-Classification-Concept of Utility-Law of Diminishing Marginal Utility – Law of Equi - Marginal Utility – Indifference Curve Analysis – Properties – Marginal Rate of Substitution – Consumer's Equilibrium – Consumer's Surplus.

Unit III (13 Hours)

Demand Analysis and Forecasting: Law of Demand – Elasticity of Demand – Types, Measurement, Applications – Demand Function – Demand Forecasting – Types, Objectives and Purpose of Forecasting – Methods of Forecasting.

Unit IV (13Hours)

Production Analysis: Production Function – Assumptions – Cobb – Douglas Production Function – Use of Production Function in Decision Making – Isoquants – Laws of Production: Laws of Variable Proportions – Laws of Returns to Scale – Law of Supply, Economies of Scale.

Unit V (13 Hours)

Cost Concepts: Concepts and Classifications – Cost - Output Relationship –Revenue - Concepts, Types, Curves under Perfect and Imperfect Competition – Break Even Analysis.

Book for Study:

1.S. Sankaran : Managerial Economics, Margham Publications, Chennai, 2015.

Books for Reference:

1. Cauvery &Others : Managerial Economics, S. Chand and Company, New Delhi, 2013.
2. Metha.P.L : Managerial Economics Analysis Problems and Cases, Sultan Chand & Sons, New Delhi, 2011.

B.A. Economics with Logistics and Freight Management

Semester I

Part III – Core II – Logistics Management

115T02

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims

- to equip the students with the knowledge of Logistics Management
- to acquire the information related to the practical application of Logistics

Unit I (13 Hours)

Logistics Management - Nature and concepts – Logistical mission and objectives – Components – Functions – Integrated Logistics System.

Unit II (12 Hours)
Warehousing – Concept of warehousing – Types – Functions- Warehousing strategies – Warehouse design.

Unit III (12 Hours)
Inventory – Concept and Types of inventory – Functions of inventory – Elements of inventory cost- Inventory models DRP, VMI.

Unit IV (14 Hours)
Packaging- Introduction – Protective functions of packaging- New emerging Packaging alternatives- Packaging for material handling efficiency- Material handling- Principles- Equipments for material handling- Important factors in materials handling decisions.

Unit V (14 Hours)
Transportation – Functions – Elements of Transportation cost – Modes of Transport – Multi – Modal Transport – Transportation Decision – Outsourcing: Definition of 3PL Services offered – 4PL Service providers – 7PL concept.

Books for Study

1.D.K.Agrawal , Distribution and Logistics Management, S.Chand& Co, 2009

(Unit-I, II and III)

3.S.K.Bhattacharyya ,Logistics Management, S.Chand& Co Ltd, New Delhi, 2008.

(Unit-IV and V)

Books for Reference

1.Donald J. Bowersox& David J. Closs , Logistical Management, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2014

2.Satish C Ailawadi ,RakeshP.Singh, Logistics Management, PHI learning Private Limited, New Delhi-2013

3.David J. Bloomberg, Stephen LeMay& Joe B. Hanna , Logistics, Prentice-Hall of India Pvt Ltd., New Delhi, 2003.

**B.A. Economics with Logistics and Freight Management
Semester I**

Part III - Allied I –Principles of Insurance

115AT1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The course aims

- to provide knowledge about Insurance
- to learn the principles, practices, procedures and treatment of Life Insurance Products

Unit I (15 Hours)

Introduction-Definition and Nature of Insurance-Terms Used in Insurance-Role and Importance of Insurance-Principles of Insurance-Insurance in India. Types of Insurance: Life, Non-Life and Miscellaneous-Insurance Organization: LIC, GIC, ESI, UTI and SBI

Unit II (15Hours)

Contract and Principles of Insurance-Meaning and Definition-Elements-Kinds of Contract-Principles-Insurance Documents: Proposal Form-Policy Form, Cover Note-Certificate of Insurance-Endorsement-Cancellation.

Unit III (15 Hours)

Insurance Intermediaries: Insurance Broker-Functions of Broker-Insurance Agents-Duties of Agents-Procedure for becoming Agent-Pre-Requisites for obtaining a License, Duration of License, Cancellation of License-Termination of Agent Appointment. Code of Conduct: Unfair Practices - Procedures regarding Settlement of Policy Claims.

Unit IV (15 Hours)

LIC of India: Origin-Meaning and Objectives-Need for Life Insurance –Benefits of Life Insurance –Procedure for taking a Policy – Kinds of Policies - Riders on Policies- Role of Private Players in India.

Unit V (15 Hours)

Group Insurance –Group Gratuity Insurance – Group Super Annuity Insurance, Group Savings Linked Insurance, Unit Linked Insurance Plan, Senior Citizen Plan, Children Savings Plan.

Book for Study:

1 P.Periyasamy, Principles and Practice of Insurance, Himalaya Publishing House, Mumbai, 2011.

Books for Reference:

1. Mishra, M.N&S.B.Mishra,Insurance,Principles and Practice, S. Chand & Co. Ltd., New Delhi, 2007.
2. Inderjit Singh, RakeshKartyal, Sanjay Arora, Insurance, Principles and Practice, Kalyani Publishers, New Delhi, 2003.
3. B.D. Bhargava, Insurance Theory and Practice, Pearl Books, New Delhi, 2008.

B.A. Economics with Logistics and Freight Management

Semester II

Part III – Core IV – Logistics Information System 215T04

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The course aims to teach

- the forms of logistics information
- the information functionality and information forecasting
- the application of information technology in logistics

Unit I (13 Hours)

Logistics Information: Meaning-Definition-Need &Forms - LIS- Information functionality - Activities involved in transaction system- Principles of designing or evaluating LIS applications.

Unit II (12 Hours)

Information forecasting: Definition- Process- Component-Characteristic of forecast component-Approaches-Forecast techniques- Forecast error.

Unit III

(14 Hours)

Information Technology and Logistics: Electronic Data Interchange-Personal Computers-Artificial Intelligence/Expert system-Communications Bar coding and Scanning. Electronic Data Interchange standards.

Unit IV

(13 Hours)

Quality Customer Service and Integrated Logistics Service: Importance of customer service- Elements- The Order Cycle System. Channels of Distribution: Types- Designing the channels of Distribution.

Unit V

(13 Hours)

Informational Issues in Integrated Logistics: E-Commerce- Categories of E-Commerce- E-Commerce levels- Order fulfillment in E-Commerce. Integrated Logistics Accounting: Purpose of Accounting- Types of costs- Activity- Based Management- Activity- Based Costing.

Books for Study:

- 1.Satish C. Ailawadi and Rakesh Singh , Logistics Management, Prentice-Hall of India Pvt Ltd.,New Delhi, 2005 (**Units I, II and III**)
- 2.David J. Bloomberg, Stephen LeMay &Joe B. Hanna, Logistics, Prentice-Hall of India Pvt Ltd., New Delhi, 2003. (**Unit IV and V**)

Books for Reference:

- 1.Donald J. Bowersox and David J. Closs, Logistical Management, Tata McGraw Hill Ltd, New Delhi, 2014
2. Donald Waters, Logistics. Palgrave Macmillan, New York, 2004.

Course Designed by : Mrs.J.Karunambikai

Course Reviewed by : Mrs.M.Meharbanu

Checked by : Dr. R.Radhika

B.A. Economics with Logistics and Freight Management**Semester II****Part III - Allied II – General Insurance and Risk Coverage 215AT2**

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The objective of this course is

- to understand the basic concepts of General Insurance
- to provide an overall view of the risk management and control systems

Unit I

(15 Hours)

Introduction-Basic Concepts –Growth of General Insurance-Types of General Insurance-Fire Insurance: Principles- Types and Policy Conditions- - Claims- Loss of stock- loss of profit-important terms for claims

Unit II

(15 Hours)

Marine Insurance –Essential Elements of Marine Insurance- Re Insurance-Mutual Insurance- Kinds and Policy Conditions – Important Clauses in Marine Policy-Marine Losses- Total and Partial Losses-Payment of Claims- Motor Insurance –Kinds of Policies-Procedures of Motor Insurance-Benefits.

Unit III

(15 Hours)

Introduction to Risk –Concept –Risk and Uncertainty –Types of Risks -Classifying Pure Risks - Methods of Handling Pure Risk –Principles of Risk -Classification –Risk Management and Control –Conceptual Framework- Objectives – Risk Management Information Systems. Risk Management by Individual – Factors affecting Individual's demand for Insurance.

Unit IV

(15 Hours)

Settlement of Claims in Insurance Claims in Life Insurance: Death, Maturity, Survival, Claims in Non-Life: Fire –Motor Vehicle, Marine Insurance, Claims on Consignment by Rail and Road, Marine and Cargo, Engineering Insurance.

Unit V

(15Hours)

Reinsurance : Introduction to Reinsurance – Role of reinsurers-Techniques-Nature of Reinsurance Risks. Enterprise Risk Management –ERM Basics identifying risk exposures - ERM in Insurance –Risk Management Information Systems (RMIS). Information Technology in Insurance – Need, Technology and Applications.

Books for Study:

- 1.P. Periyasamy, Principles and Practice of Insurance, Himalaya Publishing House, Mumbai, 2011.
2. Gupta P.K, Insurance Risk Management, Himalaya Publishing House, Mumbai 2004.

Books for Reference:

- 1.Bodla, B.S., Garg M.C. & Singh, Insurance, Fundamentals ,Environmental Procedures, Deep & Deep Publications, New Delhi, 2003.
2. Gupta , P.K ,Insurance Management, Himalaya Publishing, Mumbai , 2004.
3. Mishra, M.N, Insurance, Principles and Practice,S. Chand& Co Ltd., Delhi, 2005.
4. R.Haridas, Life Insurance In India, New Century Publications, 2011.
5. Inderjit Singh, Rakesh Kartya, Sanjay Arora, Insurance, Principles and Practice, Kalyani Publishers, Delhi, 2003.

**B.A. Economics with Logistics and Freight Management
Semester III**

Part III – Core VI – Supply Chain Management 315T06

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3**Hours: 38****Preamble:**

The course aims

- to equip the student with the knowledge of Supply Chain Management
- to teach new opportunities in SCM

Unit I

(7 Hours)

Understanding the supply chain: Meaning-Objectives-Importance-Decision phases-process-Supply chains with illustrations.

Unit II

(7 Hours)

Supply chain performance: Achieving strategic fit- Challenges to achieving and maintaining strategic fit-Indian scenario.

Unit III

(8 Hours)

Supply chain drivers & Metrics: Drivers of supply chain performance- Framework for structuring drivers- Role of inventory in supply chain- Components of inventory decision.

Unit IV (8 Hours)

Managing uncertainty in a supply chain safety inventory: Role of safety inventory in a supply chain- Impact of supply uncertainty on safety inventory- Impact of replenishment policies on safety inventory.

Unit V (8 Hours)

Information technology in a supply chain: The role of Information technology in a supply chain – The supply chain and IT framework- Internal supply chain management- Supplier relationship management- Transaction management -Foundation future of IT in supply chain.

Book for Study:

2. Sunil Chopra and Peter Meindl&D.V.Karla ,Supply Chain Management-Strategy Planning and Operation, Pearson Education, 2012.

Books for Reference:

1. Janat Shah, Supply Chain Management – Text and Cases, Pearson Education, 2012.
2. R.P Mohanty& S.G Deshmuki, Supply Chain Management, Biztantra, New Delhi, 2011.

B.A. Economics with Logistics and Freight Management
Semester III

Part III – Allied III – Business Statistics

315AT3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble

This course aims at

- analyzing and interpreting data
- applying the statistical tools for solving economic problems

Unit I (15 Hours)

Definition – Importance – Functions and Limitations of Statistics – Primary and Secondary Data, Census and Sampling Methods – Collection of Data -Frequency Distribution – Classification and Tabulation of Data – Diagrammatic and Graphical Representation – Ogive and Lorenz Curves.

Unit II (15 Hours)

Measures of Central Tendencies – Functions of an Average – Essentials of an Ideal Average – Arithmetic Mean – Geometric Mean – Median – Mode – Relationship between different Averages – Appropriateness of an Average.

Unit III (15 Hours)

Measures of Dispersion – Range – Quartile Deviation – Mean Deviation – Standard Deviation – Coefficient of Variation – Skewness – Kurtosis.

Unit IV (15 Hours)

Simple Correlation – Meaning and Types – Measurement of Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Method of Least Square with one Independent Variable.

Unit V (15 Hours)

Index numbers – Laspeyre's, Paasche's, Fisher's Ideal Index Numbers – Cost of Living Numbers – Time Series Analysis – Components and Measurements of Time Series limited to Moving Average and Least Square Methods.

Note: Theory carries 25 marks and problems carry 50 marks

Book for Study:

1.R.S.N. Pillai and V. Bagavathi, Statistics, S. Chand & Co. Ltd., New Delhi, 2012.

Book for Reference:

1.S.P. Gupta , Statistical Methods, Sultan Chand & Sons, New Delhi, 2012.

**B.A. Economics with Logistics and Freight Management
Semester III**

**Part IV-Skill Based Course I-Communication Skills for Business 315TS1
(For the students admitted from the academic year 2015-2016 onwards)**

Credits: 3

Hours: 38

Preamble:

The objective of the course is

- ❖ to develop self-confidence in managing the business
- ❖ to equip the students with correct and effective Communication Skills for successful entrepreneurship

Unit I (7 Hours)

Communication - Meaning – Importance - Objectives – Principles of Communication - Media of Communication.

Unit II (7 Hours)

Oral Communication , Verbal, Non verbal and Audio-Visual Presentation, Telephone Skills and Etiquettes.

Unit III (8 Hours)

Written Communication –Kinds of business letter – Essentials of a business letter – Enquiries and replies - Orders and their execution- Sales letters - Application letters.

Unit IV (8 Hours)

Agency correspondence – Insurance - Bank Correspondence – Correspondence with public authorities and other agencies- Letter to the editor of news papers.

Unit V (8 Hours)

Report writing - Importance - Kinds – Characteristics of a good report -Report by individuals and committees.

Books for Study:

1.Reddy,Appannaiah&Nagaraj and Raja Rao ,Essentials of Business Communication, Himalaya Publishing House, New Delhi, 2003

Books for Reference:

1.RajendraPal&J.S.Korlahalli ,Essentials of Business Communication, Sultan Chand and Sons, New Delhi, 1997.

2.Krishna Mohan &MeeraBanerji, Developing Communication Skills, Rajiv Beri for Macmillan Indian Ltd., Chennai,1987

3.M.S.Ramesh&.C.Pattanshetti,BusinessCommunication,S.Chand&Co,Delhi, 2000.

4.L.A.Woolcott&W.R.Unwin,MasteringBusinessCommunication, Macmillan Education Ltd, Chennai.2002.

B. A. Economics with Logistics and Freight Management
Semester IV

Part III – Core VIII – Materials Management 415T08

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 52

Preamble

The course aims at

- understanding the role of materials used for logistics services
- analyzing the planning and budgeting materials for inventory management

Unit I (10 Hours)

Materials Management: Introduction- Management in relation to materials function- Functions of management- Management of material resources- Objectives- Achieving objectives- Effects of business changes.

Integrated Materials management- Activities-Importance of materials department- Costs- Need –Areas of materials management- production control-Inspection of purchased items- Advantages.

Unit II (9 Hours)

Classification and Codification of materials: Need- Classification- Nature of codification- Process- Merits and Demerits of Codification systems- Alphabetical system-Numerical system- Decimal system.

Unit III (10 Hours)

Material planning: Definition- Importance-Flow chart- Techniques: Past consumption analysis- Material requirements planning.

Budgeting and Material Planning: Master Budget- Sales budget- Production budget- Materials budget- Labour budget- Maintenance budget- Overhead budget- Administrative budget- Capital- Expenditure budget.

Unit IV (12 Hours)

Stores and Store Keeping: Objectives- Functions- Features of successful store- keeping- Relationship of store department with other departments- Benefits of store keeping- Stores organisation-Location- Layout- Receipt section- Types of stores- Preservation of stores- Stock taking. Storage Equipment: Types- Selection. Marking of stores: Colour marking- Secret marking.

Unit V (11 Hours)

Principles of Material Handling: Planning principles- Operating principles-Principles related with equipment- Cost reduction- General principles-Classification of Material Handling Equipment- Material Handling Equipment.

Selective Inventory Control: Importance and scope- Selective treatment- ABC Categorization- VED Analysis- Three- dimensional Approach for selective control of Inventory.

Book for Study:

1.A.K.Chitale&R.C.Gupta , Material Management- Text and Cases, PHI Learning Pvt.Ltd., New Delhi, 2013.

Books for Reference:

1.S.C.Sharma, Materials Management&Materials,Handling, Khanna Publishers, Delhi, 2008.

2.M.M.Varma, Materials Management, Sultan Chand& Sons, New Delhi,2010.

B.A. Economics with Logistics and Freight Management
Semester IV

Part IV-Skill Based Course II-Management Information System 415TS2
(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The aim of the Course is to equip students with

- the knowledge of information systems adopted in office management
- to develop the skill in determining the information requirements and formulation of an information system plan

Unit I (9 Hours)

Management Information System: Meaning-Definition-Computer Based- User - Machine System-Integrated system- Need for a data base- Utilisation of Database-MIS and Decision Support Systems.

Unit II (8 Hours)

Structure of MIS: Structure: Programmable decisions- Unstructured –Non-Programmable Decisions-Production Subsystem- Logistics Subsystem.

Unit III (7Hours)

Information Based Support System: Transaction Processing Support System- Operational Control- Management Control- Strategic Planning Support System.

Unit IV (7 Hours)

Information System Requirements: Master Plan-Goals- Objectives- Architecture-Current Capabilities- Forecast of developments affecting the plan- Maintenance of the Master Plan.

Unit V (7 Hours)

Implementation of Management Information System: Meaning- Theories of Organisational change- The Change Agent- Mechanisms for Successful Implementation-Socio-Technical Approach to System Design and Implementation

Book for Study:

1. Gordon B. Davis &MargretheH.Olson , Management Information Systems, Conceptual Foundations, Structure and Development, 2nd Edition, Tata Mc-Graw Hill Publishing Company, New Delhi, 2007

Books for Reference:

1. JawaDekar (Wamans), Management Information Systems, I Edition, Tata Mc-Graw Hill Publishing Company, New Delhi, 2013.
2. GaganVarshini& Others, Management Information System, Global Book Publishing Company, Coimbatore, 2011

B.A. Economics with Logistics and Freight Management
Semester V

Part III – Core X – Production and Operations Management 515T10
(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 75

Preamble:

The aim of this course is

- to provide a broad introduction to the field of operations management and explain the concepts, strategies, tools, and techniques for managing the transformation process that can lead to competitive advantage.

Unit I (15 Hours)

Introduction to Production and Operations Management: Meaning- Characteristics of Modern Production and Operations function- Recent trend in Production and Operations Management.

Unit II (15 Hours)

Manufacturing and Service operations: Selection process- Service operation-Difference between manufacturing and service operations- Classification of manufacturing process- Characteristics of modern manufacturing- Challenges facing by operations managers.

Unit III (15 Hours)

Design of production systems: Product design- Process design- Production design- Factors & approaches to product design- Legal, ethical and environmental issues in product design- Design of work systems: Objectives of work study- Relationship of time & motion study- Basic work study procedure- Method study- Motion study.

Unit IV (15 Hours)

Long range capacity planning & Resource requirements planning – MRP or MRP I- MRP II-General overview of MRP-DRP.

Unit V (15 Hours)

Project management-Project planning and controlling techniques- Project scheduling techniques- Program evaluation and review technique (PERT) – CPM- CPM Time analysis.

Book for Study:

- 1.K.Aswathappa&K.ShridharaBhat, Production and Operations Management, Himalaya Publishing House, New Delhi,2012

Books for Reference:

- 1.M.ArokiarajJohn&G.BalaSenthikumar,OperationManagement,ARS Publications,Chennai, 2013.
- 2.WilliamJ.Stevenson, Operations Management, Tata McGraw Hill,New Delhi, 2009.
- 3.B.Mahadevan , Operations Management, Dorling Kindersley(India) Pvt.Ltd.,2010

B.A. Economics with Logistics and Freight Management

Semester V

Part IV-Skill Based Course III - Computer Applications in Business515TS3

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

Preamble:

The course covers the essential skills for using all the programs to

- equip the students to develop their own application using Graphical user Interface
- learn Power Point Presentation
- acquire knowledge of Microsoft Access as Database Management System to organizing staggering information about personal and business life

List of Practical:**MS Word**

(10 Hours)

11. Type a paragraph and perform the following changes:
Font Size, Font style, Line spacing, Page setup (margin) , Text color, Center heading
Under line a text, Bullets/numbering, Alignment (Justify, centre, left, right)
12. Type a document and perform the following:
Insert header, Find and replace, Cut, copy and paste, Change case
13. Prepare an advertisement for a product
14. Send an application to many companies for suitable job using mail merge option

MS Excel

(9 Hours)

15. Prepare Payroll for employee
16. Draw a Chart using Excel with the details : Student Name and Marks of 5 subjects

MS Power point

(9 Hours)

17. Design a Sports Day Invitation and prepare Slides describing various events in Power Point.
18. Display various departments and courses offered in our college using Power point

MS Access

(10 Hours)

19. Create a database for Employee Details and generate a report for Pay Slip using MS Access
20. Create a database for Customer Information and generates a report with the customer name in ascending order.

Books for Study:

1. R. Parameswaran ,Computer Application in Business, S.Chand& Company Ltd., New Delhi, 2012.
2. Sanjay Saxena, MS Office 2007 in a Nutshell, Vikas Publishing House, New Delhi, 2013.

Book for Reference:

1. Ron Mansfield ,Working in Microsoft Office, Tata McGraw Hill Publishing Co.Ltd.Delhi, 2005.

B.A. Economics with Logistics and Freight Management**Semester V****Part III-Core XI– Marketing Management****515T11****(For the students admitted from the academic year 2015-2016 onwards)****Credits: 4****Hours: 65****Preamble:**

The aim of the Course is to equip students with

- intelligent marketing which is an essential and functional area of business management
- to develop self-employment skills in marketing

Unit I

(13 Hours)

Marketing : Meaning of marketing - Classifications of marketing- Marketing functions - Marketing Information System-Kinds of Marketing Information System.

Unit II

(13 Hours)

Marketing mix : Concept- Components - Product mix, Price mix, Promotion mix and Place mix: Product: Meaning- Product planning, Product positioning, New product development - Product life cycle

Unit III

(13 Hours)

Branding -Packaging -Labelling : Pricing: Pricing objectives -Factors, methods and procedures. Distribution: Channels of distribution -Evaluating the channel alternatives -Physical distribution. Objectives- Order processing, Transport, Storage and Warehousing, inventory control.

Unit IV

(13 Hours)

Promotion: Meaning, advertising, sales promotion, personal selling and publicity. Marketing services: Kinds of services- Character of service. Marketing of securities : Stock exchange -Functions of Stock Exchange - Methods of Trading - Kinds of dealers.

Unit V

(13 Hours)

Competitive Marketing Strategies : Leaders -Challengers -Followers - Nichers , Marketing Control: Meaning, Types, Steps, Essentials of Effective Marketing Control. Marketing and society: Consumer protection -Needs - Methods -Consumer protection in India.

Book for Study:

Rajan Nair,N ,Marketing Management, Himalaya Publishing House , Mumbai, 2014

Books for Reference

Rajan Nair N.& Sanjith R.Nair , Marketing, Sultan Chand & sons, New Delhi, 2014.

Sonatakki. C.N, Marketing Management, Kalyani Publishers, New Delhi, 2012

Rajan Saxena , Marketing Management, Tata Mc Graw -Hill Publishing Co.Ltd., New Delhi, 2011

Philip Kotler, Marketing Management, Tata Mc Graw-Hill Publishing Co. Ltd., Delhi, 2012

B.A. Economics with Logistics and Freight Management**Semester V****Part III – Core XII – Foreign Trade Procedures and Documentation 515T12**

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble

The objective of this course is

- ❖ to expose the students to export and import trade and
- ❖ to familiarize the students with procedures of export-import trade

Unit I

(13Hours)

Foreign Trade – Need – its role in Economic Development – Growth and Structure of India's Foreign Trade Policy- Main Features, Phases - Export-Import Policy 2012 – Objectives- Key Strategies- Highlights.

Unit II

(13Hours)

Export Procedures-Registration Stage-Pre-Shipment Stage-Quality Control and Pre-Shipment Inspection-Sales Tax Exemption- Realization of Export Proceeds - Realization of Incentives.

Unit III

(13Hours)

Export Documentation-Aligned Documentation System-Proforma Invoice-Commercial Invoice-Letter of Credit-Meaning-Types-Advantages-Packing List-Mate's Receipt-Bill of Lading-Certificate of Origin-Shipping Bill-Consular Invoice-Bill of Entry-Airway Bill-GR Form.

Unit IV

(13Hours)

Import procedure-Liberalization of Imports-Categories of Importers-Special Scheme for Importers-Classification of Goods for Import Policy and Assessment of Duty-Legal Dimensions of Import Procedures-Customs Clearance – Bill of Entry-Forward Contract.

Unit V-Practice Workshop

(13Hours)

1. Master Document
2. Documents related to import of Goods
 - a) Invoice b) Packing List c) Certificate of Origin
 - d) Receipt e) Bill of Lading f) Shipping Bill/ Airway Bill
 - g) Export of Goods under claim for Duty drawback
3. Documents Related to payment
 - a) Letter of Credit b) Bill of Exchange c) Bank Certificate of Payments
4. Documents Related to Foreign Exchange
 - a) Exchange control Declaration (GR Form)
5. Documents Related to Insurance
 - a) Marine Insurance Certificate b) Marine Insurance Declaration
 - c) Shipment Advice d) Shipping Order
 - e) Format of Registration-Membership Certificate f) Income Tax Return

Books for Study:

1. B.K.Chaudari&O.P.Agarwal, A Book for Study of Foreign Trade and Foreign Exchange, Himalaya Publishing House, Mumbai, 2007.
2. S.Khushapat Jain, Export, Import Procedures and Documentation, Himalaya Publishing House, 2005.

Books for Reference:

1. R.Sharma& Dr.S.Sachdeva, Export Management, Agra Educational Publishers, 2008.
2. D.C.Kapoor, Export Management, Vikas Publishing House Pvt. Ltd., Noida, 2010.

Course Designed by : Dr.MallikaBaskar
Course Reviewed by : Mrs.M.MeharBanu
Checked by : Dr.R.Radhika

B.A Economics with Logistics and Freight Management Semester V

Part III- Elective I - E- Commerce

515TE1

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 4

Hours: 65

Preamble:

The objective of the course is

- to provide basic knowledge about Electronic Commerce
- to impart knowledge about applications of e- commerce in business.

Unit I

(13 Hours)

E-commerce – Meaning – Definition – Evolution – Concept – Nature –Objectives- Features of e-commerce – Need – Types of e-commerce –Essential requirement for e-commerce- Levels of e-commerce-e-commerce procedure- Critical factors for e-commerce success – Steps for building an e-commerce system –Advantages – Disadvantages.

Unit II (13 Hours)

Business Models of E-Commerce and Infrastructure: Models-SCM-Need for supply chain management software-Product and Service Digitization-Steps-Benefits-Gain & loss-kinds-Remote servicing and Procurement-Pros and Cons of E-marketing-E-Commerce resources and infrastructure.

Unit III (13 Hours)

E-business: Workflow Management-Mass Customization and Product differentiation-Logistics distribution- Knowledge Management.

Unit IV (13 Hours)

E-Online Banking : Meaning – Need – Automatic Teller Machine – Electronic Fund Transfer – Tele Banking – E-Cheque – E-Banking in India – Security of Internet Banking – Advantages – Limitations.

Unit V (13 Hours)

Encryption – Origin – Meaning – Process – Cryptogram-Cryptography- Types of cipher system- Digital Certificates – Digital Signature and Electronic signature – How to ensure secure electronic Signature -Secure Electronic Transaction (SET) – Advantages.

Books for Study:

- 1.Dr. C. S. Rayudu, Commerce& E Business, Himalaya Publishing Mumbai, 2004
(Unit I ,Unit IV & V).
- 2.Gurvindersingh & Rachh Paul Singh ,E-Commerce, Kalyani Publishers,2004
(Unit II, III, IV & V).

B.A. Economics with Logistics and Freight Management

Semester VI

Part IV- Skill Based Course IV- Computerized Tally 615TS4

(For the students admitted from the academic year 2015-2016 onwards)

Credits: 3

Hours: 38

The objective of the course is

- ❖ to familiarize the students with accounting skills using tally software.

List of Practical:

1. Company creation, Enabling Accounting Features
2. Pre-defined groups
3. Creation and Alteration of New Groups (Single and Multiple)
4. Creation and Alteration of Ledger (Single and Multiple)
5. Creation and Alteration of Cost categories and Cost centre
6. Accounting Vouchers (Payment, Receipt, Contra, Journal)
7. Altering Inventory Features
8. Creation and Alteration of Stock Group (Single and Multiple)
9. Creation and Alteration of Stock Category (Single and Multiple)
10. Creation and Alteration of Units of Measure
11. Creation and Alteration of Stock Item (Single and Multiple)
12. Creation and Alteration of Godown
13. Display of Stock summary
14. Accounting Voucher (Purchase, Sales)
15. Display of Books, Trial Balance, Profit and Loss Account and Balance Sheet

Books for Study:

- 1.NamrataAgarwal and Sanjay Kumar, Financial Accounting on Computers using Tally, Dreamtech Press, New Delhi, 2010
- 2.VishnuPriyaSingh,Tally up to 9 Release 3.0 with CD, Computech Publishers,2009.

2014-2015**B.A Economics with Logistics and Freight Management****Semester wise Distribution with Scheme of Examination****(For the candidates admitted during the academic year 2014-2015 and onwards)**

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Part I-Language I	3	3	25	75	100
	Part II-English I	3	3	25	75	100
	Part III – Core I – Managerial Economics and Decision Making I	4	3	25	75	100
	Core II – Logistics Management	4	3	25	75	100
	Allied I- Computer Applications in Business-Practical	5	3	40	60	100
	Part IV- Environmental Studies	2	3	50	-	50
II	Part I- Language II	3	3	25	75	100
	Part II- English II	3	3	25	75	
	Part III -Core III – Managerial Economics and Decision Making II	4	3	25	75	100
	Core IV –Logistics Information System	4	3	25	75	100
	Allied II-Computerized Tally-Practical	5	3	40	60	100
	Part IV- Value Education	2	3	50	-	50
	ALC I- Business Environment	3*	3	-	100	100
III	Part I – Language III	3	3	25	75	100
	Part II –English III	3	3	25	75	100
	Part III –Core V–Macro Economics	4	3	25	75	100
	Core VI – Supply Chain Management	4	3	25	75	100
	Allied III – Mathematics Methods	5	3	25	75	100
	Part IV- Skill Based Course I- Fundamentals of Insurance	3	3	100	-	100
	NMEC I- Introduction to Logistics Management	2	3	75	-	75
	Part I- Language IV	3	3	25	75	100
	Part II-English IV	3	3	25	75	100
	Part III – Core VII- Monetary Economics	4	3	25	75	100

IV	Core VIII- Introduction to PL/SQL- Practical	4	3	40	60	100
	Allied IV- Statistics	5	3	25	75	100
	Part IV-Skill Based Course II-Life Insurance Products	3	3	100	-	100
	NMEC II – General Awareness	2	3	-	75	75
	ALC II-Quantitative Techniques	3*	3	-	100	100
V	Part III –Core IX-Fiscal Economics	4	3	25	75	100
	Core X – Operation Management	4	3	25	75	100
	Core XI – Foreign Trade Procedures and Documentation	4	3	25	75	100
	Core XII – Banking Practices	4	3	25	75	100
	Elective I - E- Commerce	5	3	25	75	100
	Part IV- Skill Based Course III - General Insurance Products	3	3	100	-	100
VI	Part III- Core XIII- Indian Economic Issues	4	3	25	75	100
	Core XIV – Industrial Marketing					
	Core XV – Principles of Insurance	4	3	25	75	100
	Elective II – Total Quality Management	4	3	25	75	100
	Elective III – Freight Management	5	3	25	75	100
	Part IV – Skill Based Course IV - Insurance Risk and Management	5	3	25	75	100
	Extension Activities	3	3	25	75	100
	ALC III-Enterprise Resource Planning	1	-	50	-	50
		3*	3	-	100	100

*Starred Credits are treated as additional credits which are optional.

B.A. Economics with Logistics and Freight Management

Semester I

Part III – Core I – Managerial Economics and Decision Making- I 114T01 (For the candidates admitted during the academic year 2014-2015 and onwards)

Credits:4

Hours: 75

Preamble:

The Paper aims to

- Equip the students with the fundamental tools of economic analysis
- To acquire skills in applying the tools of economic analysis in forecasting demand and deciding production.

Module I

Managerial Economics – Definition, Nature and Scope – Decision-Making Process-Five Basic Principles – Objectives of the Firm – Role And Responsibilities Of Managerial Economists.
(13 Hours)

Module II

Consumption And Utility Analysis: Wants- Characteristics-Classification-Concept of Utility-Law of Diminishing Marginal Utility – Law Of Equi - Marginal Utility – Indifference Curve Analysis – Properties – Marginal Rate Of Substitution – Consumer's Equilibrium – Consumer's Surplus. (15 Hours)

Module III

Demand Analysis And Forecasting: Law Of Demand – Elasticity Of Demand – Types, Measurement, Applications – Demand Function – Demand Forecasting – Types, Objectives And Purpose Of Forecasting – Methods Of Forecasting. (14 Hours)

Module IV

Production Analysis: Production Function – Assumptions – Cobb – Douglas Production Function – Use Of Production Function In Decision Making – Isoquants – Laws Of Production: Laws Of Variable Proportions – Laws Of Returns To Scale – Law Of Supply, Economies Of Scale. (17 Hours)

Module V

Cost Concepts: Concepts and classifications – Cost - Output relationship – Revenue – Concepts, Types, Curves under perfect and Imperfect Competition – Break Even Analysis. (16 Hours)

Books for Reference:

- S. Sankaran :Managerial Economics, Margham Publications, Chennai, 2006.
R. Cauvery and others :Managerial Economics,
S.Chand and Company, New Delhi, 2011.
S. Mukherjee :Business and Managerial Economics in the Global Context,

B.A. Economics with Logistics and Freight Management Semester I

Part III – Core II – Logistics Management

114T02

(For the students admitted from the academic year 2014-2015 onwards)

Credits:4

Hours:65

Preamble:

The course aims

- Know how a logistic strategy fits into an organization broader decisions.
- Understand the role of logistics providers
- Realize the meaning of customer service and understand its importance to logistics management

Module I

(13 Hours)

Introduction of material management &Logistics –Definition of logistics- History and evaluation –objectives –elements –activities – importance –the work of logistics– Integrated Logistics management-Integrated Logistics System- model – process-activities(in brief).

Module II

(13Hours)

Transportation- definition – principles – role of transportation in logistics- transport functionality and principles – mode of transport – rail,road,water,air,pipliner- their characteristics

and their cost structure – the carrier selection decision-determination of carrier selection-common functions of 3PL- fourth party logistics providers(4PL)

Module III

(13Hours)

Warehousing –definition- nature and importance- benefits - Types – basic components C — Functions- Warehousing layout and design -strategies – Warehouse design- determinants Inventory – Concept and Types of inventory – Functions of inventory – Elements of inventory cost- Inventory models DRP, VMI.

Module IV

(13Hours)

Packaging- Introduction – Protective functions of packaging- New emerging Packaging alternatives- Packaging for material handling efficiency- Material handling- Principles- Equipments for material handling- Important factors in materials handling decisions.

Module V

(13Hours)

Transportation – Functions – Elements of Transportation cost – Modes of Transport – Multi – Modal Transport – Transportation Decision – Outsourcing: Definition of 3PL Services offered – 4PL Service providers – 7PL concept.

Books for Study

1.D.K.Agrawal , Distribution and Logistics Management, S.Chand& Co, 2009

(Unit-I, II and III)

3.S.K.Bhattacharyya ,Logistics Management, S.Chand& Co Ltd, NewDelhi, 2008.

(Unit-IV and V)

Books for Reference

1.DonaldJ. Bowersox& David J. Closs , Logistical Management, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2014

2.Satish C Ailawadi ,RakeshP.Singh, Logistics Management, PHI learning Private Limited, New Delhi-2013

3.David J. Bloomberg, Stephen LeMay& Joe B. Hanna , Logistics, Prentice-Hall of India Pvt Ltd., NewDelhi, 2003.

B.A. Economics with Logistics and Freight Management

Semester I

Part III - Allied I – Computer Applications in Business-Practical 114AT1

(For the candidates admitted during the academic year 2014-2015and onwards)

Credits:5

Hours: 75

Preamble:

The course covers the essential skills for using all the programs separately and as a team

- It equips the students to develop their own application using Graphical user Interface.
- Knowledge of Microsoft Access as Database Management System to organizing Staggering information about personal and business life.
- To learn Power point presentation graphics program.

Computer Applications in Business - List of Practical:

Ms Word

21. Type a paragraph and perform the following changes:

Font Size
Font style
Line spacing
Page setup (margin)
Text color
Center heading
Under line a text
Bullets/numbering

22. Type a document and perform the following:

Insert header
Find and replace
Cut, copy and paste
Change case

23. Prepare an advertisement for a product

24. Send an application to many companies for suitable job using mail merge option

25. Resume wizard

26. Prepare a class timetable using a table menu

27. Design an invoice by using drawing tool bar, clip art, word art, symbols, borders and shading, charts.

28. Prepare an application with Bio Data using MS Word (like application for the post of Lecturer in college)

29. Prepare an information letter about the college reopening date to the student using Mail Merge

30. Send an invitation to colleges for the workshop using Mail Merge Design an advertisement copy in MS Word

Ms Excel

31. Prepare Students mark sheet using Excel

32. Prepare Payroll for employee using Excel

33. Draw a chart using Excel with the details : student name and marks of 5 subjects

34. Compute mathematics of finance- simple interest, compound interest, net present value ,annuity of a future value(sinking fund method)

35. Draw the different type of charts (Line, Pie, Bar) to illustrate year wise performance of sales, gross profit, net profit of a company by using chart wizard.

MS-Power point

36. Design a sports day invitation and prepare slides describing various events in Power point

37. Display various departments and courses offered in our college using Power point

38. Prepare the teaching slides using Power Point

39. Prepare a slideshow for organizing a seminar with animation effects.

40. Design presentation slide for a product of your choice. The slides must include name, type of product, characteristics, special features, price, special offer etc.,

MS Access

41. Create a database for employee details and generate a report for pay slip using MS Access

42. Create a database maintaining stock in a shop with fields : Serial number (Primary Key), Name of product, Product code, Quantity and Price

43. Create a database for customer information and generates a report with the customer name in ascending order.
44. Create a student mark database.
 - a) Retrieve the student's details according to the highest marks.
 - b) Display the query showing marks > 75 and total > 400
24. Design a mark sheet using forms and reports.

Books for Reference:

Sanjay Saxena : "A First Course in Computers",
Vikas Publishing House Pvt Ltd., Delhi, 2003.

Ron Mansfield : Working in Microsoft Office,
Tata Mc Graw Hill Publishing Company Ltd., Delhi, 2005.

**B.A. Economics with Logistics and Freight Management
Semester II**

Part III – Core IV – Logistics Information system 214T04

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Total Hours: 65

Preamble:

- The paper aims to teach
- the forms of logistics information
 - Information functionality
 - Information forecasting
 - Application of information technology in logistics

Module I

Logistics Information-Meaning-LIS-Definition-Information functionality - activities involved in transaction system-Principles of designing or evaluating LIS applications. (13 Hours)

Module II

LIS Architecture-components-Two forms of activities; Planning & co-ordination flows & operating flows - Flow and use of integrated logistics information. (13 Hours)

Module III

Information forecasting: Definition-Process- component-characteristic of forecast compound-approaches-forecast techniques-Forecast error. (13 Hours)

Module IV

Information Technology & Logistics-Electronic Data Interchange-Personal Computers-Artificial Intelligence/Expert system-Communications Bar coding & Scanning. Electronic Data Interchange – Advantages, Disadvantages- standards-Communication, Information & Future directions. (13 Hours)

Module V

Information Technology for supply chain management - Bull whip effect-IT in supply chain-Business Process Reengineering-enterprise resource planning- Impact of Internet on SCM. (13 Hours)

Books for Reference:

David J. Bloomberg, Stephen LeMay &
Joe B. Hanna

New Delhi, 2003.

Donald J. Bowersox & David J. Closs

Satish C. Ailawadi & Rakesh Singh

Donald Waters

Krishnaveni Muthiah

Sarika Kulkarni }

Ashok Sharma

:Logistics,
Prentice-Hall of India Pvt Ltd.,

:Logistical Management,
Tata McGraw Hill Publishing Co. Ltd,
New Delhi, 2004

:Logistics Management,
Prentice-Hall of India Pvt Ltd.,
New Delhi, 2005

:Logistics.
Palgrave Macmillan, New York, 2004

:Logistics Management & World Sea
borne Trade,
Himalaya Publishing House,
Mumbai, 1999

:Supply Chain Management,
Tata Mc-Graw Hill Publishing Co Ltd.,
New Delhi, 2004

**B.A Economics with Logistics and Freight Management
Semester II**

**Part III - Allied II - Computerized Tally-Practical 214AT2
(For the candidates admitted during the academic year 2014-2015 and onwards)**

Credits:5

Hours: 75

Preamble:

The objectives of the Paper are

- ❖ To familiarize the students with accounting skills using tally software

List of Practical:

1. Company Creation
2. Enabling Accounting Features
3. Pre-defined groups
4. Creation & Alteration of New Groups (Single & Multiple)
5. Creation & Alteration of Ledger (Single & Multiple)
6. Creation & Alteration of Cost categories & Cost centre
7. Accounting Vouchers (Payment, Receipt, Contra, Journal)
8. Display of Books, Trial Balance, Profit & Loss Account & Balance Sheet
9. Altering Inventory Features
10. Creation & Alteration of Stock Group (Single & Multiple)
11. Creation & Alteration of Stock Category (Single & Multiple)
12. Creation & Alteration of Units of Measure

13. Creation & Alteration of Stock Item (Single & Multiple)
14. Creation & Alteration of Godowns
15. Display of Stock summary
16. Accounting Voucher (Purchase, Sales)
17. Enabling VAT in Tally
18. VAT Ledger creation
19. Accounting voucher (Input VAT, Output VAT)
20. Display of Ratio

Reference Book:

Namrata Agarwal & Sanjay Kumar : Financial Accounting on Computers
using Tally Dreamtech Press,
New Delhi, 2002

N. Satyapal : Using Tally ,

Khanna Publications, New Delhi, 2000

Implementary Tally

: BPB Publication, 2001

B.A. Economics with Logistics and Freight Management

Semester III

Part III – Core VI – Supply Chain Management 314T06

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits:4

Hours: 52

Preamble: The paper aims to educate students on

- Stages of supply chain management
- New opportunities in SCM

Module I

Introduction – Definition- Evolution- Objectives- Supply chain planning framework- Managing the uncertainty in SCM- Benefits of SCM- SCM Market in India. (10 hours)

Module II

Supply Chain Integration- Internal Integration- Centralized system- Decentralized system- Hybrid system – External Integration- Impact of Buyer practices on demand distortions – impact of Supplier practices on demand distortions – Remedial strategies- Barriers to internal & external integration. (11 hours)

Module III

Procurement Management in supply chain- Introduction- Purchasing cycle- Types of Purchase- Purchasing process- Purchasing & Other functions- Supplier selection process- strategic partnership with the supplier – International Purchasing & Global Purchasing. (11 hours)

Module IV

Outsourcing in SCM – Meaning – need- Outsourcing risks- Outsourcing process- New opportunities in SCM Outsourcing- myths of SCM Outsourcing- Bidding vs Negotiation- Just-in Time and Quick Response in logistics. (10 hours)

Module V

Performance Measurement in SCM- Introduction- Traditional Measurement- World-class Measurement- Tools of Measurement- Systems- The Balanced Score Card Approach(1992)- SCOR Model (1996)- Supply Chain Performance Bench-Marking- Metrics for Supply Chain Performance (in brief). (10 hours)

Books for Reference:

- David J. Bloomberg, Stephen LeMay & :Logistics, Prentice-Hall of India Pvt Ltd.,
Joe B. Hanna New Delhi, 2003.
- Sunil Sharma : Supply Chain Management – Concepts, Practices & Implementation, 2010
- Sarika Kulkarni } : Supply Chain Management, Tata Mc-
Ashok Sharma } Graw Hill Publishing Co Ltd., New Delhi, 2004
Janat Shah : Supply Chain Management – Text & Cases, 2009
Rahul V. Altekar : Supply Chain Management – Concepts & Cases
Joel D. Wisner & Others : Principles of SCM- A balanced Approach, 2005
S.K.Bhattacharya : Logistics Management- Definition, Dimension & Functional Applications,
Martin Christopher : Logistics & Supply Chain Management, II Edition, 2000

B.A. Economics with Logistics and Freight Management

Semester III

Part III – Allied III –Business Mathematics 314AT3

(For the candidates admitted during the academic year 2014-2015and onwards)

Credits:5

Hours: 75

Preamble:

The paper helps the students

- ✓ To gain elementary mathematical knowledge
- ✓ To know the application of mathematical techniques in Economic theories.

Module I : Mathematical Economics and Algebra

Nature and scope of Mathematical Economics – Mathematical operations with decimal and fractions– Ratios and proportions– Variations – Progression – Arithmetic progression – Harmonic progression – Geometric progression – Binomial progression. (15 hours)

Module II : Number system and equation

Number system – Prime numbers – Integers – Rational numbers – Operations with fractions - Real number system – Properties of real number system Equation – Linear and Quadratic – Solutions to linear and quadratic equations. (15 hours)

Module III : Matrix Algebra

Matrix – Types – Addition – Subtraction – Multiplication – Determinants – Transpose of matrix – Inverse of matrix – Solution of simultaneous equation – Crammer's rule – Matrix inversion method (3*3). (15 hours)

Module IV : Differentiation

Geometry of Marginal analysis – Process of Differentiation – Rules of Differentiation – Some Standard results – Exponential and logarithmic – Derivatives of Higher Order – Sign of

differential coefficient – Application of second order derivatives and nature of curve – maximum and minimum values of a function (single variable) – Order conditions for maximum and minimum values. (15 hours)

Module V : Mathematics of finance

Simple interest, Compound interest – Depreciation – Discounting – Annuity – Perpetuity – Amortization – Sinking fund – Percentage – Cost, Sales, Profit – Purchase discount – Trade, Quantity and Cash – Commission. (15 hours)

Books for Reference:

- V.D.Deshpande, Chandekar & Dharmadhihari :Elementary Mathematical Techniques for Economics, S. Chand & Company Pvt Ltd., New Delhi,1998.
- B.C. Metha and B.C.Madnani:Mathematics for Economists, Sultan Chand & sons, New Delhi 2000.
- B. Navaneetham & others :Business Mathematics, Anand Publications, Tiruchirapalli, 1998.
- Srinath Baruah :Basic Mathematics, Applications in Economics, Macmillan India Ltd, Chennai, 2001
- Alpha C Chiang :Business Mathematics, Mc Graw Hill Book Company, New Delhi, 1984.

B.A Economics with Logistics and Freight Management Semester III

Part IV-Skill Based Subject-I- Fundamentals of Insurance 314TS1 (For the candidates admitted during the academic year 2014-2015and onwards)

Credits: 3

Hours: 38

Preamble:

The Course aims to provide

- knowledge about Insurance

Unit :I

Introduction-Definition and Nature of Insurance-terms used in insurance-role and importance of insurance-Principles of insurance-Insurance in India. (7 Hours)

Unit :II

Types of Insurance: Life, Non-Life and Miscellaneous-Insurance Organization:LIC,GIC,ESI,UTI and SBI. (7 Hours)

Unit-III

Contract and Principles of Insurance-Meaning and Definition-elements-kinds of contract-Principles-Insurance Documents: Proposal form-policy form, cover note-certificate of insurance-endorsement-cancellation. (8 Hours)

Unit-IV

Insurance Legislation in India: Insurance Act 1938, Life Insurance Act-1956,Marine Insurance Act1963,GIC of India, IRDA Act-1999. (7 Hours)

Unit-V

Insurance Intermediaries: Insurance Broker-functions of broker-insurance agents-duties of agents-procedure for becoming agent-pre-requisites for obtaining a license, duration of license, cancellation of license-termination of agent appointment. Code of conduct: Unfair practices-procedures regarding settlement of policy claims. (8 hours)

Books for Reference:

Mishra, M.N& S.B.Mishra	:Insurance: Principles and Practice, S.Chand & Co Ltd., New Delhi, 2007
Dr.P.Periyasamy	:Principles and Practice of Insurance, Himalaya Publishing House,Mumbai ,2011
Inderjit Singh,Rakesh Kartyal	:Insurance: Principles and Practice
Sanjay Arora	Kalyani Publishers,New Delhi-2003.
B.D.Bhargava	:Insurance Theory and Practice, Pearl Books, New Delhi-2008.

B.A. Economics with Logistics and Freight Management Semester III

Part III – Allied III –Statistics

314AT3

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 5

Hours: 75

Preamble

This Paper aims at

- Analyzing and interpreting data
- Applying the statistical tools for solving economic problems

Module I

Definition – importance – functions and limitations of statistics – Primary and Secondary data, census and sampling methods – Collection of data* Frequency distribution – Classification and Tabulation of data – Diagrammatic and Graphical representation – Ogive and Lorenz Curves. (15 Hours)

Module II

Measures of Central Tendencies – Functions of an average – Essentials of an ideal average – Arithmetic mean – Geometric Mean – Median – Mode – Relationship between different averages – Appropriateness of an average. (15 Hours)

Module III

Measures of Dispersion – Range – Quartile Deviation – Mean Deviation – Standard Deviation – Coefficient of Variation – Skewness – Kurtosis. (15 Hours)

Module IV

Simple Correlation – Meaning and types – Measurement of Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Method of Least Square with one independent variable. (15 Hours)

Module V

Index numbers – Laspeyre's, Paasche's, Fisher's Ideal Index Numbers – Cost of Living numbers – Time Series Analysis – Components and measurements of Time Series limited to moving average and least square methods. (15 Hours)

Books for Reference:

R.S.N. Pillai and Mrs. V. Bagavathi :Statistics,
S. Chand & Company Ltd.,NewDelhi, 1997.
S.P. Gupta :Statistical Methods,
Sultan Chand & Sons, New Delhi, 1991.

**B.A Economics with Logistics and Freight Management
Semester IV**

Part IV-Skill Based Subject-II-Life Insurance Products 414TS2

(For the candidates admitted during the academic year 2014-2015and onwards)

Credits: 3

Hours: 38

Preamble:

The Course aims to provide

- knowledge about Life Insurance Corporation as a major player in Insurance sector and an indepth information on the various policies of it.

Unit :I

LIC of India: Origin-Meaning and Objectives-Need for Life Insurance –Benefits of Life Insurance –Procedure for taking a Policy – Kinds of Policies - riders on policies- Role of Private players in India. (8 Hours)

Unit :II

Whole Life Policy –Whole Life Policy with Profits and without Profit –Limited Payment Life Policy with Profit –Types of plans- Features-Tax Treatment-Merits and Demerits.(8 Hours)

Unit :III

Endowment Policy-Endowment with Profits-Convertible Whole Life, Limited Payment with Profits,Endowment plus whole life plans – Types of Plans-features –Tax treatment-merits and demerits. (8 Hours)

Unit :IV

Money Back Policy-Children Policies-Policies for handicapped –Policies high risk-low premium plans-Whole life and Money back plans –features –tax treatment-merits and demerits. (7 Hours)

Unit :V

Group Insurance –Group Gratuity Insurance – Group Super Annotation Insurance, Group Savings Linked Insurance, Unit Linked Insurance Plan, Senior Citizen Plan, Children Savings Plan. (7 Hours)

Books for Reference:

R.Haridas	:Life Insurance In India New Century Publications,2011
Mishra, M.N& S.B.Mishra	:Insurance: Principles and Practice, S.Chand & Co Ltd., New Delhi, 2007
Gupta, P.K	:Insurance Management, Himalaya Publishing House,Mumbai ,2004
Dr.P.Periyasamy	:Principles and Practice of Insurance, Himalaya Publishing House,Mumbai ,2011
Inderjit Singh,Rakesh Kartyal	:Insurance: Principles and Practice
Sanjay Arora	Kalyani Publishers,New Delhi-2003.
B.D.Bhargava	:Insurance Theory and Practice, Pearl Books, New Delhi-2008.

**B.A. Economics with Logistics and Freight Management
Semester IV**

**Advanced Learners Course II - Quantitative Techniques 414ALT
(For the candidates admitted during the academic year 2014-2015 and onwards)**

Credits: 3

Preamble:

The aim of the course is

- ❖ To analyse and interpret the data relating to current economic events in an intelligent manner
- ❖ By using appropriate quantitative techniques

Unit I:

Sets & Relations - Derivatives and its Interpretations - Maxima and Minima- Higher Order Derivatives & Partial Derivatives.

Unit II:

Optimization with Equality Constraint - Lagrangian Multiplier - Introduction to Matrix Algebra and Determinants.

Unit III:

Methods of Collection and Presentation of Data - Measures of Central Tendency - Mean, Median and Mode.

Unit IV:

Measures of Dispersion- Range, Mean Deviation, Standard Deviation & Co-Efficient of Variation.

Unit V:

Correlation and Regression - Method of Least Squares with one independent variable- Index Number - Laspeyre's, Paasche's and Fisher's Ideal Index.

Books for Reference:

- | | |
|----------------------------|--|
| Srinath Baruah | :Basic Mathematics and its application in Economics, Macmillan India Press, Chennai,2001 |
| Mehta & Madnani | : Mathematics for Economists, Sultan Chand & Sons, New Delhi, 2000. |
| R.S.N Pillai & V.Bagavathi | : Statistics, S.Chand & Co Ltd,New Delhi,2007. |
| S.P.Gupta | : Statistical Methods, Sultan Chand & Sons,Delhi,2009. |

This course is a self-study course.

**B.A. Economics with Logistics and Freight Management
Semester V**

**Part III – Core XI – Foreign Trade Procedures and Documentation 514T11
(For the candidates admitted during the academic year 2014-2015and onwards)**

Credits:4

Hours: 65

Preamble

The objectives of this paper are

- ❖ To expose the students to export and import trade and
- ❖ To familiarize the students with procedures of export-import trade

Module I

Foreign Trade – need – its role in economic development – Growth and structure of India's Foreign Trade policy- Main Features, Phases of it - Export-Import policy 2004-2009- Objectives-Key strategies-Highlights. (13 Hours)

Module II

Export Procedures-Registration stage-Pre-shipment stage-Quality control and pre-shipment inspection-Sales Tax exemption- Realisation of Export proceeds - Realisation of incentives. (13 Hours)

Module III

Export Documentation-Aligned Documentation system-Proforma Invoice-Commercial Invoice-Letter of Credit-Meaning-Types-Advantages-Packing List-Mate's receipt-Bill of lading-Certificate of Origin-Shipping bill-Consular Invoice-Bill of Entry-Airway bill-GR Form. (13 Hours)

Module IV

Import procedure-Liberalisation of Imports-categories of Importers-Special scheme for Importers-Classification of Goods for Import policy and assessment of duty-Legal Dimensions of Import procedures-customs clearance – Bill of Entry-Forward Contract. (13 Hours)

Module V - Practice Workshop

1. Master Document
2. Documents related to import of Goods
 - a) Invoice
 - b) Packing List
 - c) Certificate of Origin
 - d) Mate Receipt
 - e) Bill of Lading
 - f) Shipping Bill/ Airway Bill
 - g) Export of Goods under claim for Duty drawback
3. Documents Related to payment
 - h) Letter of Credit
 - i) Bill of Exchange
 - j) Bank Certificate of Payments
4. Documents Related to Foreign Exchange
 - k) Exchange control Declaration (GR Form)
5. Documents Related to Insurance
 - l) Marine Insurance Certificate
 - m) Marine Insurance Declaration
 - n) Shipment Advice
 - o) Shipping Order
 - p) Format of Registration-Membership Certificate
 - q) Income Tax Return

(13 Hours)

Books for Reference:

- | | |
|---------------------|---|
| Acharya and Jain | : Export-Import Procedures and Documentation
Himalaya Publishing House, Mumbai, 2006 |
| Dutt and Sundaram - | : Indian Economy S.Chand & Co. Ltd. New Delhi, 2005 |
| Paras Ram - | Export-What, Where, How,
Anupam Publishers. |

**B.A Economics with Logistics and Freight Management
Semester V**

Part III- Elective I E- Commerce 514TE1

(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits:5

Hours: 65

Preamble:

The objectives of the Paper are:

- To provide basic knowledge about Electronic Commerce
- To impart knowledge about applications of e- commerce in business.

Module I

E-commerce – Meaning – Definition – Evolution – Concept – Nature – Features of e-commerce – Need – Types of e-commerce procedure – Critical factors for e-commerce success – steps for building an e-commerce system – e-commerce a Science and an Art – Advantages – Disadvantages. (13 Hours)

Module II

Types of business data transfer – Electronic Data Interchange – Definition – Features of EDI – EDI and Wide Area Net Work – NIC Net and EDI – Steps in EDI – importance – Types of EDI files – EDI services – Objectives – Advantages – Disadvantages. (13 Hours)

Module III

E-commerce process and Payment Solutions: Need – Online Commerce Solutions – Essentials of good solutions – Advantages – Technology Standards for E-commerce – E-Business Solution matrix. Shopping Cart: Features – Types. Merchant Account: Meaning and Nature – Types – Payment System: Classifications – Methods – Electronic cheque – cyber cash – credit cards – smart cards : Types – Advantages – credit card fraud – processing of financial transactions. (13 Hours)

Module IV

E-Online Banking : Meaning – Need – Automatic Teller Machine – Electronic Fund Transfer – TeleBanking – E-Cheque – E-Banking in India – Security of Internet Banking – Advantages – Limitations. (13 Hours)

Module V

E-Commerce security: Need for security – Cyber crimes – Reasons for private tampering – E-commerce and security – Security features – Areas of Internet Security – Types of security – Encryption – Origin – Meaning – Process – Digital Certificates – Digital Signature and Electronic signature – Secure electronic transaction (SET) – Advantages. (13 Hours)

Books for Reference:

- | | |
|-----------------------|---|
| Suresh T .Viswanathan | :The Indian Cyber Laws-
Bharat Law House, New Delhi, 2001. |
| Dr. C. S. Rayudu | :Commerce & E Business,
Himalaya Publishing Mumbai, 2004. |

**B.A Economics with Logistics and Freight Management
Semester V**

**Part IV-Skill Based Subject-III-General Insurance Products 514TS3
(For the candidates admitted during the academic year 2014-2015 and onwards)**

Credits: 3

Hours: 38

Preamble:

The objectives of this course are

- to understand the basic concepts of General Insurance
- to learn the principles, practices, procedures and treatment of general insurance products

Module I

Introduction-basic concepts –Growth of General Insurance-Types of General Insurance-Principles of Insurance-Public and Private Players in General Insurance. (7 Hours)

Module II

Fire Insurance: Principles- Types and Policy Conditions- - Claims- Loss of stock- loss of profit- important terms for claims. (7 Hours)

Module III

Marine Insurance –Essential elements of marine insurance- re insurance-mutual insurance- Kinds and Policy Conditions – important clauses in marine policy-Marine Losses- Total and Partial Losses-Payment of Claims. (9 Hours)

Module IV

Miscellaneous Insurance I: Motor Insurance –Kinds of Policies-Procedures of Motor Insurance-Benefits –Motor Cycle Policy –Private Car Policy-Parking Insurance. Burglary Insurance-Personal Accident Insurance-Health Insurance-Meaning and Types- Insurance Claims. (8 Hours)

Module V

Miscellaneous Insurance II: Employer's liability insurance-Third Party Legal liability-Jeweller's Block Insurance-Aviation insurance-Engineering Insurance-Agriculture Insurance: Crop, Cattle - Group Insurance. (7 Hours)

Books for Reference:

Bodla, B.S., Garg M.C. & Singh	: Insurance, Fundamentals , Environmental Procedures, Deep & Deep Publications, New Delhi, 2003.
Gupta , P.K	: Insurance Management, Himalaya Publishing House, Mumbai , 2004.
Mishra, M.N	: Insurance: Principles and Practice, S.Chand & Co Ltd., New Delhi, 2005.
R.Haridas	: Life Insurance In India New Century Publications, 2011
Dr.P.Periyasamy	: Principles and Practice of Insurance, Himalaya Publishing House, Mumbai , 2011
Inderjit Singh, Rakesh Kartyal	: Insurance: Principles and Practice
Sanjay Arora	Kalyani Publishers, New Delhi-2003.
B.D.Bhargava	: Insurance Theory and Practice, Pearl Books, New Delhi-2008.

B.A Economics with Logistics and Freight Management
Semester VI
Part III-Core XIII –Total Quality Management 614T13
(For the candidates admitted during the academic year 2014-2015 and onwards)

Credits: 4

Hours: 65

Preamble:

This Course aims to

- provide knowledge about the basic concepts of Total Quality Management
- acquire adequate knowledge and skills in TQM Tools and Techniques
- Gives knowledge about the Quality System and Environmental Management system

Module I:

Introduction to Quality- Definition of Quality- Six basic concepts- Dimensions of Quality- Quality Planning- Quality Cost- Analysis of Quality Costs. (10 hours)

Module II

Definition of Total Quality Management- elements- principles of TQM- Leadership concept- Deming's 14 points for Top management- Ten strategies for top management- TQM tools and techniques- barriers to TQM implementation.(14 hours)

Module III

Customer satisfaction- Understanding the customer- customer perception of Quality - customer complaints- customer feedback- using customer complaints and feed back. (14 hours)

Module IV

The seven tools of TQM- concept of six- sigma- work of six sigma- sig sigma implementation- advantages- new seven management tools- Bench- marking- reasons to bench- marking- process- benefits of bench-marking. (14 hours)

Module V

Quality system- need- ISO 9000 Quality System- benefits- importance of 9000certification- Environmental Management System: concepts of ISO 14001- requirement of ISO 14001- benefits of EMS. (13 hours)

Text Book:

B.Senthi Arasu & J.Praveen Paul :Total Quality Management (2nd Edition),
SCITECH Publications (India) Pvt. Ltd., Chennai 2007

Reference Books

Subburaj Ramasamy	: Total Quality Management, Tata Mc-Graw HillPublishers,New Delhi, 2010.
S.Bhaskar	: Total Quality Management, Anuradha Agencies, Sankar Printers, Chennai,2004

B.A. Economics with Logistics and Freight Management

Semester VI

Part III – Elective III – Freight Management 614TE3

(For the students admitted from the academic year 2014-2015onwards)

Credits: 4

Hours: 75

Preamble:

The aim of the course is to

- provide knowledge about the basic concepts of Freight Management
- acquire adequate knowledge and skills in Shipping and Port management

Module I: Freight Structure and Practice (15 Hours)

Introduction- Freight or Tariff rates- Freight rebates- Factors involved in rate making- Determination of freight rates- Contracts of Afreightment - Sea freight -Types of sea freight rates- Liner freight rates- Tramp freight rates – Types of freight- Ship owner's lien for freight.

Module II: General structure of Shipping Industry (15 Hours)

Introduction- Different types of ship: General or Dry cargo ships- Expedition ships- Coasters-Bulk carriers-Tankers- Refrigerated Vessels and Reefers-LNG carriers- Car carriers- Container ships-Ro- Ro Vessels-Shipping formalities: Booking of Shipping space-Conference, Non-conference shipping-Charter shipping- Charter party-Shipping stowage-Ocean shipping procedure.

Module III: Shipping and Airline intermediaries (15 Hours)

Custom brokers: Freight forwarders and Consolidators- Functions of freight forwarders- Shipping agents-Customs House Agents-Stevedores- Air cargo: Air cargo chain-Role of International Air Cargo Association- Air Cargo Tariff Structure-Air Freight rate classification.

Module IV: Major Ports and Airports (15 Hours)

Introduction-Important sea routes-World's major ports-Major ports in India (in brief)- Airport classification-International Air Transport-International Air Transports of India-Types of Aircraft

Module V: Shipping Association and Act (15 Hours)

Shipping Association: Meaning-Shipper's organization-FIB- Shipping corporation of India-Products and services-Bulk carriers- LNG carriers- The Major Port Trust Act 1963-ICS- INSA-Recent developments of Port sector in India-Recent changes in the regime governing in Indian Shipping Industry

Books for Study:

- 1.Reji Ismail, Logistics Management, Excel Books, NewDelhi,2008. (Unit I).
- 2.S.Sudalaimuthu&S.Anthony Raj , Logistics Management for International Business, PHI Learning (P) Ltd., New Delhi,2009. (Unit II,III,IV).
- 3.Ruchika Rajput ,A Text on International Logistics Management, Virinda Publication(P) Ltd., 2012. (Unit V).

Book for Reference:

- 1.Krishnaveni Muthiah ,Logistics Management &World Sea borne Trade, Himalaya PublishingHouse, Mumbai, 1999.

**B.A Economics with Logistics and Freight Management
Semester VI**

**Part IV-Skill Based Course IV- Insurance and Risk Management 614TS4
(For the candidates admitted during the academic year 2014-2015and onwards)**

Credits: 3

Hours: 38

Preamble:

The objectives of this Course are

- to know about risk, risk management process and techniques
- to provide an overall view of the risk management and control systems
- to understand the role of information technology in Insurance

Module I

Introduction to Risk –Concept –Risk and Uncertainty –Types of Risks -Classifying Pure Risks - Methods of Handling Pure Risk –Principles of Risk -Classification – Liability Insurance.
(7 Hours)

Module II

Risk Management and Control –Conceptual Framework- Objectives – Risk Management Information Systems. Risk Management by Individual – Factors affecting Individual's demand for Insurance-Corporate risk management and modeling.
(9 Hours)

Module III

Settlement of Claims in Insurance Claims in Life Insurance: Death, Maturity, Survival, Claims in Non-Life: Fire –Motor Vehicle, Marine Insurance, Claims on Consignment by Rail & Road, Marine and Cargo, Engineering Insurance.(8 Hours)

Module IV

Reinsurance & Underwriting: Introduction to Reinsurance – Role of reinsurers- Techniques-Nature of Reinsurance Risks. Underwriting – underwriting basics- Objectives and principles of underwriting- underwriting in life Insurance and Non-life Insurance.
(7 Hours)

Module V

Enterprise Risk Management –ERM Basics identifying risk exposures- Emerging Role of CRO-ERM in Insurance –Risk Management Information Systems (RMIS). Information Technology in Insurance – Need, Technology and Applications.
(7 Hours)

Books for Reference:

- | | |
|---|--|
| Mishra , M.N | : Insurance: Principles and Practice,
S.Chand & Co Ltd., New Delhi, 2005. |
| Bodla, B.S., Garg M.C &
Singh | : Insurance, Fundamentals,
Environmental Procedures,
Deep & Deep Publications,
New Delhi, 2003. |
| Inderjit Singh,Rakesh Kartyal
Sanjay Arora | :Insurance: Principles and Practice
Kalyani Publishers,New Delhi-2003. |
| Harold D.Skipper&W.Jean Kwon | :RiskManagement&Insurance
PerspectivesinaGlobalEconomy, BlackWell
Publishing, 2008 |
| Deeraj Razdaw | :Principles of Risk Management and Insurance,
Cyber- Tech Publications New Delhi, 2010. |

2013-2014**B.A Economics with Logistics and Freight Management****Semester wise Distribution with Scheme of Examination****(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)**

Semester	Course	Credits	Duration of Exam Hrs (ESE)	Marks		Total
				CIA	ESE	
I	Part I-Language I	3	3	25	75	100
	Part II-English I	3	3	25	75	100
	Part III – Core I – Managerial Economics and Decision Making I	4	3	25	75	100
	Core II – Introduction to Logistics Management	4	3	25	75	100
	Allied I- Computer Applications in Business-Practical	5	3	40	60	100
	Part IV- Environmental Studies	2	3	50	-	50
II	Part I- Language II	3	3	25	75	100
	Part II- English II	3	3	25	75	
	Part III -Core III – Managerial Economics and Decision Making II	4	3	25	75	100
	Core IV – Principles of Logistics Information	4	3	25	75	100
	Allied II-Computerized Tally- Practical	5	3	40	60	100
	Part IV- Value Education	2	3	50	-	50
	ALC I- Business Environment Internship I	3*	3	-	100	100
III	Part I – Language III	3	3	25	75	100
	Part II –English III	3	3	25	75	100
	Part III –Core V–Macro Economics	4	3	25	75	100
	Core VI – Supply Chain Management	4	3	25	75	100
	Allied III –Statistics	5	3	25	75	100
	Part IV- Skill Based Course I- Introduction to Retailing	3	3	25	75	100
	NMEC I- Consumerism	2	3	75	-	75
IV	Part I- Language IV	3	3	25	75	100
	Part II-English IV	3	3	25	75	100
	Part III – Core VII- Monetary Economics	4	3	25	75	100
	Core VIII- Introduction to PL/SQL-	4	3	25	75	100
	Allied IV-Business Mathematics	5	3	25	75	100
	Part IV-Skill Based Course II- Retail Merchandising Management	3	3	25	75	100

	and Retail Pricing					
	NMEC II – Social Issues of Indian Economy	2	3	-	75	75
	ALC II-Quantitative Techniques	3*	3	-	100	100
	Internship II					
V	Part III –Core IX-Fiscal Economics	4	3	25	75	100
	Core X –Operations Management	4	3	25	75	100
	Core XI – Foreign Trade Procedures and Documentation	4	3	25	75	100
	Core XII – Banking Practices	4	3	25	75	100
	Elective I - E- Commerce	5	3	25	75	100
	Part IV- Skill Based Course III – Retail Business Management	3	3	25	75	100
VI	Part III- Core XIII- Indian Economic Issues	4	3	25	75	100
	Core XIV – Industrial Marketing	4	3	25	75	100
	Core XV – Principles of Insurance	4	3	25	75	100
	Elective II – Total Quality Management	5	3	25	75	100
	Elective III – Freight Management	5	3	25	75	100
	Part IV – Skill Based Course IV – Retail Store Planning and Design	3	3	25	75	100
	Layout	1	-	50	-	50
	Extension					
	ALC III-Enterprise Resource Planning	3*	3	-	100	100
		1	-	-	-	-
	Group Project					

B.A. Economics with Logistics and Freight Management Semester I

Part III – Core II – Introduction to Logistics Management 112T02

(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)

Credits:4

Hours:65

Preamble:

The course aims

- Know how a logistic strategy fits into an organization broader decisions.
- Understand the role of logistics providers
- Realize the meaning of customer service and understand its importance to logistics management

Module I

Logistics- Definition - History and Evolution- Objectives-Elements-Activities-importance-The work of logistics-Logistics interface with marketing-retails logistics-Emerging concept in logistics. (18 Hours)

Module II

Logistics Management-Definition-Achievement of competitive advantage through logistics Framework-Role of Logistics management-Integrated Logistic Management-Evolution of the concept- model - process-activities (in brief). (18 Hours)

Module III

Outsourcing logistics-reasons-Third party logistics provider-Fourth party Logistics providers (4 pl)-Stages-Role of logistics providers(18 Hours)

Module IV

Logistics Strategy-Strategic role of logistics-Definition-role of logistics managers in strategic decisions-Strategy options, lean strategy, Agile Strategies & Other strategies-Designing & implementing logistical strategy (18 Hours)

Module V

Quality customer service & integrated logistics-customer service-importance-elements-the order cycle system-distribution channels-Functions performed-Types-designing. (18 Hours)

Books for Reference:

- | | | |
|--|---|---|
| David J. Bloomberg, Stephen LeMay & Joe B. Hanna | : | Logistics, Prentice-Hall of India Pvt Ltd., New Delhi, 2003. |
| Donald J. Bowersox & David J. Closs | : | Logistical Management, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2004 |
| Satish C. Ailawadi & Rakesh Singh | : | Logistics Management, Prentice-Hall of India Pvt Ltd., New Delhi, 2005 |
| Donald Waters | : | Logistics. Palgrave Macmillan, New York, 2004 |
| Krishnaveni Muthiah | : | Logistics Management & World Sea borne Trade, Himalaya Publishing House, Mumbai, 1999 |

B.A. Economics with Logistics and Freight Management Semester I

Part III - Allied I – Computer Applications in Business-Practical 112TA1 (For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)

Credits:5

Hours: 75

Preamble:

The course covers the essential skills for using all the programs separately and as a team

- It equips the students to develop their own application using Graphical user Interface.
- Knowledge of Microsoft Access as Database Management System to organizing Staggering information about personal and business life.
- To learn Power point presentation graphics program.

Unit I:

Windows 2000: Introduction to computers – Windows 2000 – Features of Windows 2000 – Date and Time, Time Zone, Display, Background, Screen saver, Fonts, Modems, Mouse, Mouse Pointers – Explorer. (18 Hours)

Unit II:

MS Word : Word Basics – Starting word creating documents, parts of a word window, formatting features, menus, commands, toolbars and their icons – Mail Merge – Macros – Word Exercises. (18 Hours)

Unit III:

MS Excel: Excel Basics – Introduction – Menus, Commands, Toolbars and their icons – Data sort – Functions – Excel Exercises. (18Hours)

Unit IV:

MS Power Point: Power Point Basics – Introduction – Toolbars their Icons and commands – Navigating in Power Point – working with PowerPoint (Animation effects, Hyperlink) (20 Hours)

Unit V:

MS Access : Introduction – Parts of an Access window – (Toolbars and their Icons) – creating a simple database and tables – forms – entering and editing data – finding, sorting and displaying data – Printing reports, form, letters and labels. (16 Hours)

Books for Reference:

- Sanjay Saxena : “A First Course in Computers”, Vikas Publishing House Pvt Ltd., Delhi, 2003.
- Ron Mansfield : Working in Microsoft Office, Tata Mc Graw Hill Publishing Company Ltd., Delhi, 2005.

Practical I - Computer Applications in Business

- Prepare a class timetable using MS Word
- Prepare an application with Bio Data using MS Word (like application for the post of Lecturer in college)
- Prepare a chart for student name versus subject marks using MS Word
- Prepare an information letter about the college reopening date to the student using Mail Merge
- Prepare an information letter to various students about the publication of results using Mail Merge
- Design an advertisement copy in MS Word
- Prepare Students mark sheet using Excel
- Prepare Payroll for employee using Excel
- Draw a chart using Excel with the details : student name and marks of 3 subjects
- Design a sports day invitation and prepare slides describing various events in Power point
- Display various departments and courses offered in our college using Power point
- Prepare the teaching slides using Power Point
- Create a database for employee details and generate a report for pay slip using MS Access
- Create a database maintaining stock in a shop with fields : Serial number (Primary Key), Name of product, Product code, Quantity and Price

- Create a database for customer information and generates a report with the customer name in ascending order.

Books for Reference:

Sanjay Saxena : “A First Course in Computers”,
Vikas Publishing House Pvt Ltd., Delhi, 2003.
Ron Mansfield :Working in Microsoft Office,
Tata Mc Graw Hill Publishing Company Ltd., Delhi, 2005.

**B.A. Economics with Logistics and Freight Management
Semester II**

**Part III – Core IV –Principles of Logistics Information 212T04
(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)**

Credits:4

Total Hours: 65

Preamble:

- The paper aims to teach
- the forms of logistics information
 - Information functionality
 - Information forecasting
 - Application of information technology in logistics

Module I

Logistics Information-Meaning-LIS-Definition-Information functionality - activities involved in transaction system-Principles of designing or evaluating LIS applications.(13 Hours)

Module II

LIS Architecture-components-Two forms of activities; Planning & co-ordination flows & operating flows - Flow and use of integrated logistics information. (13 Hours)

Module III

Information forecasting: Definition-Process- component-characteristic of forecast compound-approaches-forecast techniques-Forecast error. (13Hours)

Module IV

Information Technology & Logistics-Electronic Data Interchange-Personal Computers-Artificial Intelligence/Expert system-Communications Bar coding & Scanning. Electronic Data Interchange – Advantages, Disadvantages- standards-Communication, Information & Future directions. (13 Hours)

Module V

Information Technology for supply chain management - Bull whip effect-IT in supply chain-Business Process Reengineering-enterprise resource planning- Impact of Internet on SCM. (13 Hours)

Books for Reference:

David J. Bloomberg, Stephen LeMay &
Joe B. Hanna :Logistics,
Prentice-Hall of India Pvt Ltd., New Delhi, 2003.

Donald J. Bowersox & David J. Closs	:Logistical Management, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2004
Satish C. Ailawadi & Rakesh Singh	:Logistics Management, Prentice-Hall of India Pvt Ltd., New Delhi, 2005
Donald Waters	:Logistics. Palgrave Macmillan, New York, 2004
Krishnaveni Muthiah	:Logistics Management & World Sea borne Trade, Himalaya Publishing House, Mumbai, 1999
Sarika Kulkarni } Ashok Sharma }	:Supply Chain Management, Tata Mc-Graw Hill Publishing Co Ltd., New Delhi, 2004

B.A Economics with Logistics and Freight Management Semester II

Part III - Allied II - Computerized Tally-Practical

(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)

Credits:5

Hours: 75

Preamble:

The objectives of the Paper are

- ❖ To familiarize the students with accounting skills using tally software

Module I

Basics of Accounting-Accounting Principles – concepts and conventions- Double entry system- Rules of Accounting – mode of accounting – financial statements. Accounting on Computers: Accounting system – Benefits of accounting on computers- factors contributing to change – Challenges associated with accounting on Computers,

Module II

Tally Fundamentals: Introduction to Tally – Features of Tally – Getting functional with Tally – Creation/ Setting up of a company in Tally- F11 Features – F12 Configure – Value added tax in Tally

Processing Transactions in Tally: Ledgers and Groups – Accounting Vouchers – Contra Voucher – Payment Voucher – Receipt Voucher – Journal Voucher – Sales Invoice – Duties and taxes – Recording Transaction of Sample Data

Module III

Generating and Printing of Accounting Reports: Financial Reports in Tally – Balance Sheet – Profit and Loss Account –Account Books – Group Summary – Group Vouchers – Generation of Reports

Inventory in Tally: Stock Groups – Stock Items – Units of Measure – Inventory Vouchers - Recording Simple Inventory Transactions

Module IV

Purchase and Sales: Cash and Credit Purchases – Cash and Credit Sales – Purchases Returns – Sales Returns – Bill of exchange – Bills Receivable and Bills Payable – Revenue Recognition Principles – Price Levels

Display and Reports: Introduction – Accounting and Inventory Reports in Tally

Module V

Accounting Reports: Balance Sheet – Profit and Loss Account – Account Books – Statement of Accounts – Day Book

Inventory Reports: Stock Summary – Inventory Books

Printing Reports: Types of Print Configuration Options – Print Format

References :

- Namrata Agarwal & Sanjay Kumar: Financial Accounting on Computers using Tally
Dreamtech Press, New Delhi, 2002
- N.Satyapal : Using Tally
Khanna Publications, New Delhi, 2000
- Implementary Tally : BPB Publication, 2001

B.A. Economics with Logistics and Freight Management Semester III

Part III – Core VI – Supply Chain Management 312T06

(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)

Credits:4

Hours: 52

Preamble: The paper aims to educate students on

- Stages of supply chain management
- New opportunities in SCM

Module I

SCM – Definition – objectives – Evolution - need-Issues involved in developing SCM Framework-Types. SCM activities - constituents - Organisation.(12 Hours)

Module II

Supply chain Integration-Stages-Barriers to internal integration-Achieving Excellence in SCM-Dimensions of Supply Chain Excellence-Forces influencing SCE-Emotions, Physical and Financial Supply Chains-Check list for Excellence. (12 Hours)

Module III

Purchasing and Supply Management-Introduction-importance-objectives-purchasing process-purchasing & other functions-Purchasing and integrated logistics interfaces-Types of purchases-Purchasing partnerships-Materials sourcing-Just-in-time purchasing. (12 Hours)

Module IV

Outsourcing in SCM-Meaning need-outsourcing risks-outsourcing process-outsourcing in SCM-New opportunities in SCM outsourcing-Myths of SCM outsourcing. (11 Hours)

Module V

Performance Measurement in SCM-Meaning-Advantages of performance measures-The benefits of performance measurement-Measuring SCM-Supplier performance measurement-Parameters choosing suppliers. (13 Hours)

Books for Reference:

- | | | |
|--|---|---|
| David J. Bloomberg, Stephen LeMay & Joe B. Hanna | : | Logistics, Prentice-Hall of India Pvt Ltd., New Delhi, 2003. |
| Donald J. Bowersox & David J. Closs | : | Logistical Management, Tata McGraw Hill Publishing Co. Ltd, New Delhi, 2004 |
| Satish C. Ailawadi & Rakesh Singh | : | Logistics Management, Prentice-Hall of India Pvt Ltd., New Delhi, 2005 |
| Donald Waters | : | Logistics. Palgrave Macmillan, New York, 2004 |
| Krishnaveni Muthiah | : | LogisticsManagement & WorldSea borne Trade, Himalaya Publishing House, Mumbai, 1999 |
| Sarika Kulkarni }
Ashok Sharma } | : | Supply Chain Management, Tata McGraw Hill Publishing Co Ltd., New Delhi, 2004 |

B.A. Economics with Logistics and Freight Management Semester III

Part IV – Skill Based Subject Paper I – Introduction to Retailing 312TS1
(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)

Credits:3

Total Hours: 38

Preamble:

The Paper

- aims to introduce the subject and practice of retailing through its nature, scope and role in the economy.
- gives Knowledge of Career opportunities in retailing.

Module I:

Retailing – Definitions – Scope – Characteristics – Functions of a Retailer - The Marketing – Retail Equation –Contribution of Retail Industry to the Economy

Module II:

Economic significance of Retailing : Retail sales – Employment – Top Indian Retailers -Opportunities in Retailing : Management Opportunities – Entrepreneurial opportunities.

ModuleIII:

Retailing and the Competitive Environment: Nature and dynamics of retail Competition – Measures of retail competition – Types of retail competition – forces driving retail competition – Porter’s model of competitive structure – strategic groups – competition Regulation.

Module IV :

Retailing and consumer behaviour : Need for studying consumer behaviour – factors influencing the retail purchase behaviour – the changing consumer demographics lifestyle changes – the consumer buying process – shopping behaviour, shopping missions and motivations, retail outlet choices – retail segmentation.

Module V :

Careers in retailing: owning business – opportunities as a retail employer – types of positions in retailing – career paths and compensation in retailing – sources and hints to be consulted in searching for career opportunities– hints to prepare for the interview – evaluating retail career opportunities.

Books for Reference:

- | | | |
|------------------------------------|---|---|
| Barry Berman and Joel R Evans | : | Retail Management A Strategic Approach, Pearson Education, New Delhi, 2002. |
| Micheal Levy and Barton A Weit | : | Retail Management, Tata Mc Graw Hill Publishing Co Ltd., Delhi, 2002. |
| Rosemary Varley and Mohammed Rafiq | : | Retail Management, Replic Press PvtLtd., Kundli, 2005. |
| Swapna Parsdhan | : | Retailing Management, Tata Mc Graw-Hill Publishing Co Ltd., Delhi, 2006. |
| Gibson G Vedamani | : | Retail Management, Functional Principles and Practices, Jaico Publishing House, Mumbai, 2005. |
| David Gilbert | : | Retail Marketing Management, Pearson Education, Delhi, 2003. |

**B.A. Economics with Logistics and Freight Management
Semester IV**

**Part IV – Skill Based Subject Paper II – Retail Merchandise Management and
Retail Pricing 412TS4**

(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)

Credits:3**Total Hours: 38****Preamble:**

- To equip the students with the knowledge of procuring and managing the processing of the sale of merchandise
- To acquire the essential knowledge of pricing policies and strategies in the retailing of merchandise

Module I

Merchandise Management – Meaning – Factors Affecting The Merchandizing Function – Role And Responsibilities Of The Merchandiser And Buyer–The Function Of Buying For Different Types Of Organizations – The Concept Of Lifestyle Merchandising.

Module II

The Process Of Merchandize Management:- Implications (Finance, Marketing, Warehousing And Logistic Store Operations) – Process (Developing The Sales Forecast Determining The Merchandize Requirements, Merchandize Control, Assortment Planning, Range Plan And The Model Stock Plan) – Tools Used For Merchandise Planning.

Module III

Implementation Of Merchandise Plans: - Gathering Information, Selecting And Interacting With Merchandise Sources, Evaluation, And Negotiation, Concluding Purchases, Receiving And Stocking Merchandise, Reordering Re-Evaluation

Module IV

Pricing In Retailing: The Concept Of Retail Price – Elements Retail Price – Determination Of The Retail Price – Retail Pricing Policies And Strategies – Adjustment To Retail Price – Consumer And Retail Pricing – The Government And Retail Pricing.

Module V

Developing A Retail Price Strategy: Retail Objectives And Pricing, Overall Objectives And Pricing, Specific Pricing Objectives, Broad Price Policy – Price Strategy, Demand, Cost And Competition Oriented Approaches To Strategy, Integration Of The Approaches To Price Strategy – Price Adjustment.

Books for Reference:

- Barry Berman and Joel R. Evans: Retail Management, Pearson Education (Singapore), Pvt. Ltd., New Delhi, 2002
- Swapna Pradhan : Retailing Management, Text and cases, Tata Mc Graw- Hill Publishing Company Ltd., Delhi, 2006
- Gibson G. Vedamani : Retail Management, Jaico Publishing House, Kolkata, 2005

B.A Economics with Logistics and Freight Management Semester V

Part III Core Paper XII - Banking Practices

(For the candidates admitted during the academic year 2012-2013 and 2013-14 only)

Credits:4

Total Hours: 90

Preamble:

This Paper aims

- ❖ To provide basic knowledge about the importance and functions of commercial banks
- ❖ To acquire practical knowledge and skills in banking transactions

Module I

Definition of a banker and customer – Banking services – meaning and importance – Economic and Monetary implications of banking operations – Globalised challenges in banking services – New trends in banks services- Computerization in banks. (20 Hours)

Module II

Deposit accounts – Types : Saving Bank A/C, Current A/C, Fixed Deposit A/C, RD A/C, Non Resident A/C, Foreign Currency (non-resident) A/C – opening and operation of deposit

account. E-banking services – Internet Banking – Phone Banking, Mobile Banking – ATM-Debit Card, Credit Cards. (20 Hours)

Module III

Negotiable Instruments – Cheque – Bill of Exchange – Promissory Note – Crossing of Cheque – Endorsement – Collecting banker – Paying banker. (20 Hours)

Module IV

Principles of sound lending – loans and advances – Modes of creating charge – pledge – Hypothecation – Mortgages (20 Hours)

Module V

Banking Practicals

1. Pay-in-slip
2. Application for term deposits
3. Cheque
4. Withdrawal form
5. Post office saving Bank A/C Application
6. Locker opening
7. Jewel loan application
8. Personal loan application
9. ATM – functioning in four different banks
10. Application form for educational loan
11. Bills discounting
12. Getting DD

(10 Hours)

Books for Reference:

- | | | | |
|-------------------------|---|---|--|
| E.Gordon & K. Natarajan | : | Banking Theory – Law & Practice,
Himalaya Publishing House, Bombay, 2005 | |
| P.N.Varshney | : | Banking Law and Practice, Sultan Chand &
sons, Delhi, 2002 | |
| M.L.Tannan | : | Banking Law and Practice in India,
India Law House, Delhi, 1997 | |
| S.S.Gulsan & K.Kapoor | : | Banking Law and Practice, Sultan Chand & co
Ltd., Delhi, 1999 | |

B.A Economics with Logistics and Freight Management

Semester V

Part III- Elective I E- Commerce 514TE1

(For the candidates admitted during the academic year 2012-2013 & 2013-2014 only)

Credits:5

Hours: 65

Preamble:

The objectives of the Paper are:

- To provide basic knowledge about Electronic Commerce
- To impart knowledge about applications of e- commerce in business.

Module I

E-commerce – Meaning – Definition – Evolution – Concept – Nature – Features of e-commerce – Need – Types of e-commerce procedure – Critical factors for e-commerce success –

steps for building an e-commerce system – e-commerce a Science and an Art – Advantages – Disadvantages. (13 Hours)

Module II

Types of business data transfer – Electronic Data Interchange – Definition – Features of EDI – EDI and Wide Area Net Work – NIC Net and EDI – Steps in EDI – importance – Types of EDI files – EDI services – Objectives – Advantages – Disadvantages. (13 Hours)

Module III

E-commerce process and Payment Solutions: Need – Online Commerce Solutions – Essentials of good solutions – Advantages – Technology Standards for E-commerce – E-Business Solution matrix. Shopping Cart: Features – Types. Merchant Account: Meaning and Nature – Types – Payment System: Classifications – Methods – Electronic cheque – cyber cash – credit cards – smart cards : Types – Advantages – credit card fraud – processing of financial transactions. (13 Hours)

Module IV

E-Online Banking : Meaning – Need – Automatic Teller Machine – Electronic Fund Transfer – TeleBanking – E-Cheque – E-Banking in India – Security of Internet Banking – Advantages – Limitations. (13 Hours)

Module V

E-Commerce security: Need for security – Cyber crimes – Reasons for private tampering – E-commerce and security – Security features – Areas of Internet Security – Types of security – Encryption – Origin – Meaning – Process – Digital Certificates – Digital Signature and Electronic signature – Secure electronic transaction (SET) – Advantages. (13 Hours)

Books for Reference:

Suresh T .Viswanathan :The Indian Cyber Laws-
Bharat Law House, New Delhi, 2001.
Dr. C. S. Rayudu :Commerce & E Business,
Himalaya Publishing Mumbai, 2004.

B.A Economics with Logistics and Freight Management Semester V

Skill Based Course III - Retail Business Management 512TS3

(For the candidates admitted during the academic year 2012-2013 and 2013-14 only)

Credits: 3

Hours:38

Preamble:

The course would enable the students

- to know the essential spheres of management
- to understand the ethical aspects of management

Module I:

Human Resource Management – Identification of Various Roles in the Organisation – Recruitment and Selection – Training – Motivation – Evaluation of performance. (8 Hours)

Module II:

Retail Store Operations: Retail store – Meaning – Responsibilities of Store Managers – Elements/ Components of retail operations. (7 Hours)

Module III:

Financial aspects of retail- The concept of retail economics- Measures of Financial Performance – Evaluation of retail operations – Strategic Profit Model.

(7 Hours)

Module IV:

Retail Management and Information System- Role and Importance of Information Technology in retail – factors affecting in the use of technology – Application of technology in retail – e- commerce or e-tailing (The internet as a retail opportunity)

(8 Hours)

Module V:

Role of retail marketing- Retail Marketing mix – The STP Approach. Ethics in Retail Management: Ethical Values – Social Responsibility – Ethical values in relation to customers, community and general public, employees, business partners and share holders- Consumerism.

(8 Hours)

Books for Study:

Swapna Pradhan : Retail Management - (Text and Cases), Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2008.

Books for Reference:

Barry Berman and : Retail Management - A Strategic Approach, Prentice Hall of India (P) Ltd., New Delhi, 2007.

Joel R Evans : Retail Management, Oxford University Press ,2005.

Chetan Bajaj,

Rajnish Tuli,

Nidhi V.Srivastva : Retail Management, Functional Principles and Practices, Jaico

Gibson G Vedamani Publishing House, Delhi

B.A Economics with Logistics and Freight Management**Semester VI****Part III-Elective II –Total Quality Management****612TE2**

(For the candidates admitted during the academic year 2012-2013 and 2013-14 only)

Credits: 4**Hours: 65****Preamble:**

This Course aims to

- provide knowledge about the basic concepts of Total Quality Management
- acquire adequate knowledge and skills in TQM Tools and Techniques
- Gives knowledge about the Quality System and Environmental Management system

Module I:

Introduction to Quality- Definition of Quality- Six basic concepts- Dimensions of Quality- Quality Planning- Quality Cost- Analysis of Quality Costs. (10 hours)

Module II

Definition of Total Quality Management- elements- principles of TQM- Leadership concept- Deming's 14 points for Top management- Ten strategies for top management- TQM tools and techniques- barriers to TQM implementation.(14 hours)

Module III

Customer satisfaction- Understanding the customer- customer perception of Quality - customer complaints- customer feedback- using customer complaints and feed back.
(14 hours)

Module IV

The seven tools of TQM- concept of six- sigma- work of six sigma- sig sigma implementation- advantages- new seven management tools- Bench- marking- reasons to bench- marking- process- benefits of bench-marking.
(14 hours)

Module V

Quality system- need- ISO 9000 Quality System- benefits- importance of 9000certification- Environmental Management System: concepts of ISO 14001- requirement of ISO 14001- benefits of EMS.
(13 hours)

Text Book:

B.Senthi Arasu & J.Praveen Paul :Total Quality Management (2nd Edition),
SCITECH Publications (India) Pvt. Ltd., Chennai 2007

Reference Books

Subburaj Ramasamy : Total Quality Management,
Tata Mc-Graw HillPublishers,New Delhi, 2010.
S.Bhaskar : Total Quality Management,
Anuradha Agencies, Sankar Printers, Chennai,2004

Course Designed By : Mrs.M.Mehar Banu
Course Revised By : Mrs.J.Karunambikai
Checked By : Dr.T.Rugmani Bai

B.A. Economics with Logistics and Freight Management

Semester VI

Part III – Elective III – Freight Management 615TE3

(For the candidates admitted during the academic year 2012-2013 and 2013-14 only)

Credits: 4

Hours: 75

Preamble:

The aim of the course is to

- □ provide knowledge about the basic concepts of Freight Management
- □ acquire adequate knowledge and skills in Shipping and Port management

Unit I: Freight Structure and Practice (15 Hours)

Introduction- Freight or Tariff rates- Freight rebates- Factors involved in rate making- Determination of freight rates- Contracts of Afreightment - Sea freight -Types of sea freight rates- Liner freight rates- Tramp freight rates – Types of freight- Ship owner's lien for freight.

Unit II: General structure of Shipping Industry (15 Hours)

Introduction- Different types of ship: General or Dry cargo ships- Expedition ships- Coasters-Bulk carriers-Tankers- Refrigerated Vessels and Reefers-LNG carriers- Car carriers- Container ships-Ro- Ro Vessels-Shipping formalities: Booking of Shipping space-Conference, Non-conference shipping-Charter shipping- Charter party-Shipping stowage-Ocean shipping procedure.

Unit III: Shipping and Airline intermediaries (15 Hours)

Custom brokers: Freight forwarders and Consolidators- Functions of freight forwarders- Shipping agents-Customs House Agents-Stevedores- Air cargo: Air cargo chain-Role of International Air Cargo Association- Air Cargo Tariff Structure-Air Freight rate classification.

Unit IV: Major Ports and Airports (15 Hours)

Introduction-Important sea routes-World's major ports-Major ports in India (in brief)- Airport classification-International Air Transport-International Air Transports of India-Types of Aircraft

Unit V: Shipping Association and Act (15 Hours)

Shipping Association: Meaning-Shipper's organization-FIB- Shipping corporation of India-Products and services-Bulk carriers- LNG carriers- The Major Port Trust Act 1963-ICS- INSA-Recent developments of Port sector in India-Recent changes in the regime governing in Indian Shipping Industry

Books for Study:

- 1.Reji Ismail, Logistics Management, Excel Books, NewDelhi,2008. (Unit I).
- 2.S.Sudalaimuthu&S.Anthony Raj , Logistics Management for International Business, PHI Learning (P) Ltd., New Delhi,2009. (Unit II,III,IV).
- 3.Ruchika Rajput ,A Text on International Logistics Management, Virinda Publication(P) Ltd., 2012. (Unit V).

Book for Reference:

- 1.Krishnaveni Muthiah ,Logistics Management &World Sea borne Trade, Himalaya PublishingHouse, Mumbai, 1999.

B.Sc., Mathematics (Computer Applications)
Semester wise Distribution with Scheme of Examination
[For students admitted during the academic year 2014-2015 and onwards]

Sem	Course	Credit	Duration of Exam (Hrs)ESE	Marks		Total
				CIA	ESE	
I	Part I: Language I	3	3	25	75	100
	Part II: English I	3	3	25	75	100
	Part III:					
	Core I: Algebra and Calculus	4	3	25	75	100
	Core II: Differential Equations and Laplace Transforms	4	3	25	75	100
	Allied I : PC Software Practical	5	3	40	60	100
	Part IV : Environmental Studies	2	-	50	-	50
II	Part I: Language II	3	3	25	75	100
	Part II: English II	3	3	25	75	100
	Part III :					
	Core III: Analytical Geometry	4	3	25	75	100
	Core IV: Programming in C	3	3	25	75	100
	Core Practical I: Programming in C	1	3	20	30	50
	Allied II: Mathematical Statistics	5	3	25	75	100
	Part IV: Value Education	2	-	50	-	50
	Advanced Learner's Course I: Database Management System	3*	3	-	100	100
III	Part III:					
	Core V: Programming in C++	3	3	25	75	100
	Core Practical II :Programming in C++	2	3	20	30	50
	Core VI: Numerical Methods	3	3	25	75	100
	Core VII: Statics	4	3	25	75	100
	Allied III: Physics I	4	3	15	60	75
	Part IV: Non-Major Elective Course	2	-	75	-	75
	Skill Based Course: Graph Theory – I	3	-	100	-	100

Sem	Course	Credit	Duration of Exam (Hrs)ESE	Marks		Total
				CIA	ESE	
IV	Part III: Core VIII: Operations Research	4	3	25	75	100
	Core IX: Trigonometry, Vector Calculus and Fourier Series	4	3	25	75	100
	Core X: Visual Basic	3	3	25	75	100
	Core Practical III :Visual Basic	1	3	20	30	50
	Core XI: Dynamics	4	3	25	75	100
	Allied IV: Physics II	4	3	15	60	75
	Allied IV: Physics Practical	2	3	20	30	50
	Part IV: General Awareness	2	-	75	-	75
	Skill Based Course Graph Theory - II	3	-	100	-	100
	Advanced Learner's Course II: Software Engineering	3*	3	-	100	100
	Part V: Extension activity	1	-	50	-	50
V	Part III: Core XII : Real Analysis	4	3	25	75	100
	Core XIII: Abstract Algebra	4	3	25	75	100
	Core XIV: Discrete Mathematics	4	3	25	75	100
	Core XV: Java Programming	3	3	25	75	100
	Core Practical IV : Java Programming	1	3	20	30	50
	Elective I: Mathematical Cryptography	5	3	25	75	100
	Part IV: Skill Based Course Graph Theory - III	3	-	100	-	100
VI	Part III: Core XVI : Fuzzy Mathematics	4	3	25	75	100
	Core XVII : Complex Analysis	4	3	25	75	100
	Core XVIII: Linear Algebra	4	3	25	75	100
	Elective II : Programming with Oracle SQL*Plus & Matlab Practical	5	3	40	60	100
	Project & Viva voce	5	-	50	50	100
	Part IV: Skill Based Course Graph Theory IV: Model Presentation	3	-	100	-	100
	Advanced Learner's Course III: Programming with ASP.NET	3*	3	-	100	100

B.Sc. Mathematics/ Mathematics (CA)

Semester I

Part III – Core I – ALGEBRA AND CALCULUS 114M01/114D01

[For students admitted during the academic year 2014 – 2015 and onwards]

Preamble:

Total : 75 Hours

This being the first course of the curriculum, it is framed with the basic subjects Algebra and Calculus.

This provides the students to

- acquire knowledge about the convergence and divergence criteria of the given series.
- get familiar with the applications of Binomial, Exponential and Logarithmic expansion for finding the sum of an infinite series.
- develop skills for solving the algebraic equations.
- acquire knowledge about evolute, involute of the plane curves.
- know the applications of double and triple integrals in finding the areas and volumes.

Module I

(15 Hours)

Convergency and Divergency of series: Definitions and elementary results – Some general theorems concerning infinite series – Series of positive terms – Comparison tests – Convergence and Divergence of series – Cauchy's condensation test – D'Alembert's ratio test – *Cauchy's root test.

Note : Only Statement of the tests are included.

Book 1: Chapter 2 (Sections 8 – 17)

Module II

(15 Hours)

Binomial Theorem: Binomial Theorem (statement only) – Application of the Binomial Theorem to the summation of series. Exponential and Logarithmic series: The Exponential Theorem (statement only) – *Summation – The Logarithmic series – Modification of the Logarithmic series – Series which can be summed up by the Logarithmic series.

Book 1: Chapter 3 (Sections 1, 10) Chapter 4 (Sections 2, 3, 5, 6, 7 and 9)

Module III

(15 Hours)

Theory of Equations: Transformation of Equations – Reciprocal Equation – To increase or decrease the roots of a given equation by a given quantity - *Removal of terms -Descartes' rule of signs-Horner's method of finding the roots of the given equation.

Book 1: Chapter 6(Sections 15-17, 19, 24, 30)

Module IV

(15 Hours)

Differential Calculus: Envelopes, Curvature of plane curves: Envelopes-Method of finding the envelope - Curvature-Cartesian formula for radius of curvature - The co-ordinates of center of curvature - Evolutes and involutes - *Radius of curvature in polar co-ordinates - p-r equation.

Book 2: Chapter 10 (Sections 1.1-1.4, 2.1, 2.3 – 2.8)

Module V

(15 Hours)

Integral Calculus: Multiple integrals: Definition of the double integral-Evaluation of double integral – Double integral in polar co-ordinates-Triple integrals.Change of variables:Jacobian-Change of variables in the case of two variables-Change of variables in the case of three variables -Transformation from Cartesian to polar, spherical polar co-ordinates. Improper integrals: Beta and Gamma functions: Definitions-Convergence of $\Gamma(n)$ -Recurrence formula of Gamma functions-*Properties of Beta functions- Relation between Beta and Gamma functions.

Book3: Chapter 5 (Sections 1, 2.1, 2.2, 3.2, 4)[problems in 2.2 & 3.2]

Chapter 6 (Sections 1.1, 1.2, 2.1 - 2.4), Chapter 7 (Sections 2.1-2.3, 3, 4, 5)

Books for study:

Book1: For Modules I, II and III: T. K. Manicavachagam Pillay, T. Natarajan and K. S. Ganapathy, Algebra Volume I, S.Viswanathan (printers and publishers), Pvt., Ltd., Eleventh Revised Edition, Reprint –2009.

Book 2: For Module IV : S.Narayanan and T.K. Manicavachagam Pillay, Calculus (Major) Volume I, S.Viswanathan (Printers and Publishers), Pvt., Ltd., Eighteenth Edition, 2009.

Book 3: For Module V : S. Narayanan and T. K. Manicavachagam Pillay, Calculus volume II(Integral calculus), S. Viswanathan (Printers and Publishers), Pvt., Ltd., Eighteenth Revised Edition, 2009.

Course Designed by : N.RAJESWARI

Course Reviewed by : M.THAMILSELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester I

Part III – Core II – DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS

114M02/114D02

[For students admitted during the academic year 2014 – 2015 and onwards]

Preamble:

Total: 65 Hours

This course is introduced in the curriculum since

- Differential equations play an important role in physical system of science, engineering and social sciences
- The Laplace transforms are widely adopted by scientists and engineers as an efficient tool for solving linear differential equations.

The topics included in the course help the students

- To interpret the physical systems in terms of differential equation
- To master the various methods of solving a variety of differential equations

Module

(13 Hours)

Differential Equations: Differential equations of the first order: Equations of the first order, but of higher degree: Equations solvable for dy/dx - Equations solvable for y -Equations solvable for x (particular cases of 5.2)- Clairaut's form- *Extended form of Clairaut's Equations- Equations that do not contain x explicitly-Equations that do not contain y explicitly-Equations homogeneous in x and y .

Chapter 1 (Sections 5.1-5.5, 6.1, 6.2, 7.1 – 7.3)

Module II

(13 Hours)

Linear Differential Equations with constant coefficients: Solving $(d^n y/dx^n) + a_1(d^{n-1}y/dx^{n-1}) + a_2(d^{n-2}y/dx^{n-2}) + \dots + a_n y = X$, when X is of the form $e^{ax}V$, V is function of x .-Linear differential equations with variable coefficients-*Equations reducible to the linear homogeneous equations.

Chapter 2 (Sections 4(d), 8, 9)

Module III**(13 Hours)**

Simultaneous Differential Equations: Simultaneous equations of the first order and first degree-Solutions of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Methods for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ –

*Simultaneous linear differential equation with constant coefficients.

Chapter 3 (Sections 1 – 4, 6)

Module IV**(13 Hours)**

Partial Differential Equations: Derivation of Partial Differential Equations- Different integrals of Partial differential equations (definition only) – Standard types of first order equations - *Lagrange's equation.

Chapter 4 (Sections 1- 3, 5, 6)

Module V**(13 Hours)**

The Laplace Transforms: Definition-Results from the definition-Laplace transforms of periodic functions – Some general theorems - *Evaluation of certain integrals using Laplace transforms- The inverse Laplace transforms-Solving second order differential equations with constant coefficients using Laplace transforms-Solving systems of differential equations using Laplace transforms.

Chapter 5 (Sections 1 – 9)

Book for study:

S.Narayanan and T.K.Manicavachagom Pillay,Calculus (Major) VolumeIII, S.Viswanathan(Printers and Publishers) Pvt.Ltd, Reprint 2012.

Course Designed by : B.KALAISELVI

Course Reviewed by : P.JAYALAKSHMI

Course Checked by :A.R.THILAGAVATHI

B.Sc. Mathematics (CA)**Semester I****Part III-Allied I -PC SOFTWARE PRACTICAL****114ADP**

[For students admitted during the academic year 2014-15 and onwards]

Total: 75 hours

- Write a letter for applying the post of Lecturer to the Principal and perform the following :
 - Font Size - 12
 - Font Style - Times New Roman
 - Line spacing - 1.5
 - Page setup (margin)
 - Text color - Black
 - Center heading - 14 size
 - Underline a text
 - Bullets/Numbering
- Write a document report for pollution and perform the following:
 - Insert Header
 - Insert page number and using footers
 - Find and replace
 - Cut, copy and paste.

3. Preparation of a class timetable using MS Word.
4. Preparation of a chart for student name versus subject marks using MS Word.
5. Preparation of an information letter about the college reopening date to the students using Mail merge.
6. Designing an application using Macros in MS Word.
7. To link an excel worksheet into word document by inserting the marks of the students.
8. Preparation of student mark sheet using Excel.
9. Preparation of payroll for employees using Excel.
10. Drawing a chart using Excel with the details of student names and marks of 3 subjects.
11. Designing a presentation for college inaugural functions using MS PowerPoint.
12. To draw an organizational chart with minimum three hierarchical levels using MS PowerPoint.
13. Designing the advertisement campaign using MS PowerPoint.
14. Displaying various departments and courses offered in our college using Power Point.
15. Preparation of the teaching slides using Power Point.
16. Design presentation slides for a product of your choice. The slides must include name, type of product, characteristics, special features, price, special offer etc.
17. Creating a database for employee details and generates a report for pay slip using MS Access.
18. Creating a database maintaining stock in a shop with field's serial number (Primary Key), Name of Product, Product code, Quantity and Price.
19. Creating a database for customer information and generate a report with the customer names in ascending order.
20. Creating data entry for product details like receipt, issue, date of purchase using MS-Access.

Course Designed by : K. KARTHIKA
 Course Reviewed by : A.ANIS FATHIMA
 Course checked by : A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (CA) **Semester II**

Part III – Core III – ANALYTICAL GEOMETRY 214M03/214D03

[For students admitted during the academic year 2014– 2015 and onwards]

Preamble

Total : 75 Hours

The primary objectives of introducing this course in the curriculum is

- to understand the mathematical representation of the geometrical figures
- to give a training for visualizing ideas in two and three dimensions
- to expose the students to apply these concepts in the advanced level subjects like Differential geometry, Mechanics, Fluid mechanics etc.
- to give an indepth knowledge in three dimensional figures to understand graphics concepts.

Module I

(15 hours)

Polar coordinates: Polar coordinates - Relation between polar and rectangular cartesian coordinates- Equation of a straight line- Equation of a circle - *Equation of the chord of a

circle-Equation of a conic - Equation of a chord of a conic - Equations of the asymptotes of a hyperbola -Examples.

Book 1: Chapter 9

Module II

(15 hours)

Straight Lines: Equations of a straight line-Conditions for various situations of a line-
*Angle between a plane and a line - Projection of a line- Perpendicular drawn to a line-
Shortest distance between two skew lines-Sums.

Book 2: Chapter 4(Sections 4.1 – 4.6, 4.11)

Module III

(15 hours)

Sphere: Equation of a sphere-Standard equation of a sphere - Results based on the properties of a sphere - Tangent plane to a sphere-*Radical plane- Equations of a circle-
Equations $S+\lambda P = 0$ and $S+\lambda S' = 0$ - Sums.

Book 2: Chapter 5

Module IV

(15 hours)

Cone, Cylinder And Conicoids: Cone - Equation of a cone-Cone whose vertex is at the origin –*Quadric cone with vertex at the origin - General quadric cone- Cylinder- Equation of a cylinder - Sums.

Book 2: Chapter 6 (Sections 6.1 – 6.7, 6.13)

Module V

(15 hours)

Cone, Cylinder And Conicoids: *Quadric surfaces- Conicoids- Notation- Enveloping cone-
Tangent plane- Sums.

Book 2: Chapter 6(Sections 6.8 – 6.12, 6.13)

Books for study:

Book 1 :For Module I: Analytical Geometry of 2 dimensional, P.Duraipandian, Laxmi Duraipandian, D.Muhilan, Emerald Publishers, Reprint 1985.

Book 2: For Modules II,III,IV & V:Analytical Geometry of 3 dimensional, P.Duraipandian, Laxmi Duraipandian, D.Muhilan, Emerald Publishers, Reprint 2006.

Course Designed by : M.THAMILSELVI

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics (CA)

Semester II

Part III- Core IV- PROGRAMMING IN C

214D04

[For students admitted during the academic year 2014-15 and onwards]

Preamble

Total : 52 Hours

The study of Programming Languages has inevitably become a part and parcel of life. C is a powerful, flexible and elegantly structured programming language. It is designed:

- to suit both system and application programming.
- to provide the students with all the fundamental concepts of the C language.
- to improve the logical thinking while developing programs .

Module I

(11 hours)

Constants, Variables and Data types: Introduction – Character set- C tokens –Keywords and identifiers – Constants- Variables – Data types – Declaration of variables – Declaration of storage class-Assigning Values to variables – Defining symbolic constants- Declaring a variable as constant - Declaring a variable as Volatile. Operators and Expression:

Introduction - *Arithmetic operators – *Relational operators – *Logical operators – *Assignment Operators – *Increment and decrement operators – *Conditional operator – Bit wise operators – Special operators – Arithmetic Expressions – Evaluation of expressions – Precedence of Arithmetic Operators – Some computational problems – Type Conversions in Expressions – Operator precedence and associativity – Mathematical functions.

Chapter 2 (Sections 2.1 – 2.13)

Chapter 3 (Sections 3.1 – 3.16)

Module II

(10 hours)

Managing Input and Output Operations: Introduction – Reading a Character – Writing a character – Formatted Input – Formatted Output. Decision making and branching: Introduction – Decision making with IF statement - *Simple IF statement – *The IF...ELSE statement – Nesting of IF...ELSE statements – The ELSE IF ladder – The switch statement – The ?: operator – The GOTO statement.

Chapter 4 (Sections 4.1 – 4.5)

Chapter 5 (Sections 5.1 – 5.9)

Module III

(10 hours)

Decision making and looping: Introduction - *The WHILE statement - *The DO statement – The FOR statement – Jumps in loops. Arrays: Introduction – One dimensional arrays – Declaration of one dimensional arrays – Initialization of One dimensional arrays - Two dimensional arrays – Initializing two dimensional arrays – Multi-dimensional arrays.

Chapter 6 (Sections 6.1 – 6.5)

Chapter 7 (Sections 7.1 – 7.7)

Module IV

(11 hours)

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – Arithmetic operations on characters – Putting strings together – Comparison of two strings - *String handling functions. User-Defined functions: Introduction – Need for user defined functions – A multi-function program –Elements of user defined functions- Definition of functions - Return values and their types – Function calls – Function Declaration - Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns a value – functions that return multiple values - Nesting of functions – Recursion –Passing Arrays to functions - Passing strings to functions – The scope, visibility and lifetime of Variables.

Chapter 8 (Sections 8.1 – 8.8)

Chapter 9 (Sections 9.1 – 9.19)

Module V

(10 hours)

Structures and Unions: Introduction-Defining a Structure – Declaring Structure variables – Accessing Structure members – Structure Initialization Copying and comparing Structure variables – Operations on Individual members – Arrays of Structure –* Arrays within Structures – Structures within Structures – Structures and functions – Unions – Size of Structures. Pointers: Introduction-Understanding Pointers- Accessing the Address of a Variable-Declaring Pointer Variables-Initialization of Pointer Variables-Accessing a Variables through its Pointer-Chain of Pointers-Pointer Expressions-Pointer Increments and Scale Factor-Pointers and Arrays-Pointers and Character Strings-Array of Pointers-Pointers as Function Arguments-Functions Returning Pointers-Pointers to Functions- Pointers and Structures-Troubles with Pointers.

Chapter 10 (Sections 10.1 – 10.13)

Chapter 11(Sections 11.1 - 11.17)

Book for study:

E.Balagurusamy, Programming in ANSI 'C', Tata McGraw Hill Education(India) Pvt. Ltd., Sixth Edition, Fifth Reprint 2013.

Part III- Core Practical I - PROGRAMMING IN C

214DP1

[For students admitted during the academic year 2014-15 and onwards]

Total : 26 hours

1. Finding Sum, Average, Standard deviation for a given set of numbers.
2. Printing Fibonacci series.
3. Prime Number Checking
4. Finding Roots of a Quadratic Equation.
5. Finding the Product of two matrices of order $m \times n$ and $n \times p$
6. Reading and printing personal information using structures.
7. Finding whether a string is PALINDROME or not.
8. Arranging Strings in alphabetical order.
9. Finding the Factorial of a number using recursion.
10. Counting tabs, number of lines, characters and blank spaces in a file.

Course Designed by : K.KARTHIKA

Course Reviewed by : R.VIDHYA

Course Checked by : A.ANIS FATHIMA

B.Sc. Mathematics/Mathematics (CA)

Semester IV/ Semester II

Part III –Allied IV/II-MATHEMATICAL STATISTICS 414AM4 /214AD2

[For students admitted during the academic year 2014-15 and onwards]

Preamble

Total : 75 Hours

Mathematical Statistics is widely employed as a highly valuable tool in the analysis of problems in natural, physical and social sciences.

The topics included in the syllabus help the students

- to know about the random variables and their different distributions
- to understand about the characteristics of distributions
- to determine different sampling distributions
- to estimate the population parameters using sample statistics
- to test the hypothesis in order to extend the sample inference to the population.

Module I

(15 Hours)

Random variables: Function of a random variable – Two dimensional random variable – Definitions- Marginal probability distribution – Conditional probability distribution – Independent random variables.

Variance: Tchebechev's inequality - Moments and Moment Generating Functions.

Chapter 2(Pages 2.13 - 2.35), Chapter 4(Pages 4.21 – 4.26), Chapter 5

Module II

(15 Hours)

Conditional Expectation. Correlation: Correlation - Sample Correlation

Chapter 7, Chapter 8(Pages 8.1- 8.48)

Module III

(15 Hours)

Normal Distribution – Uniform Distribution –Exponential Distribution – Gamma Distribution –*Beta Distribution.

Chapters 16, 17, 18, 19, 20

Module IV**(15 Hours)**

Functions of Random Variables-Sampling Distributions- Chi Square ,t, F Distributions.
Chapters 21, 22.

Module V**(15 Hours)**

Estimation.
Chapter 23

Book for Study

P.R. Vittal, Mathematical Statistics , Margham Publishers, First Edition (2010).

Course Designed by : P.PADMAVATHI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics (CA)

Semester III

Part III - Core V - PROGRAMMING IN C++

314D05

[For students admitted during the academic year 2014-15 and onwards]

Preamble**Total : 65 Hours**

C++ has become the preferred programming approach as it offers powerful way to cope with the complexity of real-world problems. It helps to:

- integrate the various features of C++ in real life applications.
- facilitate better understanding and develop knowledge about the concepts of object-oriented
- approach and design of the system to improve the logical thinking while developing programs for numerical methods.

Module I**(13 Hours)**

Principles of Object Oriented Programming: Basic concepts of Object Oriented Programming- Benefits of OOPS. Beginning with C++ : Applications of C++- Structure of C++ program .*Tokens, Expressions and Control Structures:- Introduction-Tokens – Keywords-Identifiers and Constants - Basic data Types - User-Defined Data Types-Derived data types - Symbolic constants - Type Compatibility -Declaration of variables – Dynamic initialization of Variables - Reference Variables – Operators in C++ - Scope Resolution Operator - Member Dereferencing Operators - Memory Management Operators – Manipulators - Typecast Operator - Expressions and their Types – Special Assignment Expressions - Implicit Conversions – Operator Overloading – Operator Precedence – Control Structures.

Chapter 1: (Section 1.5, 1.6) ,Chapter 2: (Section 2.2, 2.6) ,Chapter 3: (Section 3.1- 3.6, 3.8- 3.25)

Module II**(13 Hours)**

Functions in C++: Introduction – The Main Function – Function prototyping – Call by Reference – Return by reference – Inline functions – Default arguments – const Arguments – Recursion- *Function Overloading – Friend and Virtual Functions – Math Library Functions. Classes and Objects: Introduction – C Structures Revisited – Specifying a Class – Defining Member Functions – A C++ Program with Class – Making an Outside Function Inline – *Nesting of Member Functions - Private Member Functions – Arrays within a Class – Memory allocation for Objects – Static Data Members – Static Member Functions – Arrays

of Objects – Objects as Function Arguments – Friendly Functions - Returning Objects – const Member functions – Pointers to Members – Local classes.

Chapter 4: (Section 4.1 - 4.12)

Chapter 5: (Section 5.1 – 5.19)

Module III

(13 Hours)

Constructors and Destructors: Introduction - Constructors – Parameterized Constructors – Multiple Constructors in a Class - Constructors with Default Arguments – Dynamic Initialization of Objects – Copy constructor – Dynamic Constructors – *Constructing Two-Dimensional Arrays – const Objects - Destructors. Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading - Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends- Manipulation of Strings Using Operators– Rules for Overloading Operators – Type Conversions.

Chapter 6: (Section 6.1 – 6.11)

Chapter 7: (Section 7.1 – 7.6, 7.8 & 7.9)

Module IV

(13 Hours)

Inheritance: Extending Classes: Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – *Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes : Nesting of Classes. Pointers, Virtual Functions and Polymorphism: Introduction – Pointers- Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual functions.

Chapter 8: (Section 8.1 – 8.12)

Chapter 9: (Section 9.1 - 9.7)

Module V

(13 Hours)

Working with files: Introduction – Classes for File Stream Operations – Opening and Closing a File – Detecting End-of-File – *More about Open():File modes – File Pointers and their Manipulations - Sequential Input and Output Operations – Updating a File: Random Access – Error handling During File Operations – Command-Line Arguments. Exception Handling: Introduction-Basics of Exception Handling- Exception Handling Mechanism-Throwing Mechanism – Catching Mechanism- Rethrowing an Exception – Specifying Exceptions.

Chapter 11: (Section 11.1 - 11.10)

Chapter 13: (Section 13.1 – 13.7)

Book for Study

E.Balagurusamy - “Object Oriented Programming with C++”, Tata McGraw Hill Publishing Company Limited. NewDelhi. Fifth Edition, Tenth Reprint 2011.

Book for Reference

1. Deitel and Deitel- C++ - How to Program, Prentice Hall ,1998
2. Robert Lefore-“Object Oriented Programming in Turbo C++” – Waite Group Publications,1999.

Course Designed by :R.VIDHYA

Course Reviewed by : K.KARTHIKA

Course Checked by : A.ANIS FATHIMA

B.Sc. Mathematics (CA)

Semester III

Part III- Core Practical II PROGRAMMING IN C++

314DP2

[For students admitted during the academic year 2014-15 and onwards]

Total : 52 Hours

1. Sorting of numbers(without using functions)
2. Printing a pyramid using for loop.

3. Swapping private data of classes using FRIEND function.
4. Operator overloading using the four arithmetic operators +, -, *, /.
5. Finding the Addition, Subtraction, Multiplication and Division of Complex numbers.
6. Finding the area of TRIANGLE, RECTANGLE using inheritance and virtual function.
7. Payroll processing using multilevel and multiple Inheritances.
8. Overloading add (), subtract (), multiply () to handle different data types using function overloading.
9. Implementing Unary Operator overloading concepts.
10. Illustrating how class objects can be written to and read from the disk files.
11. Defining array of class objects using single inheritance.
12. Create classes book, media and tape, using virtual functions display the details of it.
13. Program to update files.
14. Overloading of strings concatenate and to check whether the strings are equal or not.
15. Numerical integration using Simpson's $1/3^{\text{rd}}$ Rule.
16. Preparing mark sheet of students with their details by sorting their names and rank
17. Finding ODD and EVEN numbers from the given set of numbers using command line arguments.
18. Performing arithmetic operations on arrays using pointers.
19. Solving first order ordinary differential equation using Runge kutta fourth order method.
20. Create a class person with members name, age and use "this pointer" to find the eldest person.

Course Designed by : R.VIDHYA
 Course Reviewed by : K.KARTHIKA
 Course Checked by : A.ANIS FATHIMA

B.Sc. Mathematics (CA)
Semester III

Part III-Core VI -NUMERICAL METHODS

314D06

(For students admitted during the academic year 2014-15 and onwards)

Preamble:

Total : 65 hours

The study of Numerical Methods has become very important due to the wide spread use of these methods by scientists and engineers. This course is designed in such a way that:

- it develops the problem solving skills of the students .
- it provides confidence and motivation to solve problems with higher degree of complexity.

Module I

(13 Hours)

Solution of algebraic and Transcendental Equations: Introduction – The Bisection method- The method of False position – *The Iteration method – Newton-Raphson method.
 Chapter 2 (Sections 2.1 – 2.5)

Module II

(13 Hours)

Interpolation: Finite differences – Forward differences – Backward differences – Central Differences – Symbolic relations and separation of symbols – Detection of Errors by Use of difference Tables – Differences of a polynomial – Newton's formulae for interpolation – Central difference interpolation formulae - Gauss's central difference formula- -Stirling's formula - *Bessel's formula.
 Chapter 3 (Sections 3.3 – 3.6, 3.7, 3.7.1, 3.7.2, 3.7.3)

Module III**(13 Hours)**

Numerical differentiation and Integration: Introduction – Numerical Differentiation – Error's in Numerical differentiation – The Cubic Spline Method – Maximum and minimum values of tabulated functions – Numerical integration - Trapezoidal rule-*Simpson's one-third rule-*Simpson's three-eighths rule – Romberg integration.

Chapter 5 (Sections 5.1 – 5.3, 5.4, 5.4.1, 5.4.2, 5.4.3, 5.4.6)

Module IV**(13 Hours)**

Matrices and linear systems of equations: Solution of linear systems – Direct methods – Matrix inversion method – Gauss elimination – *Gauss Jordan method – Modification of the Gauss Method to compute the inverse – Number of Arithmetic Operations – LU Decomposition – LU Decomposition from Gauss Elimintaion – Solution of Linear Systems – Iterative methods.

Chapter 6(Sections 6.3, 6.3.1 – 6.3.7, 6.4)

Module V**(13 Hours)**

Numerical Solution of ordinary differential equations: Introduction – Solution by Taylor's series – Picard's method of successive approximations – Euler's method – *Error estimates for the Euler method – Modified Euler's method – Runge - kutta methods – Predictor – corrector methods – Adams –Moulton method – Milne's method.

Chapter 7 (Sections 7.1 – 7.6)

Book for study

S.S. Sastry, Introductory Methods of Numerical Analysis, Prentice – hall of India private limited, New Delhi, June 2008.

Course Designed by :A.ANIS FATHIMA

Course Reviewed by : S.GAYATHRI

Course Checked by :A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (CA)

Semester III

Part III –Core VI/VII– STATICS

314M06/314D07

[For students admitted during the academic year 2014-15 & onwards]

Preamble**Total : 65 Hours**

This course dealing with the conditions for lack of motion under given forces is introduced in the curriculum in order:

- to provide a strong foundation in understating the concepts of mechanics.
- to know the various aspects of the forces on a particle and on a rigid body.

Module I**(13 Hours)**

Force: Newton's laws of motion-Forces – Resultant of two forces on a particle-Resultant of three forces related to a triangle acting at a point- Resultant of several forces acting on a particle. Equilibrium of a particle: Equilibrium of a particle- Equilibrium of a particle under three forces-* Equilibrium of a particle under several forces-Limiting Equilibrium of a particle on an inclined plane.

Chapter 2 (Sections 2.1(2.1.1) – 2.2)

Chapter 3 (Sections 3.1-3.2)

Module II**(13 Hours)**

Forces on a rigid body : Moment of a force- Moment of a force about a line-Scalar moment-Equivalent (or equipolent)systems of forces-Parallel forces-Point of application of resultant of many parallel forces-Varignon's theorem-Parallel forces at the vertices of a triangle- *Forces along the sides of a triangle.

Chapter 4: (Sections 4.1, 4.3 - 4.5)

Module III

(13 Hours)

Forces on a rigid body: Couples - *Moment of a couple-Arm and axis of a couple-Resultant of several coplanar forces-Moment of a certain couple as an area-Couples in a parallel planes-Resultant of a couple and a force- Equation of the line of action of the resultant – Sum of the moments about an arbitrary point.

Chapter 4: (Sections 4.6-4.8)

Module IV

(13 Hours)

Forces on a rigid body : * Equilibrium of a rigid body under three coplanar forces – Cotangent formulae. A specific reduction of forces: Reduction of coplanar forces into a force and a couple – Conditions of equilibrium under coplanar forces.

Chapter 4: (Sections 4.9)

Chapter 5: (Sections 5.1)

Module V

(13 Hours)

Force : Newton's laws of motion : *Types of forces. A specific reduction of forces : Problems involving frictional forces.

Chapter 2: (Sections 2.1(2.1.2))

Chapter 5: (Sections 5.2) (Excluding Section 5.2.1)

Book for Study

P. Duraipandian, Laxmi Duraipandian, Muthamizh Jayapragasam, Mechanics, S. Chand & Company Ltd., Reprint 2010.

Course Designed by : P.PADMAVATHI

Course Reviewed by : N.JEYANTHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics (CA)

Semester III

Part IV –Non Major Elective Course I Practical: WEB DESIGNING 314NWD

[For students admitted during the academic year 2014-15 and onwards]

Total: 26 Hours

1. A program to create an E-mail ID and send a mail to another person at a time.
2. Program to create a resume using basic tags in HTML.
3. Designing a timetable using HTML tags.
4. Program to display image using image tags.
5. Write a HTML code using List tags.
6. Program to implement Frames.
7. Program of Image Link to another web page.
8. Program to display an Advertisement.
9. Program to design a college Website.
10. Program to Input Information of E-Mail Id.

Course Designed by : K.KARTHIKA

Course Reviewed by : R.VIDHYA

Course Checked by : A.ANIS FATHIMA

B.Sc. Mathematics/Mathematics (CA)
Semester III
Part IV-Skill Based Course Graph Theory - I – INTRODUCTORY CONCEPTS
314MS1/314DS1
[For students admitted during the academic year 2014-15 and onwards]
Total : 38 hours

Module I **(8 Hours)**

Graphs: Graphs and Subgraphs – Vertex Degrees – Paths and Cycles.

Chapter 2(Sections 2.1-2.3)

Module II **(7 Hours)**

Graphs: Regular and bipartite graphs. Eulerian and Hamiltonian Graphs: Exploring and Travelling.

Chapter 2(Sections 2.4)

Chapter 3(Sections 3.1)

Module III **(8 Hours)**

Eulerian and Hamiltonian Graphs: Eulerian Graphs-Hamiltonian Graphs.

Chapter 3(Sections 3.2, 3.3)

Module IV **(7 Hours)**

Digraphs: Digraphs and Subdigraphs- Vertex Degrees- Paths and Cycles.

Chapter 4(Sections 4.1-4.3)

Module V **(8 Hours)**

Matrix Representations: Adjacency Matrices- Walks in graphs and Digraphs- Incidence Matrices.

Chapter 5(Sections 5.1-5.3)

*** Proof of the theorems are not included.**

Book for Study:

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Course Designed by : N.JEYANTHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics (CA)

Semester IV

Part III- Core VIII OPERATIONS RESEARCH

414D08

[For students admitted during the academic year 2014-15 and onwards]

Preamble

Total : 65 Hours

Operations Research seeks the determination of the best course of action of a decision problem under the restriction of limited resources.

The prime objectives for introducing this course are:

- To give practical training in converting a managerial decision making problem to a linear programming problem.
- To gain knowledge on techniques for solving linear programming problem.
- To develop logical reasoning in sequencing in a network to trace the shortest route.
- To develop knowledge in basic techniques to deal with inventory and queuing systems.

Module I

(13 Hours)

Linear Programming Problem: Graphical solution: Introduction-*Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and standard forms of L.P.P.

Linear programming: Simplex method: Introduction – Fundamental properties of solutions – The computational procedure – Use of artificial variables

Chapter 3 (Sections 3.1 – 3.5) Chapter 4 (Sections 4.1 – 4.4)

Module II

(13 Hours)

Duality in Linear Programming: Introduction – General Primal – Dual pair – Formulating a dual problem – Primal – Dual pair in matrix form – Duality and Simplex method – Dual Simplex method.

Transportation Problem: Introduction – LP formulation of the transportation problem- - Existence of Solution in T.P. - Duality in transportation problem-The transportation table — Loops in transportation tables – Triangular basis in a T.P – Solution of a transportation problem – Finding an initial basic feasible solution – Test for optimality – Economic interpretation of u_j 's and v_j 's - Degeneracy in transportation problem – Transportation algorithm [MODI method] – Stepping stone solution method – *Some exceptional cases. Assignment Problem: Introduction – Mathematical formulation of the problem – Solution Methods of Assignment Problem.

Chapter 5 (Sections 5.1- 5.4, 5.7, 5.9) Chapter 10 (Sections 10.1 – 10.14)

Chapter 11 (Sections 11.1 – 11.3)

Module III

(13 Hours)

Games and Strategies: Introduction – Two – person zero-sum games – Some basic terms – The Maximin- Minimax principle – Games without saddle points – Mixed strategies – * Graphic solution of $2 \times n$ and $m \times 2$ games. Network Scheduling by PERT/CPM: Introduction- Network and basic components – Logical sequencing – Rules of network construction – Concurrent activities- Critical path analysis – Probability considerations in PERT -* Distinction between PERT and CPM.

Chapter 17 (Sections 17.1 – 17.6)

Chapter 25 (Sections 25.1 -25.8)

Module IV

(13 Hours)

Inventory Control: Introduction – Types of Inventories - The Inventory decisions – Costs associated with inventories – Factors affecting inventory control – An Inventory Control

Problem- The concept of EOQ - Deterministic inventory problems with no shortages – Deterministic inventory problems with shortages - * EOQ problems with price breaks.
Chapter 19 (Sections 19.1– 19.12)

Module V (13 Hours)

Queueing Theory: Introduction – Queueing system – Elements of a queueing systems - *Operating characteristics of queueing system- Deterministic Queueing system- Probability distributions in queueing systems – Classification of queueing models – Definition of transient and steady states – Poisson queueing systems (Single Server Models I, II & III)- *Sample problems

Note : Derivations are excluded.

Chapter 21 (Sections 21.1 – 21.9)

Note: Only statement of the theorems and algorithms are included.

Book for study

Kanti Swarup, P.K Gupta, Man Mohan, Operations Research, Sultan Chand & Sons, New Delhi, Fourteenth Edition, Reprint 2011.

Course Designed by : S.GAYATHRI
Course Reviewed by : A.ANIS FATHIMA
Course Checked by : A.ANIS FATHIMA

B.Sc., Mathematics (CA)

Semester IV

Part III - Core X – VISUAL BASIC

414D10

[For students admitted during the academic year 2014-15 and onwards]

Preamble Total : 52 Hours

- Visual programming is one of the popular programming language for Windows environment.
- The students can develop their programming skills in Windows Applications through this course.
- It is designed to accommodate beginner programmers. Programmers can create both simple and complex GUI applications.

Module I (10 Hours)

Visual Basic: Background. Visual Basic Forms: *Data Entry Screens.VB Toolbox In-depth
Chapter:1, 2, 3.

Module II (11 Hours)

Variables,Datatypes and User-defined Types. Dialog boxes, Conditional Statements and Loops.*Events-A closer Look.
Chapter:4,5,8.

Module III (10 Hours)

Modules, Arrays, Collections, Enums. *Procedures ,Functions, Formats, API, Graphics.
Menus, Control Arrays, Multiple Forms.
Chapter:6,7,9.

Module IV (11 Hours)

Advanced Active-Controls.* Windows Common Controls: Animation, Updown, MonthView, Dtpicker .Windows Common Controls: Slider, Image List, Image Combo, Tool Bar, Status Bar. OLE

Chapter: 10,11,12 & 19

Module V

(10 Hours)

Database creation, ODBC and DAO Programming. Database Programming: ADO and DED. Database Programming: *Data Reports.

Chapter: 15,16,17

Book for Study

“Visual Basic 6” –Sanjeev Sharma & Nandan Tripathi, First Edition 2009, Anurag Jain for Excel books, New Delhi.

Book for Reference

Steven Holzner-“Visual Basic 6 Programming Black Book” ,Dream Tech Press, New Delhi , Reprint Edition-2006

Course Designed by : K.KARTHIKA

Course Reviewed by : R.VIDHYA

Course Checked by : A.ANIS FATHIMA

B.Sc., Mathematics (CA)

Semester IV

Core Practical III – VISUAL BASIC

414DP3

[For students admitted during the academic year 2014-15 and onwards]

Total : 26 Hours

1. Reading temperature in Celcius and print the equivalent in Farenheit and vice versa.
2. Designing a simple calculator to perform the basic arithmetic operations.
3. Drawing Lines, Circles , Rectangles and Ellipses using Controls.
4. Encoding and decoding a text using numeric key value.
5. Loading an image file into a picture or image box using Directory, File, and Drive List Boxes.
6. (i). Design a form to display an advisement banner using image box control with String functions.
(ii). Write a program to move a picture in a mouse move.
7. Using modules i) to find NCR value ii) To print all possible combinations of 1,2,3,4,5,6.
8. Displaying Text using standard font formatting options using Common Dialog Boxes.
9. Mark list Creation using MDI form and DBGrid. Include proper validations.
10. Write the program to develop an application for displaying employee details using database (Use ADO Control).

Course Designed by : K.KARTHIKA

Course Reviewed by : R.VIDHYA

Course Checked by : A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (CA)

Semester IV

Part III –Core VIII/XI– DYNAMICS

414M08/414D11

[For students admitted during the academic year 2014-15 & onwards]

Preamble:

Total : 52 Hours

Dynamics is one among the two branches of Mechanics and deals with the study of solid bodies in motion. This course is introduced in the curriculum in order :

- to train the students to think about physical phenomena in mathematical terms.

- to have a deep knowledge about the motion of particles under the influence of various forces like gravitational force, central force, impulsive force etc.,
- to provide a good foundation for the students to take up any advanced course in mechanics and all related fields.

Module I

(11 Hours)

Kinematics: Basic units- Velocity- Velocity of particle describing a circle - Resultant velocity- Relative velocity-Acceleration-Rectilinear motion - Rectilinear motion with a constant acceleration-Coplanar motion- Velocity and acceleration in a coplanar motion- Angular velocity- *Relative angular velocity.

Chapter 1 (Sections 1.1 - 1.4)

Module II

(10 Hours)

Rectilinear motion under varying force: Simple harmonic motion-Projection of a particle having a uniform circular motion - *Composition of two simple harmonic motions of same period – S.H.M along a horizontal line- S.H.M along a vertical line.

Chapter 12 (Sections 12.1 – 12.3)

Module III

(11 Hours)

Projectiles: Forces on a projectile – Displacement as a combination of vertical and horizontal displacements-Nature of trajectory – Results pertaining to the motion of a projectile – Maximum horizontal range for a given velocity – Two trajectories with a given speed and range – Projectile projected horizontally – Projectile projected on an inclined plane – *Maximum range on an inclined plane.

Moment of Inertia: Moment of inertia – Perpendicular and parallel axes theorems.

Chapter 13 (Sections 13.1, 13.2)

Chapter 17 (Section 17.1)

Module IV

(10 Hours)

Impact: Conservation of linear momentum(principle only) –Impact of spheres- Laws of impact- Impact of two smooth spheres - *Direct impact of two smooth spheres – Impact of a smooth sphere on a plane – Direct impact of a smooth sphere on a plane -Oblique impact of a smooth sphere on a plane- Oblique impact of two smooth spheres.

Chapter 14 (Sections 14.2 – 14.5)

Module V

(10 Hours)

Central orbits: General orbits- Central orbit - Differential equation of a central orbit-

Laws of a central force – Methods to find the central orbits-Conic as a central orbit-*Kepler's Laws of planetary motion.

Chapter 16 (Sections 16.1-16.3)

Book for Study

P. Duraipandian, Laxmi Duraipandian, Muthamizh Jayapragasam, Mechanics, S. Chand & Company Ltd., Reprint 2010.

B.Sc. Mathematics/ Mathematics (CA)

Semester IV

Part IV-Skill Based Course: GRAPH THEORY II – PATHS AND TREES

414MS2/414DS2

(For students admitted during the academic year 2014-15 and onwards)

Total : 38 Hours

Module I

(8 Hours)

Tree Structures: Mathematical Properties of Trees – Spanning Trees – Rooted Trees.

Chapter 6(Sections 6.1 – 6.3)

Module II (8 Hours)

Counting Trees: Counting Labelled Trees – Counting Binary Trees.
Chapter 7(Sections 7.1,7.2)

Module III (8 Hours)

Greedy Algorithms: Minimum Connector Problem – Travelling Salesman Problem.
Chapter 8(Sections 8.1,8.2)

Module IV (7 Hours)

Path Algorithms: Fleury's Algorithm – Shortest Path Algorithm.
Chapter 9(Sections 9.1, 9.2)

Module V (7 Hours)

Paths and Connectivity: Connected Graphs and Digraphs – Menger's Theorem for Graphs-Some analogues of Menger's theorem.
Chapter 10(Sections 10.1-10.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson,
Springer- First Indian Reprint 2007.

Course Designed by : N.JEYANTHI

Course Reviewed by :N.RAJESWARI

Course Checked by :A.R.THILAGAVATHI

B.Sc. Mathematics (CA)

Semester V

Part III – Core XII – REAL ANALYSIS

514D12

[For students admitted during the academic year 2014-15 and onwards]

Preamble:

Total: 65 Hours

Mathematical Analysis is an important division of higher Mathematics. This course facilitates the students to

- ❖ be endowed with a transition from elementary calculus to advanced topics in the theory of real variables.
- ❖ study the properties of limit and continuity, which are indispensable to the study of subjects such as optimization theory.
- ❖ know the functional relationships between the variables which have more applications in expressing the laws of physics, chemistry, mechanics etc.,

Module I (13 Hours)

The Real and Complex Number Systems: Introduction- Ordered Sets- Fields- The real field- *The Extended Real Number System. Basic Topology: Finite, Countable and Uncountable Sets- Metric Spaces.

Chapter 1 (Page Number 1-12) Chapter 2 (Page Number 24-36)

Module II (13 Hours)

Basic Topology: Compact sets – Perfect sets – *Connected sets
Chapter 2 (Page Number 36-43)

Module III (13 Hours)

Numerical Sequences and Series: Convergent Sequences- Subsequences- Cauchy Sequences – Upper and Lower Limits- Some Special Sequences- Series- Series of Nonnegative Terms- The Number e - The Root and Ratio Tests- Power Series- *Summation by Parts.

Chapter 3(Page Number 47-71)

Module IV (13 Hours)

Continuity: Limits of Functions- Continuous Functions- Continuity and Compactness- *Continuity and Connectedness- Discontinuities.

Chapter 4(Page Number 83-95)

Module V (13 Hours)

Differentiation: The Derivative of a Real Function- Mean Value Theorems- The Continuity of Derivatives- L'Hospital's Rule- Derivatives of Higher Order- Taylor's Theorem- *Differentiation of Vector-Valued Functions.

Chapter 5(Page Number 103-113)

Book for Study:

Walter Rudin , Principles of Mathematical Analysis, , Third Edition, McGraw Hill International Edition, 1976.

Course Designed by : A.ANIS FATHIMA

Course Reviewed by : V.PANKAJAM

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester V

Part III – Core X/XIII—ABSTRACT ALGEBRA 515M10/515D13

[For students admitted during the academic year 2015-16 and onwards]

Preamble: Total: 65 Hours

Abstract Algebra enables one to reinterpret the result of classical algebra giving them greater unity and generality. This course has been introduced in the curriculum in order:

- ❖ to introduce different algebraic structures like groups, rings and fields
- ❖ to gain deep knowledge in the structure preserving mappings like homomorphism, isomorphism etc...

Module I (13Hours)

Preliminary Notions: Mappings - *The integers (unique factorization theorem – statement only) Group Theory: Definition of a Group-Some Examples of Groups-Some preliminary Lemmas-Sub groups –Simple problems.

Chapter 1 (Sections 1.2, 1.3), Chapter 2: (Section 2.1- 2.4)

Module II (13Hours)

Group theory: *A Counting principle – Normal subgroups and quotient groups – Homomorphisms – Simple problems.

Chapter 2(Sections 2.5 – 2.7)

Module III (13Hours)

Group theory: Automorphisms – Cayley's theorem - *Permutation groups - Simple problems.

Chapter 2(Sections 2.8– 2.10)

Module IV (13Hours)

Ring Theory: Definitions and examples of rings – Some special cases of rings – *Homomorphisms-Ideals and quotient rings - Simple problems.

Chapter 3(Sections 3.1 – 3.4)

Module V

(13Hours)

Ring Theory: More ideals and quotient rings – The field of quotients of an integral domain -

*Euclidean rings - Simple problems.

Chapter 3(Sections 3.5 – 3.7)

Book for study:

I.N. Herstein, Topics in Algebra, Second Edition, Wiley Eastern limited, (2007)

Course Designed by : N.JEYANTHI

Course Reviewed by : M.THAMILSELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc., Mathematics / Mathematics (CA)

Semester V

Part III-Core XI / XIV – DISCRETE MATHEMATICS

514M11 / 514D14

[For students admitted during the academic year 2014-15 and onwards]

Preamble:

Total: 65 Hours

Discrete Mathematics, the study of finite systems is important, as the computer age has advanced. This course facilitates the students,

- to develop the ability to perceive , to formulate and to solve mathematical Problems related to finite systems in engineering and computer science.
- to gain confidence in applying the ideas to solve practical problems in the areas like switching theory ,coding theory, artificial intelligence etc.,
- to understand the background necessary for the interpretation of finite mathematical systems.

Module I

(13 Hours)

Mathematical logic: Introduction-Statements and Notation. Connectives: Negation-Conjunction– Disjunction – Statement formulas and truth tables – Conditional and Biconditional – Well-formed Formulas- Tautologies–Equivalence of formulas–Duality law – Tautological Implications-Formulas with Distinct Truth Tables- *Functionally Complete Sets of Connectives- Other Connectives.

Chapter 1 (Sections 1.1, 1.2(1.2.1-1.2.4, 1.2.6-1.2.14))

Module II

(13 Hours)

Mathematical logic: Normal forms: Disjunctive normal forms – Conjunctive normal forms – Principal disjunctive normal forms –Principal conjunctive normal forms –Ordering and uniqueness of normal forms. The theory of inference for the statement calculus-*Validity using truth tables – Rules of inference – Consistency of premises and indirect method of proof._Set theory: Relations and ordering: Partial ordering- Partially ordered set: Representation and Associated Terminology.

Chapter 1: (Sections 1.3(1.3.1-1.3.5), 1.4(1.4.1-1.4.3)),

Chapter 2: (Sections 2.3(2.3.8, 2.3.9))

Module III

(13 Hours)

Algebraic Structures: Semigroups and monoids: Definitions and Examples- Homomorphism of semigroups and monoids- *Subsemigroups and submonoids. Grammars and Languages: Discussion of Grammars- Formal definition of a language. Introduction to computability theory: Introduction: Finite state Acceptors and Regular Grammars.

Chapter 3(Sections 3.2, 3.3(3.3.1, 3.3.2)), Chapter 6(Section 6.1)

Module IV**(13 Hours)**

Lattices and Boolean Algebra: Introduction: Lattices as partially ordered sets: Definition and Examples- Some properties of lattices – Lattices as Algebraic systems- *Sublattices, Direct Product, and Homomorphism –Some Special Lattices. Boolean Algebra: Definition and Examples- Subalgebra, Direct Product, and Homomorphism.

Chapter 4(Sections 4.1, 4.2)

Module V**(13 Hours)**

Lattices and Boolean Algebra: Boolean Functions: Boolean Forms and Free Boolean Algebras-*Values of Boolean Expressions and Boolean Functions -Representation and Minimization of Boolean functions: Representation of Boolean functions- Minimization of Boolean functions.(Exclude Quine-McCluskey Algorithm).

Chapter 4(Sections 4.3, 4.4)

Book for study

J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw-Hill Edition- 1997, 38th Reprint 2010.

Course Designed by : M.THAMILSELVI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc., Mathematics (CA)

Semester V

Part III –Core XV- JAVA PROGRAMMING**514D15**

[For students admitted during the academic year 2014-2015 and onwards]

Preamble:**Total : 52 Hours**

Java Programming is an object-oriented programming language. It enable the students to

- develop and deploy the language with ease and confidence
- understand its various concepts which helps in building the program
- know how to use Graphical User Interface and manipulate.

Module I**(10 Hours)**

Classes, Objects and Methods : Introduction-Defining a class-Fields Declaration –Methods Declaration –Creating Objects-Accessing Class Members-Constructors – Methods Overloading-Static Members-Nesting of Methods-Inheritance : Extending a class-Overriding Methods-Final Variables and Methods-Final Classes – Finalizer Methods-Abstract Methods and Classes-Visibility Control. Arrays, Strings and Vectors: Introduction -*One Dimensional Arrays-Creating an Array-Two Dimensional Arrays-Strings –Vectors-Wrapper Classes. Interfaces: Introduction-Defining Interfaces-Extending Interfaces-Implementing Interfaces-Accessing Interface Variables.

Book 1: Chapter 8: (Sections 8.1 – 8.16,8.18)

Chapter 9: (Sections 9.1 – 9.7)

Chapter 10: (Sections 10.1 – 10.5)

Module II**(11 Hours)**

Packages: Putting Classes Together: Introduction – Java API Packages – Using System Packages – Naming Conventions-Creating a Package-Accessing a Package- Using a Package-Adding a Class to a Package-SHiding Classes. Multithreaded Programming: Introduction-Creating Threads –Extending the Thread Class – Stopping and Blocking a Thread – Lifecycle of a Thread-*Using Thread Methods- Thread Exceptions-Thread priority – Synchronization-Implementing the ‘Runnable’ Interface. Managing Errors and Exceptions : Introduction – Types of Errors –Exceptions-Syntax of Exception Handling Code – *Multiple

Catch Statements-Using Finally Statements –Throwing our own Exceptions – Using Exceptions for debugging.

Book 1: Chapter 11: (Sections 11.1 – 11.9), Chapter 12: (Sections 12.1 – 12.10),
Chapter 13: (Sections 13.1 – 13.8)

Module III

(11 Hours)

Applet Programming : Introduction-How Applets differ from Applications- Preparing to Write Applets –Building Applet Code- Applet Life Cycle –*Creating an Executable Applet – Designing aWeb Page- Applet Tag-Adding Applet to HTML File-Running the Applet-More About Applet Tag-Passing Parameters to Applets- Aligning the Display –*More about HTML Tags – Displaying Numerical Values- Getting Input From the User. Graphics Programming: Introduction-The Graphics Class-Lines and Rectangles-Circles and Ellipses-Drawing Arcs-Drawing Polygons- Line Graphs-Using Control Loops in Applets-Drawing Bar Charts. Managing Input/Output Files in JAVA : Introduction – Concept of Streams-Stream Classes-Byte Stream Classes-Character Stream Classes –Using Streams-Other Useful I/O Classes- Using the File Class- Input/Output Exceptions-Creation of Files – Reading/ Writing Characters- Reading/ Writing Bytes-Handling Primitive Data Types-Concatenating and Buffering Files-Random Access Files-Interactive Input and Output-Other Stream Classes.

Book1: Chapter 14: (Sections 14.1 – 14.16),Chapter 15: (Sections 15.1 – 15.9),
Chapter 16: (Sections 16.1 – 16.17)

Module IV

(10 Hours)

Java.awt : Components-Building GUI with java.awt-Buttons-Labels-Check Boxes and Radio Buttons-Choices-Lists-Text Fields and Text Areas-Scrollbars-Canvases- Common Component Methods. Containers and Layout Managers: Organizing Components-Containers-*Layout Managers-Containers-Container Basics-Panels- Frames-Dialogs-Scroll Panes-Layout Managers-Insets-*The Null Layout Manager

Book 2: Chapter 19(pages 326-362) , Chapter 20 (pages 406-429)

Module V

(10 Hours)

Remote Method Invocation: What is Remote Method Invocation-*Creating an Applet Client-Creating a Custom Socket-Using the Activation Model. JDBC : The Java Database Connectivity: JDBC Overview-JDBC Implementation-The Connection Class Metadata Functions – The SQL Exception class-

The SQLWarnings Class. JDBC Explored: Statements-Result Set Processing Retrieving Results-Other JDBC Classes.

Book 2: Chapter 36 (pages 810-828),Chapter 39 (pages 874-894),
Chapter 40 (pages 896-910)

Books for Study

Book 1: E.Balagurusamy - “ Programming with JAVA”-A Primer,Tata McGraw Hill Publishing Company Limited. New Delhi ,Fourth Edition – Third Reprint 2010

Book 2: Joseph L. Weber ,”Using JAVA 2 Platform “,Special Edition-Prentice Hall of India Pvt.Ltd., 1999.

Book for Reference: Patrick Naughton, Herbert Schildt,Java 2 TM – The Complete Reference, Third Edition, Tata McGraw Hill Company Pvt.Limited., New Delhi.

B.Sc. Mathematics (CA)
Semester V
Core Practical IV- JAVA PROGRAMMING **514DP4**
[For students admitted during the academic year 2014-15 and onwards]
Total : 26 Hours

1. Finding the Sum of the series $x + x^2/2! + x^3/3! + \dots$
2. Prime Number Checking.
3. String manipulations using string functions.
4. Implementation of multithreading.
5. Preparing Mark list using Inheritance.
6. Banking Transactions using Inheritance.
7. Drawing polygons using Applets.
8. Using Textboxes, Labels, buttons to display name, address, city, pincode details using button click.
9. Arranging AWT Components in a window using Layout Manager.
10. Counting the number of words, characters, digits, alphabets, Special Characters and white spaces in a file.

Course Designed by : K.KARTHIKA
Course Reviewed by : R.VIDHYA
Course Checked by : A.ANIS FATHIMA

B.Sc., Mathematics / Mathematics (CA)
Semester VI / V
Part III-Elective I - MATHEMATICAL CRYPTOGRAPHY **614ME2 / 514DE1**
[For candidates admitted during the academic year 2014-2015 and onwards]
75 Hours

Preamble

Information security has gained practical importance due to the rapid growth of electronic communication. Cryptography helps us to solve the problems in information security. The syllabus is framed with two main objectives.

- To make the students understand the significance of number theory in Cryptography and theoretical Computer Science.
- To give them the basic knowledge in Cryptography.

Module I **(15 Hours)**

An introduction to Cryptography: Simple substitution ciphers- *Divisibility and greatest common divisors- Modular arithmetic- Prime numbers, unique factorization and finite fields- Powers and primitive roots in finite fields- Symmetric and asymmetric ciphers.

Chapter I (Sections 1.1-1.5,1.7)

Module II **(15 Hours)**

Discrete Logarithms and Diffie Hellman: The birth of public key cryptography- THE discrete logarithm problem- Diffie Hellman key exchange- The Elgamal public key cryptosystem-A collision algorithm for the DLP- *The Chinese remainder theorem- The Pohlig-Hellman algorithm.

Chapter 2(Sections 2.1-2.4, 2.7-2.9))

Module III**(15 Hours)**

Integer factorization and RSA: Euler's formula and roots modulo pq -The RSA public key cryptosystem - Primality testing- Pollard's $p-1$ factorization algorithm. -*Factorization via difference of squares.

Chapter 3(Sections 3.1-3.2, 3.4 -3.6)

Module IV**(15 Hours)**

Integer factorization and RSA:Smooth numbers and sieves - The index calculus and discrete logarithms -Quadratic residues and quadratic reciprocity-*Probabilistic encryption.

Chapter 3(Sections 3.7-3.10)

Module V**(15 Hours)**

Elliptic curves and Cryptography: Elliptic curves-Elliptic curves over finite fields-The Elliptic curve discrete logarithmic problem-Elliptic curve cryptography-*The evolution of public key cryptography-Lenstra's elliptic curve factorization algorithm.

Chapter 5(Sections 5.1-5.4,5.6)

Note: Simple problems only

Book for Study

Jeffrey Hoffstein, Jill Pipher, Joseph H.Silverman, "An introduction to Mathematical Cryptography", Springer Undergraduate texts in mathematics, First Indian reprint 2011.

Course Designed by : R.ANGEL JOY

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester V

Part IV-Skill Based Course Graph Theory III – planar graphs and colouring of graphs**514MS3/514DS3**

(For students admitted during the academic year 2014-15 and onwards)

Total : 38 hours**Module I****(7 Hours)**

Planarity : Planar graphs – Euler's formula

Chapter 11(Sections 11.1,11.2)

Module II**(7Hours)**

Planarity :Cycle Method for Planarity Testing – Kuratowski's Theorem – Duality.

Chapter 11(Sections 11.3-11.5)

Module III**(8 Hours)**

Vertex Colourings and Decompositions: Vertex Colourings – Algorithm for Vertex Colouring – Vertex Decompositions.

Chapter 12(Sections 12.1-12.3)

Module IV**(8 Hours)**

Edge Colourings and Decompositions : Edge Colourings – Algorithm for Edge Colouring – Edge Decompositions.

Chapter 13(Sections 13.1-13.3)

Module V**(8 Hours)**

Case Studies : Four Cubes Problem – Knight's Tour Problem – Gray Codes – Rotating Drum Problem – Ranking in Tournaments – Interval Graphs.

Chapter 2(Section 2.5), Chapter 3(Section 3.4), Chapter 4(Section 4.5), Chapter 5(Section 5.4)

***Proof of the theorems are not included.**

Book for Study:

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Course Designed by : N.JEYANTHI

Course Reviewed by : N.RAJESWARI

Course Checked by : A.R.THILAGAVATHI

B.Sc., Mathematics(CA)**Semester VI****Core XVI -FUZZY MATHEMATICS****614D16****[For students admitted during the academic year 2014-15 and onwards]****Preamble:****Total : 65 hours**

The primary purpose of this paper is

- ❖ to provide the students with the comprehensive coverage of theoretical foundations of fuzzy set theory.
- ❖ to provide a broad overview of the increasingly important applications of fuzzy mathematics in various areas.

Module I**(13 Hours)**

Fuzzy Set Theory : Introduction-Concept of a Fuzzy set-Relations between Fuzzy sets-Operations on Fuzzy sets –Properties of the Standard Operations –*Certain Numbers Associated with a Fuzzy set- Certain Crisp Sets Associated with a Fuzzy set- Certain Fuzzy Sets Associated with a Given Fuzzy set-Extension Principle.

Chapter 6

Module II**(13 Hours)**

Fuzzy Relations: Introduction- Fuzzy Relations- Operations on Fuzzy Relations- α -cuts of a Fuzzy Relation-*Composition of Fuzzy Relations-Projections of Fuzzy Relations-Cylindric Extensions- Cylindric Closure- Fuzzy Relation on a Domain.

Chapter 7

Module III**(13 Hours)**

Fuzzy Logic: Introduction-Three-valued Logics-N-valued Logics for $N \geq 4$ -Infinite-valued Logics-Fuzzy Logics- Fuzzy Propositions and their Interpretations in terms of Fuzzy sets-*Fuzzy Rules and their Interpretations in terms of Fuzzy Relations-Fuzzy inference or Approximate Reasoning-More on Fuzzy inference-Generalizations of Fuzzy Logics.

Chapter 8

Module IV**(13 Hours)**

Fuzzy Methods in Control Theory: Introduction - Introduction to Fuzzy Logic Controller-Fuzzy Expert Systems-Classic control theory vs Fuzzy control –Illustrative Examples-*Working of an FLC through Examples-Details of the Components of FLC-Mathematical Formulation of an FLC.

Chapter 9

Module V**(13 Hours)**

Fuzzy Methods in Decision Making: Introduction - Introduction to Decision Making -

*Introduction to Fuzzy Methods in Decision Making

Chapter 10

Book for Study:

“Introduction to Fuzzy sets and Fuzzy logic”, M.Ganesh, Third print, 2008.

Course Designed by : S.GAYATHRI

Course Reviewed by : A.ANIS FATHIMA

Course Checked by : A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (CA)**Semester VI****Part III – Core XIV/XVII - COMPLEX ANALYSIS****614M14/614D17****[For students admitted during the academic year 2014-15 & onwards]****Preamble:****Total : 65 hours**

- ❖ Complex Analysis is recognized as an essential part of the mathematical background for Engineers, Physicists, Mathematicians and other Scientists.
- ❖ The present course material helps the students to give the student an understanding as concisely as possible, but accurately, the main ideas of complex analysis as well as the main techniques of applying it to problems in mathematics and physics.
- ❖ To study the analytic functions of complex variables which are closely connected in solving Laplace equation, to which numerous problems of mechanics and physics reduce.

Module I**(13 Hours)**

Analytic Functions: Introduction-Functions of a Complex Variable - Limits-Theorems on Limit– Continuous Functions-Differentiability-The Cauchy-Riemann Equations-Analytic Functions – Harmonic Functions - Conformal mapping.

Chapter 2(Sections 2.0-2.9)

Module II**(13 Hours)**

Bilinear transformations: Introduction-Elementary Transformations-Bilinear Transformations-Cross Ratio-Fixed points of Bilinear Transformations-Some special Bilinear Transformations. Power series: Power series.

Chapter 3(Sections 3.0-3.5) Chapter 4(Section 4.3)

Module III**(13 Hours)**

Complex Integration: Introduction-Definite integral-Cauchy's Theorem-Cauchy's Integral Formula – Higher Derivatives.

Chapter 6(Section 6.0-6.4)

Module IV**(13 Hours)**

Series Expansions: Introduction-Taylor's series-Laurent's series-zeros of an Analytic Function – Singularities.

Chapter 7(Section 7.0-7.4)

Module V**(13 Hours)**

Calculus of Residues: Introduction-Residues-Cauchy's Residue Theorem-Evaluation of Definite Integrals.

Chapter 8(Section 8.0-8.3)

Book for study

S.Arumugam, A.Thangapandi Isaac, A.Somasundaram, Complex Analysis, Scitech Publications (India) Pvt ltd, Reprint 2012.

Course Designed by : N.JEYANTHI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (CA)

Semester VI

Part III – Core XV/XVIII—LINEAR ALGEBRA 614M15/614D18

[For students admitted during the academic year 2014-15 and onwards]

Preamble:**Total : 65 Hours**

The prime objectives of this course are:

- To introduce a new algebraic structure, vector space and its concepts like linear dependence, basis, dimension etc., which have wide applications in many branches of mathematics
- To highlight the difference between the vector space and the algebraic structures groups and rings.
- To introduce many types of matrices which are useful for representing problems in an efficient way.
- To infer the relationship between the linear transformation in vector spaces and matrices.

Module I**(13 Hours)**

Vector spaces and Modules: Elementary basic concepts - Linear Independence and basis - *Simple problems.

Book 1: Chapter 4 (Sections 4.1, 4.2)

Module II**(13 Hours)**

Vector spaces and Modules: Dual spaces – Inner product spaces - *Simple problems.

Book 1: Chapter 4 (Sections 4.3, 4.4)

Module III**(13 Hours)**

Linear Transformations: The Algebra of Linear Transformations – Characteristic Roots - *Matrices – Simple problems.

Book 1: Chapter 6 (Sections 6.1 - 6.3)

Module IV**(13 Hours)**

Linear Transformations: Hermitian, Unitary and Normal Transformations - *Simple problems.

Book 1: Chapter 6 (Sections 6.10)

Module V**(13 Hours)**

Matrices: Symmetric and Skew-symmetric matrices - *Hermitian and Skew – Hermitian matrices – Orthogonal and Unitary matrices. Linear Transformations of Vector spaces: Characteristic roots and characteristic vectors of a square matrix.

Book 2: Chapter 1 (Sections 1.7 - 1.9) Chapter 3 (Sections 3.9)

Book for study

Book 1: For Modules I to IV: I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd,

Second Edition, 2007.

Book 2: For Module V : R.Balakrishnan and N.Ramabhadran, A Text book of
Modern Algebra, Vikas Publishing House Pvt Ltd ,
Third Edition, 1979.

Course Designed by : N.JEYANTHI

Course Reviewed by : P.PADMAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics (CA)

Semester VI

**Part III-Elective II-PROGRAMMING WITH ORACLE SQL* PLUS AND MATLAB
PRACTICAL 614DEP**

[For students admitted during the academic year 2014-15 and onwards]

Total hrs: 75 Hours

1. i Creating a table
ii.Inserting values in the table.
iii.Performing select, update and delete operations in the table.
2. Adding fields and inserting necessary values in an existing table.
3. Creating and joining two tables and displaying all the information.
4. Creating a table and displaying the information in ascending/descending order.
5. PL/SQL block to display the details of an employee based on the specified conditions.
6. PL/SQL block for reversing a number-using trigger.
7. PL/SQL block to perform the splitting operation on a table using trigger or cursor.
8. PL/SQL block to print the Fibonacci series.
9. Raising an exception using PL/SQL block to perform specified operations in a table using cursor.
10. PL/SQL block to create a weekly report for employee details.
11. Solving a system of linear Equations.
12. Arithmetic operations on arrays.
13. Drawing 2D and 3D plots.
14. Finding derivatives and integrals of polynomials.
15. Creating a structure for an employee data base containing employee code, name, designation and salary.
16. A function subprogram to calculate the compound interest, given the initial amount, time period of deposit, rate of interest and time of compounding.
17. Program to process the applications for admission to an engineering college and to list the candidates eligible for admission based on the following conditions:
 - i. Marks in Maths ≥ 60
 - ii. Marks in Physics ≥ 55
 - iii. Marks in Chemistry ≥ 55
 - iv. Total marks ≥ 180
18. Creating inset figures.
19. Solving a first order Linear ordinary differential equation with given initial conditions.
20. Solving set of simultaneous linear ordinary differential equations.

Course Designed by : K.KARTHIKA

Course Reviewed by : A.ANIS FATHIMA

Course Checked by : A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics(CA)

Semester VI

Part IV-Skill Based Course IV - MODEL PRESENTATION 614MS4/614DS4

(For students admitted during the academic year 2014-2015 and onwards)

Preamble:

This Course is unique in the sense that it enables the students to understand the theoretical concepts and to apply them to construct Models in their area of study. This course is carried out as group project, thus enabling the student to learn to work as a team.

B.Sc Mathematics (Computer Applications)
Semester wise Distribution with Scheme of Examination
[For students admitted during the academic year 2012-2013 and onwards]

Sem	COURSE	Credit	Duration of Exam (Hrs)ESE	Maximum Marks		
				CIA	ESE	Total
I	Part I: Language I	3	3	25	75	100
	Part II: English I	3	3	25	75	100
	Part III:					
	Core I: Algebra and Calculus	4	3	25	75	100
	Core II: Differential Equations and Laplace Transforms	4	3	25	75	100
	Allied I : PC Software Practical	5	3	40	60	100
II	Part IV: Environmental Studies	2	-	50	-	50
	Part I: Language II	3	3	25	75	100
	Part II: English II	3	3	25	75	100
	Part III :					
	Core III: Analytical Geometry	4	3	25	75	100
	Core IV: Programming in C	3	3	25	75	100
	Core Practical I: Programming in C	1	3	20	30	50
	Allied II: Mathematical Statistics	5	3	25	75	100
	Advanced Learner's Course I: Database Management System	3*	3	-	100	100
III	Part IV: Value Education	2	3	-	50	50
	Part III:					
	Core V: Programming in C++	3	3	15	60	75
	Core VI: Vector Calculus, Trigonometry and Fourier series	4	3	25	75	100
	Core VII: Statics	4	3	25	75	100
	Core Practical II :Programming in C++	2	3	20	30	50
		4	3	15	60	75
	Allied III: Physics I					
	Part IV:					
	Skill Based Course I:Graph Theory I- Introductory Concepts	3	-	100	-	100
		2	-	75	-	75
	Non-Major Elective Course					

Sem	COURSE	Credit	Duration of Exam (Hrs)ESE	Maximum Marks		
				CIA	ESE	Total
IV	Part III:					
	Core VIII: Operations Research	4	3	25	75	100
	Core IX: Numerical Methods	4	3	25	75	100
	Core X: Dynamics	4	3	25	75	100
	Core XI: Visual Basic	3	3	15	60	75
	Core Practical III Visual Basic	1	3	20	30	50
	Allied IV: Physics II	4	3	15	60	75
	Allied IV: Physics Practical	2	3	20	30	50
	Advanced Learner's Course II: Software Engineering	3*	3	-	100	100
	Part IV:					
	Skill Based Course Graph Theory II – Paths and Trees	3	-	100	-	100
	General Awareness	2	-	75	-	75
	Part IV: Extension Activities	1	-	-	-	50
V	Part III:					
	Core XII : Real Analysis	4	3	25	75	100
	Core XIII: Complex Analysis I	4	3	25	75	100
	Core XIV: Abstract Algebra	4	3	25	75	100
	Core XV: Java Programming	4	3	15	60	75
	Core Practical IV: Java Programming	2	3	20	30	50
	Elective I: Mathematical Cryptography	4	3	15	60	75
	Part IV:					
	Skill Based Course Graph theory III – Planar Graphs and Colouring of Graphs	3	3	25	75	100
VI	Part III:					
	Core XVI: Fuzzy Mathematics	4	3	25	75	100
	Core XVII: Complex Analysis II	4	3	25	75	100
	Core XVIII: Linear Algebra	4	3	25	75	100
	Elective II: Programming with Oracle SQL*Plus	4	3	25	75	100
	Elective III: Programming with Oracle SQL*Plus & Matlab Practical	3	3	25	75	100
	Advanced Learner's Course III: Programming with ASP.NET	3*	3	-	100	100
	Project	3	-	-	100	100
	Part IV:					
	Skill Based Course IV: Model Presentation	3	3	40	60	100

Total Credits : 140

Starred credits are treated as additional credits which are optional.

Non-Major Elective Course offered by the department – Web Designing

30% of the syllabus in each course should be taught using OHP, LCD & Seminars.

B.Sc. Mathematics/ Mathematics (C.A)
Semester I
Part III – Core I – ALGEBRA AND CALCULUS 112M01 / 112D01
[For students admitted during the academic year 2012 – 2013 and onwards]

Preamble:

Total : 75 hours

This being the first course of the curriculum, it is framed with the basic subjects Algebra and Calculus.

This provides the students to

- acquire knowledge about the convergence and divergence criteria of the given series.
- get familiar with the applications of Binomial, Exponential and Logarithmic expansion for finding the sum of an infinite series.
- develop skills for solving the algebraic equations.
- acquire knowledge about evolute, involute of the plane curves.
- know the applications of double and triple integrals in finding the areas and volumes.

Module I

(15 Hours)

Convergency and Divergency of series: Definitions and elementary results – Some general theorems concerning infinite series – Series of positive terms – Comparison tests – Convergence and Divergence of series – Cauchy's condensation test – D'Alembert's ratio test – Cauchy's root test - *Raabe's test.

Note : Only Statement of the tests are included.

Book 1: Chapter 2 (Sections 8 – 20)

Module II

(15 Hours)

Binomial Theorem: Binomial Theorem (statement only) – Application of the Binomial Theorem to the summation of series.

Exponential and Logarithmic series: The Exponential Theorem (statement only) – Summation – The Logarithmic series – *Modification of the Logarithmic series – Series which can be summed up by the Logarithmic series.

Book 1: Chapter 3 (Sections 1, 10) Chapter 4 (Sections 2, 3, 5, 6, 7 and 9)

Module III

(15 Hours)

Theory of Equations: Transformation of Equations – Reciprocal Equation – To increase or decrease the roots of a given equation by a given quantity - *Removal of terms - Descartes' rule of signs-Horner's method of finding the roots of the given equation.

Book1: Chapter 6(Sections 15-17, 19, 24, 30)

Module IV

(15 Hours)

Differential Calculus: Envelopes, Curvature of plane curves: Envelopes-Method of finding the envelope - Curvature-Cartesian formula for radius of curvature - The co-ordinates of center of curvature - Evolutes and involutes - *Radius of curvature in polar co-ordinates - p-r equation.

Book2: Chapter 10 (Sections 1.1-1.4, 2.1, 2.3 – 2.8)

Module V

(15 Hours)

Integral Calculus: Multiple integrals: Definition of the double integral-Evaluation of double integral - Double integral in polar co-ordinates-Triple integrals-

*Applications of multiple integrals.

Change of variables: Jacobian- Change of variables in the case of two variables-

Change of variables in the case of three variables -Transformation from Cartesian to polar, spherical polar co-ordinates. Improper integrals: Beta and Gamma functions: Definitions-Convergence of Γ_n -Recurrence formula of Gamma functions-Properties of Beta functions- Relation between Beta and Gamma functions.

Book3: Chapter 5 (Sections 1, 2.1, 2.2, 3.1, 3.2, 4, 5.1)

Chapter 6 (Sections 1.1, 1.2, 2.1 - 2.4)

Chapter 7 (Sections 2.1-2.3, 3, 4, 5)

Books for study:

Book1: For Modules I, II and III: T. K. Manicavachagam pillay, T. Natarajan and K. S. Ganapathy, Algebra Volume I , S.Viswanathan (printers and publishers), Pvt., Ltd., Eleventh Revised Edition, Reprint –2009.

Book 2: For Module IV : S.Narayanan and T.K. Manicavachagam Pillay, Calculus (Major) Volume I, S.Viswanathan (Printers and Publishers), Pvt., Ltd., Eighteenth Edition, 2009.

Book 3: For Module V : S. Narayanan and T. K. Manicavachagam Pillay, Calculus volume II(Integral calculus), S. Viswanathan (Printers and Publishers), Pvt., Ltd., Eighteenth Revised Edition, 2009.

Books for Reference:

1. Burnside and Phanton, Theory of Equations, S. Chand & Co, 1987.
2. Shanthi Narayanan, Differential Calculus, Shayambal Charitable Trust, 1987.
3. Shanthi Narayanan, Integral Calculus, S. Chand & Co, 1987

Course Designed by : Ms.B.KALAISELVI

Course Reviewed by : Ms.P.PADMAVATHI

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester I

Part III – Core II – DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS

112M02 / 112D02

[For students admitted during the academic year 2012 – 2013 and onwards]

Preamble:

Total : 75 hours

This course is introduced in the curriculum since

- Differential equations play an important role in physical system of science, engineering and social sciences
- The Laplace transforms are widely adopted by scientists and engineers as an efficient tool for solving linear differential equations.

The topics included in the course help the students

- To interpret the physical systems in terms of differential equation
- To master the various methods of solving a variety of differential equations

Module I (13 Hours)

Differential Equations: Differential equations of the first order: Equations of the first order, but of higher degree: Equations solvable for dy/dx - Equations solvable for y -Equations solvable for x - Clairaut's form- *Extended form of Clairaut's Equations- Equations that do not contain x explicitly-Equations that do not contain y explicitly-Equations homogeneous in x and y .

Chapter 1 (Sections 5.1-5.5, 6.1, 6.2, 7.1 – 7.3)

Module II (13 Hours)

Linear Differential Equations with constant coefficients: Solving $(d^n y/dx^n) + a_1 (d^{n-1} y/dx^{n-1}) + a_2 (d^{n-2} y/dx^{n-2}) + \dots + a_n y = X$, when X is of the form $e^{ax}V$, V is function of x .- Linear differential equations with variable coefficients-*Equations reducible to the linear homogeneous equations.

Chapter 2 (Sections 4(d), 8, 9)

Module III (13 Hours)

Simultaneous Differential Equations: Simultaneous equations of the first order and first degree- Solutions of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Methods for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$

-Simultaneous linear differential equation with constant coefficients.

Chapter 3 (Sections 1 – 4, 6)

Module IV (13 Hours)

Partial Differential Equations: Derivation of Partial Differential Equations- Different integrals of Partial differential equations (definition only) – Standard types of first order equations - *Lagrange's equation.

Chapter 4 (Sections 1- 3, 5, 6)

Module V (13 Hours)

The Laplace Transforms: Definition-Results from the definition-Laplace transforms of periodic functions – Some general theorems - *Evaluation of certain integrals using Laplace transforms- The inverse Laplace transforms-Solving second order differential equations with constant coefficients using Laplace transforms-Solving systems of differential equations using Laplace transforms.

Chapter 5 (Sections 1 – 9)

Book for study:

S.Narayanan and T.K.Manicavachagom Pillay, Calculus (Major) Volume III,

S.Viswanathan(Printers and Publishers) Pvt.Ltd, 18th edition, 2004.

Course Designed by : Ms.B.KALAISELVI

Course Reviewed by : Ms.N.RAJESWARI

Course checked by : Ms.A.R.THILAGAVATHI

B.Sc. Mathematics (C.A)**Semester I****Part III-Allied Course I -PC Software Practical 112AD1**

[For students admitted during the academic year 2010-11 and onwards]

Total: 75 hours

1. Preparation of a class timetable using MS Word.
2. Preparation of an application with bio-data using Resume Wizard in MS Word (like application for the post of lecturer in a college).
3. Preparation of a chart for student name versus subject marks using MS Word.

4. Preparation of an information letter about the college reopening date to the student using mail merge.
5. Preparation of an information letter to various students about the publication of results using mail merge.
6. Designing an application using Macros in MS Word.
7. To link an excel worksheet into word document by inserting the marks of the students.
8. Preparation of students mark sheet using Excel.
9. Preparation of payroll for employees using Excel.
10. Drawing a chart using Excel with the details of student names and marks of 3 subjects.
11. Designing a presentation for college inaugural functions using MS PowerPoint.
12. To draw an organizational chart with minimum three hierarchical levels using MS PowerPoint.
13. Designing the advertisement campaign using MS PowerPoint.
14. Designing a sports day invitation and prepare slides describing various events in Power Point.
15. Displaying various departments and courses offered in our college using Power Point.
16. Preparation of the teaching slides using Power Point.
17. Creating data entry for product details like receipt, issue, date of purchase using BinCard in MS-Access.
18. Creating a Database for employee details and generate a report for pay slip using MS Access.
19. Creating a database maintaining stock in a shop with field's serial number (Primary Key), Name of Product, Product code, Quantity and Price.
20. Creating a database for customer information and generate a report with the customer names in ascending order.

B.Sc. Mathematics/ Mathematics (CA)

Semester II

Part III – Core III – ANALYTICAL GEOMETRY 212M03/212D03

[For students admitted during the academic year 2012– 2013 and onwards]

Preamble

Total : 75 Hours

The primary objectives of introducing this course in the curriculum is

- to understand the mathematical representation of the geometrical figures
- to give a training for visualizing ideas in two and three dimensions
- to expose the students to apply these concepts in the advanced level subjects like Differential geometry, Mechanics, Fluid mechanics etc.
- to give an indepth knowledge in three dimensional figures to understand graphics concepts.

Module I

(15 hours)

Polar coordinates: Polar coordinates - Relation between polar and rectangular cartesian coordinates- Equation of a straight line- Equation of a circle - *Equation of the chord of a circle-Equation of a conic - Equation of a chord of a conic - Equations of the asymptotes of a hyperbola -Examples.

Book 1: Chapter 9

Module II (15 hours)

Straight Lines: Equations of a straight line-Conditions for various situations of a line-
*Angle between a plane and a line - Projection of a line- Perpendicular drawn to a line-
Shortest distance between two skew lines-Sums.

Book 2: Chapter 4(Sections 4.1 – 4.6, 4.11)

Module III (15 hours)

Sphere: Equation of a sphere-Standard equation of a sphere - Results based on the
properties of a sphere - Tangent plane to a sphere-*Radical plane- Equations of a circle-
Equations $S+\lambda P = 0$ and $S+\lambda S' = 0$ - Sums.

Book 2: Chapter 5

Module IV (15 hours)

Cone, Cylinder And Conicoids: Cone - Equation of a cone-Cone whose vertex is at the
origin –*Quadric cone with vertex at the origin - General quadric cone- Cylinder- Equation
of a cylinder - Sums.

Book 2: Chapter 6(Sections 6.1 – 6.7, 6.13)

Module V (15 hours)

Cone, Cylinder And Conicoids: *Quadric surfaces- Conicoids- Notation- Enveloping cone-
Tangent plane- Sums.

Book 2: Chapter 6(Sections 6.8 – 6.12, 6.13)

Books for study:

Book 1 :For Module I: Analytical Geometry of 2 dimensional, P.Duraipandian, Laxmi
Duraipandian, D.Muhilan, Emerald Publishers, Reprint 1985.

Book 2: For Modules II,III,IV & V:Analytical Geometry of 3 dimensional, P.Duraipandian,
Laxmi Duraipandian, D.Muhilan, Emerald Publishers, Reprint 2006.

Course Designed by : B.KALAISELVI

Course Reviewed by : S.KALAISELVI

Course Checked by : A.R.THILAGAVATHI

B.Sc., Mathematics (C.A)

Semester II

Part III- Core IV- Programming in C

212D04

[For students admitted during the academic year 2012-13 and onwards]

Preamble **Total : 52 hours**

The study of Programming Languages has inevitably become a part and parcel of life. The
programming language C finds a wide variety of applications in the development of software.
This course is designed

- to encourage economy of expression in its application areas.
- to provide the students with all the fundamental concepts of the C language.
- to improve the logical thinking while developing programs for numerical methods.

Module I (11 hours)

Constants, Variables and Data types: Introduction – Character set- C tokens –Keywords and
identifiers – Constants- Variables – Data types – Declaration of variables – Declaration of
storage class-Assigning Values to variables – Defining symbolic constants- Declaring a variable
as constant - Declaring a variable as Volatile.

Operators and Expression: Introduction - *Arithmetic operators – *Relational operators –
*Logical operators – *Assignment Operators – *Increment and decrement

operators – *Conditional operator – Bit wise operators – Special operators – Arithmetic Expressions – Evaluation of expressions – Precedence of Arithmetic Operators – Some computational problems – Type Conversions in Expressions – Operator precedence and associativity – Mathematical functions.

Chapter 2 (Sections 2.1 – 2.13)

Chapter 3 (Sections 3.1 – 3.16)

Module II

(11 hours)

Managing Input and Output Operations: Introduction – Reading a Character – Writing a character – Formatted Input – Formatted Output.

Decision making and branching: Introduction – Decision making with IF statement - *Simple IF statement – *The IF...ELSE statement – Nesting of IF...ELSE statements – The ELSE IF ladder – The switch statement – The ?: operator – The GOTO statement.

Chapter 4 (Sections 4.1 – 4.5)

Chapter 5 (Sections 5.1 – 5.9)

Module III

(11 hours)

Decision making and looping: Introduction - *The WHILE statement - *The DO statement – The FOR statement – Jumps in loops.

Arrays Introduction – One dimensional arrays – Declaration of one dimensional arrays – Initialization of One dimensional arrays - Two dimensional arrays – Initializing two dimensional arrays – Multi-dimensional arrays.

Chapter 6 (Sections 6.1 – 6.5)

Chapter 7 (Sections 7.1 – 7.7)

Module IV

(11 hours)

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – Arithmetic operations on characters – Putting strings together – Comparison of two strings - *String handling functions.

User-Defined functions: Introduction – Need for user defined functions – A multi-function program –Elements of user defined functions- Definition of functions - Return values and their types – Function calls – Function Declaration - Category of functions – No arguments and no return values – Arguments but no return values – Arguments with return values – No arguments but returns a value

– functions that return multiple values - Nesting of functions – Recursion –Passing Arrays to functions - Passing strings to functions – The scope, visibility and lifetime of Variables. Functions that return multiple values - Nesting of functions – Recursion –Passing Arrays to functions - Passing strings to functions – The scope, visibility and lifetime of Variables.

Chapter 8 (Sections 8.1 – 8.8)

Chapter 9 (Sections 9.1 – 9.19)

Module V

(11 hours)

Structures and Unions: Introduction-Defining a Structure – Declaring Structure variables – Accessing Structure members – Structure Initialization Copying and comparing Structure variables – Operations on Individual members – Arrays of Structure –* Arrays within Structure – Structure within Structure – Structures and functions – Unions – size of Structures.

Pointers: Introduction-Understanding Pointers- Accessing the Address of a Variables-

Declaring Pointer Variables-Initialization of Pointer Variables-Accessing a Variables through its Pointer-Chain of Pointers-Pointer Expressions-Pointer Increments and Scale Factor-Pointers and Arrays-Pointers and Character Strings-Array of Pointers-Pointers as Function Arguments-Functions Returning Pointers-Pointers to Functions-Pointers and Structures-Troubles with Pointers.

Chapter 10 (Sections 10.1 – 10.13)

Chapter 11(Sections 11.1 - 11.17)

Book for study:

E.Balagurusamy, Programming in ANSI 'C', Tata McGraw Hill publishing company, Fifth edition, Ninth Reprint 2010.

Book for Reference:

Henry Mullish and Herbert L.Cooper, The spirit of 'C'- An introduction to modern Programming, Jaico publishing house 1996.

Part III- Core Practical I - Programming in C**212DP1**

[For students admitted during the academic year 2012-13 and onwards]

1. Finding Sum, Average, Standard deviation for a given set of numbers.
2. Printing Fibonacci series.
3. Prime Number Checking
4. Finding Roots of a Quadratic Equation.
5. Finding the Product of two matrices of order $m \times n$ and $n \times p$
6. Reading and printing personal information using structures.
7. Finding whether a string is PALINDROME or not.
8. Arranging Strings in alphabetical order.
9. Finding the Factorial of a number using recursion.
10. Counting tabs, number of lines, characters and blank spaces in a file.

Course Designed by : Ms.K.KARTHIKA
 Course Reviewed by : Ms.D.KALPANADEV
 Course Checked by : Ms.A.ANIS FATHIMA

B.Sc. Mathematics/Mathematics (C.A)**Semester IV/II****Part III –Allied Course IV/II-MATHEMATICAL STATISTICS****412AM4 / 212AD2**

[For students admitted during the academic year 2012-2013 and onwards]

Preamble

Mathematical Statistics is widely employed as a highly valuable tool in the analysis of Problems in nature, physical and social sciences. The topics included in the syllabus help the students

- to know about the random variables and their different distributions
- to understand about the characteristics of distributions
- to determine different sampling distributions
- to estimate the population parameters using sample statistics
- to test the hypothesis in order to extend the sample inference to the population.

Module I**(15 Hours)**

Random variables: Function of a random variable - Two dimensional random variable - Definitions - Marginal probability distribution - Conditional probability distribution - Independent random variable. Variance: Tchebechev's inequality. Moments and Moment Generating function: Definition Central Moments in terms of moments about origin – *Moment Generating Function.

Chapter 2(Pages 2.13 - 2.35)

Chapter 4(Pages 4.21 - 4.26)

Chapter 5

Module II**(15 Hours)**

Conditional Expectation: Definition – Theorem.

Correlation: Definition – Theorems – Sample correlation – Rank Correlation – Properties of correlation coefficient.
Chapter 7, Chapter 8(Pages 8.1 -8.48)

Module III (15 Hours)

Normal Distribution - Uniform Distribution -Exponential Distribution - Gamma Distribution - *Beta Distribution.
Chapters 16, 17, 18, 19, 20

Module IV (15 Hours)

Functions of Random Variables – Sampling Distributions – Chi Square, t, F Distributions.
Chapters 21, 22

Module V (15 Hours)

Estimation.
Chapter 23

Book for study

P.R.Vittal, Mathematical Statistics, Margham Publishers, First Edition (2002).

Books for Reference

1. S.C.Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, Sultan Chand & Company, Eleventh Edition, 2002.
2. Robert V.Hogg & Allen T. Craig Introduction to Mathematical Statistics, Fifth Edition, Pearson Education.

Course Designed by : Ms.N.JEYANTHI

Course Reviewed by : Ms.M. THAMILSELVI

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc Mathematics (C.A)

Semester III

Part III - Core V - Programming in C++

312D05

[For students admitted during the academic year 2012-13 and onwards]

Preamble

Total: 65 hours

C++ is a Versatile Object Oriented Programming language suitable for virtually any programming task like development of compilers, databases and communication systems. It has become a necessity to learn this language since it has become a general-purpose language and it is easy, yet powerful to handle large Programs.

This course is offered to empower the software developing skills of the student and to enhance the ability of logical thinking and to solve any complex real life problems with ease using computers.

Module I

(13 Hours)

Principles of Object Oriented Programming: Basic concepts of Object Oriented Programming: Benefits of OOP. Beginning with C++ : Applications of C++- Structure of C++ program *Tokens, Expressions and Control Structures:- Introduction-Tokens – Keywords-Identifiers and Constants - Basic data Types - User-Defined Data Types-Derived data types - Symbolic constants - Type Compatibility -Declaration of variables – Dynamic initialization of Variables - Reference Variables – Operators in C++ - Scope Resolution Operator - Member Dereferencing Operators - Memory Management Operators – Manipulators - Typecast Operator - Expressions and their Types – Special Assignment Expressions - Implicit Conversions – Operator Overloading – Operator Precedence – Control Structures.

Chapter 1: (Section 1.5, 1.6), Chapter 2: (Section 2.2, 2.6),

Chapter 3: (Section 3.1 - 3.6, 3.8-3.25)

Module II

(13 Hours)

Functions in C++: Introduction – The Main Function – Function prototyping – Call by Reference – Return by reference – Inline functions – Default arguments – const Arguments – *Function overloading – Friend and Virtual Functions – Math Library Functions. Classes and Objects: Introduction – C Structures Revisited – Specifying a Class – Defining Member Functions – A C++ Program with Class – Making an Outside Function Inline – *Nesting of Member Functions - Private Member Functions – Arrays within a Class – Memory allocation for Objects – Static Data Members – Static Member Functions – Arrays of Objects – Objects as Function Arguments – Friendly Functions - Returning Objects – const Member functions – Pointers to Members – Local classes.

Chapter 4: (Section 4.1 - 4.12),

Chapter 5: (Section 5.1 – 5.19)

Module III

(13 Hours)

Constructors and Destructors: Introduction - Constructors – Parameterized Constructors – Multiple Constructors in a Class - Constructors with Default Arguments – Dynamic Initialization of Objects – Copy constructor – Dynamic Constructors – *Constructing Two-Dimensional Arrays – const Objects - Destructors. Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading - Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends- Manipulation of Strings Using Operators– Rules for Overloading Operators – Type Conversions.

Chapter 6: (Section 6.1 – 6.11)

Chapter 7: (Section 7.1 – 7.6, 7.8 & 7.9).

Module IV

(13 Hours)

Inheritance: Extending Classes: Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – *Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes : Nesting of Classes. Pointers, Virtual Functions and Polymorphism: Introduction – Pointers- Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual functions.

Chapter 8: (Section 8.1 – 8.12)

Chapter 9: (Section 9.1 - 9.7)

Module V

(13 Hours)

Working with files: Introduction – Classes for File Stream Operations – Opening and Closing a File – Detecting End-of-File – *More about Open()-File modes – File Pointers and their Manipulations - Sequential Input and Output Operations – Updating a File: Random Access – Error handling During File Operations – Command-Line Arguments.

Exception Handling: Introduction-Basics of Exception Handling- Exception Handling Mechanism-Throwing Mechanism – Catching Mechanism- Rethrowing an Exception – Specifying Exceptions.

Chapter 11: (Section 11.1 - 11.10)

Chapter 13: (Section 13.1 – 13.7)

Book for Study

E.Balagurusamy - “Object Oriented Programming with C++”, Tata McGraw Hill Publishing Company Limited. NewDelhi. Fourth Edition, Tenth Reprint 2010.

Course Designed by : Ms.D.KALPANADEV I

Course Reviewed by : Ms.K.KARTHIKA

Course Checked by : Ms.A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (C.A)

Semester III

Part III –Core VI/VII– STATICS 312M06 / 312D07

[For students admitted during the academic year 2012-2013 & onwards]

Preamble

Total : 65 hours

This course dealing with the conditions for lack of motion under given forces is introduced in the curriculum in order

- to provide a strong foundation in understating the concepts of mechanics.
- to know the various aspects of the forces on a particle and on a rigid body.

The topics common catenary, friction and center of mass included in the syllabus help the students

- to understand the mechanism behind the ropes of suspension bridges, telegraph cables etc.
- to know the importance of center of mass in the stability of objects.
- to know how friction is regulating the motion of objects

Module I

(12 Hours)

Force: Newton's laws of motion-Forces – Resultant of two forces on a particle-Resultant of three forces related to a triangle acting at a point- Resultant of several forces acting on a particle.Equilibrium of a particle - Equilibrium of a particle- Equilibrium of a particle under three forces-* Equilibrium of a particle under several forces-Limiting Equilibrium of a particle on an inclined plane.

Chapter 2 (Sections 2.1(2.1.1) – 2.2)

Chapter 3 (Sections 3.1-3.2)

Module II

(12 Hours)

Forces on a rigid body : Moment of a force- Moment of a force about a line-Scalar moment-Equivalent (or equipolent)systems of forces-Parallel forces-Point of application of resultant of many parallel forces-Varignon's theorem-Parallel forces at the vertices of a triangle- *Forces along the sides of a triangle.

Chapter 4: (Sections 4.1, 4.3 - 4.5)

Module III

(12 Hours)

Couples- -*Moment of a couple-Arm and axis of a couple-Resultant of several coplanar forces- Moment of a certain couple as an area-Couples in a parallel planes-Resultant of a couple and a force- Equation of the line of action of the resultant – Sum of the moments about an arbitrary point. Chapter 4: (Sections 4.6-4.8)

Module IV

(12 Hours)

Forces on a rigid body : * Equilibrium of a rigid body under three coplanar forces – Cotangent formulae. A specific reduction of a system of forces: Reduction of coplanar forces into a force and a couple – Conditions of equilibrium under coplanar forces.

Chapter 4: (Sections 4.9)

Chapter 5: (Sections 5.1)

Module V

(12 Hours)

Force : Newton's laws of motion : *Types of forces. A specific reduction of forces : Problems involving frictional forces.

Chapter 2: (Sections 2.1(2.1.2))

Chapter 5: (Sections 5.2)(Excluding Section 5.2.1)

Book for Study

P. Duraipandian, Laxmi Duraipandian, Muthamizh Jayapragasam, Mechanics,
S. Chand & Company Ltd., Reprint 2009.

B.Sc. Mathematics (C.A)

Semester III

Part III- Core Practical II Programming in C++

312DP2

[For students admitted during the academic year 2012-13 and onwards] Total: 52 hours

1. Sorting of numbers(without using functions)
2. Numerical integration using Simpson's $1/3^{\text{rd}}$ Rule.
3. Printing a pyramid using for loop.
4. Solving first order ordinary differential equation using Runge kutta fourth order method.
5. Swapping private data of classes using FRIEND function.
6. Operator overloading using the four arithmetic operators +, -, *, /.
7. Finding the Addition, Subtraction, Multiplication and Division of Complex numbers.
8. Finding the area of TRIANGLE, RECTANGLE using inheritance and virtual function.
9. Payroll processing using multilevel and multiple Inheritances.
10. Overloading add (), subtract (), multiply () to handle different data types using function overloading.
11. Implementing Unary Operator overloading concepts.
12. Illustrating how class objects can be written to and read from the disk files.
13. Defining array of class objects using single inheritance.
14. Create classes book, media and tape, using virtual functions display the details of it.
15. Program to update files.
16. Overloading of strings concatenate and to check whether the strings are equal or not.
17. Preparing mark sheet of students with their details by sorting their names and rank
18. Finding ODD and EVEN numbers from the given set of numbers using command line arguments.
19. Performing arithmetic operations on arrays using pointers.
20. Create a class person with members name, age and use "this pointer" to find the eldest person.

Course Designed by : Ms.K.KARTHIKA

Course Reviewed by : Ms.K.POORNIMA

Course Checked by : Ms.A.ANIS FATHIMA

B.Sc. Mathematics/Mathematics (C.A)

Semester III

Part IV-Skill Based Course Graph Theory I – Introductory Concepts 312MS1/ 312DS1

(For students admitted during the academic year 2012-2013 and onwards)

Total: 38 hours

Module I

(8 Hours)

Graphs: Graphs and Subgraphs – Vertex Degrees – Paths and Cycles.

Chapter 2(Sections 2.1-2.3)

Module II

(8 Hours)

Graphs: Regular and bipartite graphs. Eulerian and Hamiltonian Graphs: Exploring and Travelling.

Chapter 2(Sections 2.4) Chapter 3(Sections 3.1)

Module III (8 Hours)

Eulerian and Hamiltonian Graphs: Eulerian Graphs-Hamiltonian Graphs.
Chapter 3(Sections 3.2, 3.3)

Module IV (7 Hours)

Digraphs: Digraphs and Subdigraphs- Vertex Degrees- Paths and Cycles.
Chapter 4(Sections 4.1-4.3)

Module V (7 Hours)

Matrix Representations: Adjacency Matrices- Walks in graphs and Digraphs-
Incidence Matrices.
Chapter 5(Sections 5.1-5.3)

***Statement of the theorems are only included.**

Book for Study:

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson,
Springer- First Indian Reprint 2007.

Course Designed by : Ms.R.ANGEL JOY

Course Reviewed by : Ms.N.RAJESWARI

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc. Mathematics (C.A)

Semester III

Part IV –Non Major Elective Course I Practical: Web Designing 311NWD

[For students admitted during the academic year 2011-12 and onwards] Total: 26 hours

1. Create an E-mail ID and send a mail to another person at a time.
2. Create a resume using basic tags in HTML.
3. Design a timetable using HTML tags.
4. Write a program using image and list tags.
5. Create a program to Move Items from List Box to Combo box.
6. Create a program of Image Link to another web page.
7. Create a program to display an Advertisement.
8. Create a program to design a college Website.
9. Create a program to Input Information of E-Mail Id.
10. Create a program to Display students result for given Roll number.

Course Designed by : Ms.K.KARTHIKA

Course Reviewed by : Ms.D.KALPANADEV

Course Checked by : Ms.A.ANIS FATHIMA

B.Sc. Mathematics (C.A)

Semester IV

Part III- Core VIII Operations Research 411D08

(For students admitted during the academic year 2011-2012 and onwards)

Preamble

Total: 52 hours

Operations Research seeks the determination of the best course of action of a decision problem under the restriction of limited resources.

The prime objectives for introducing this course are:

- To give practical training in converting a managerial decision making problem to a linear programming problem.
- To gain knowledge on techniques for solving linear programming problem.
- To develop logical reasoning in sequencing in a network to trace the shortest route.
- To develop knowledge in basic techniques to deal with inventory and queueing systems.

Module I

(10 hours)

Linear Programming Problem: Graphical solution: Introduction-*Graphical solution method – Some exceptional cases – General linear programming problem – Canonical and standard forms of L.P.P.

Linear programming: Simplex method: Introduction – Fundamental properties of solutions – The computational procedure – Use of artificial variables

Chapter 3 (Sections 3.1 – 3.5),

Chapter 4 (Sections 4.1 – 4.4)

Module II

(11 hours)

Duality in Linear Programming: Introduction – General Primal – Dual pair – Formulating a dual problem – Primal – Dual pair in matrix form – Duality and Simplex method – Dual Simplex method.

Transportation Problem: Introduction – LP formulation of the transportation problem- - Existence of Solution in T.P. - Duality in transportation problem-The transportation table — Loops in transportation tables – Triangular basis in a T.P – Solution of a transportation problem – Finding an initial basic feasible solution – Test for optimality – Economic interpretation of u_j 's and v_j 's - Degeneracy in transportation problem – Transportation algorithm [MODI method] – Stepping stone solution method – *Some exceptional cases.

Assignment Problem: Introduction – Mathematical formulation of the problem – Solution Methods of Assignment Problem.

Chapter 5 (Sections 5.1- 5.4, 5.7, 5.9), Chapter 10 (Sections 10.1 – 10.15)

Chapter 11 (Sections 11.1 – 11.3)

Module III

(11 hours)

Games and Strategies: Introduction – Two – person zero-sum games – Some basic terms – The Maximin- Minimax principle – Games without saddle points – Mixed strategies – * Graphic solution of $2 \times n$ and $m \times 2$ games.

Network Scheduling by PERT/CPM: Introduction- Network and basic components – Logical sequencing – Rules of network construction – Concurrent activities- Critical path analysis – Probability considerations in PERT -* Distinction between PERT and CPM.

Chapter 17 (Sections 17.1 – 17.6), Chapter 25 (Sections 25.1 -25.8)

Module IV

(10 hours)

Inventory Control: Introduction – Types of Inventories - The Inventory decisions – Costs associated with inventories – Factors affecting inventory control – An Inventory Control Problem- The concept of EOQ - Deterministic inventory problems with no shortages – Deterministic inventory problems with shortages - * EOQ problems with price breaks.

Chapter 19 (Sections 19.1– 19.12)

Module V

(15hours)

Queueing Theory: Introduction – Queueing system – Elements of a queueing systems - * Operating characteristics of queueing system- Deterministic Queueing system- Probability

distributions in queueing systems – Classification of queueing models – Definition of transient and steady states – Poisson queueing systems - * Sample problems

Note: Derivations are excluded.

Chapter 21 (Sections 21.1 – 21.9)

Note: Only Statements of the theorems and algorithms are included.

Book for study

Kanti Swarup, P.K Gupta, Man Mohan, Operations Research, Sultan Chand & Sons, New Delhi, Fourteenth Edition, Reprint 2010.

Course Designed by :Ms.M.MUTHULAKSHMI

Course Reviewed by :Ms.K.POORNIMA

Course Checked by :Ms.A.ANIS FATHIMA

B.Sc. Mathematics (CA)

Semester IV

Part III-Core IX -NUMERICAL METHODS

412D09

(For students admitted during the academic year 2012-13 and onwards)

Preamble:

Total : 65 hours

The study of Numerical Methods has become very important due to the wide spread use of these methods by scientists and engineers. This course is designed in such a way that:

- it develops the problem solving skills of the students .
- it provides confidence and motivation to solve problems with higher degree of complexity.

Module I

(13 Hours)

Solution of algebraic and Transcendental Equations: Introduction – The Bisection method- The method of False position – *The Iteration method – Newton-Raphson method.

Chapter 2 (Sections 2.1 – 2.5)

Module II

(13 Hours)

Interpolation: Finite differences – Forward differences – Backward differences – Central Differences –

Symbolic relations and separation of symbols – Detection of Errors by Use of difference Tables – Differences of a polynomial – Newton's formulae for interpolation – Central difference interpolation formulae - Gauss's central difference formula- -Stirling's formula - *Bessel's formula.

Chapter 3 (Sections 3.3 – 3.6, 3.7, 3.7.1, 3.7.2, 3.7.3)

Module III

(13 Hours)

Numerical differentiation and Integration: Introduction – Numerical Differentiation – Error's in Numerical differentiation – The Cubic Spline Method – Maximum and minimum values of tabulated functions – Numerical integration - Trapezoidal rule-*Simpson's one-third rule-*Simpson's three-eighths rule – Romberg integration.

Chapter 5 (Sections 5.1 – 5.3, 5.4, 5.4.1, 5.4.2, 5.4.3, 5.4.6)

Module IV

(13 Hours)

Matrices and linear systems of equations: Solution of linear systems – Direct methods – Matrix inversion method – Gauss elimination – *Gauss Jordan method – Modification of the Gauss Method to compute the inverse – Number of Arithmetic Operations – LU Decomposition – LU Decomposition from Gauss Elimintaion – Solution of Linear Systems – Iterative methods.

Chapter 6(Sections 6.3, 6.3.1 – 6.3.7, 6.4)

Module V

(13 Hours)

Numerical Solution of ordinary differential equations: Introduction – Solution by Taylor's series – Picard's method of successive approximations – Euler's method – *Error estimates for the Euler method – Modified Euler's method – Runge - kutta methods – Predictor – corrector methods – Adams –Moulton method – Milne's method.

Chapter 7 (Sections 7.1 – 7.6)

Book for study

S.S. Sastry, Introductory Methods of Numerical Analysis, Prentice – hall of India private limited, New Delhi, June 2008.

Course Designed by : Ms.K.POORNIMA

Course Reviewed by : Ms.M.MUTHULAKSHMI

Course Checked by :A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (C.A)

Semester IV

Part III –Core VII/X– Dynamics

412M08 / 412D10

[For students admitted during the academic year 2012-2013 & onwards]

Preamble:

Total: 52 hours

Dynamics is one among the two branches of Mechanics and deals with the study of solid bodies in motion. This course is introduced in the curriculum in order

- to train the students to think about physical phenomena in mathematical terms.
- to have a deep knowledge about the motion of particles under the influence of various forces like gravitational force, central force, impulsive force etc.,
- to provide a good foundation for the students to take up any advanced course in mechanics and all related fields.

Module I

(11 hours)

Kinematics: Basic units- Velocity- Velocity of particle describing a circle-Resultant velocity- Relative velocity--Acceleration-Rectilinear motion - Rectilinear motion with a constant acceleration- Coplanar motion- Velocity and acceleration in a coplanar motion- Angular velocity- *Relative angular velocity.

Chapter 1 (Sections 1.1 - 1.4)

Module II

(10 hours)

Rectilinear motion under varying force: Simple harmonic motion-Projection of a particle having a uniform circular motion - *Composition of two simple harmonic motions of same period –S.H.M along a horizontal line- S.H.M along a vertical line.

Chapter 12 (Sections 12.1 – 12.3)

Module III

(11 hours)

Projectiles: Forces on a projectile – Displacement as a combination of vertical and horizontal displacements-Nature of trajectory – Results pertaining to the motion of a projectile – Maximum horizontal range for a given velocity – Two trajectories with a given speed and range – Projectile projected horizontally – Projectile projected on an inclined plane – *Maximum range on an inclined plane.

Moment of Inertia: Moment of inertia – Perpendicular and parallel axes theorems.

Chapter 13 (Sections 13.1 - 13.2), Chapter 17 (Section 17.1)

Module IV**(10 hours)**

Impact: Impulsive force – Conservation of linear momentum(principle only) –Impact of sphere- Laws of impact- Impact of two smooth spheres - *Direct impact of two smooth spheres – Impact of a smooth sphere on a plane – Direct impact of a smooth sphere on a plane -Oblique impact of a smooth sphere on a plane- Oblique impact of two smooth spheres.

Chapter 14 (Sections 14.1 – 14.5)

Module V**(10 hours)**

Central orbits: General orbits- Central orbit - Differential equation of a central orbit- Laws of a central force – Methods to find the central orbits-Conic as a central orbit-*Kepler's Laws of planetary motion.

Chapter 16 (Sections 16.1-16.3)

Book for Study

P. Duraipandian, Laxmi Duraipandian, Muthamizh Jayapragasam, Mechanics,
S. Chand & Company Ltd., Reprint 2009.

Books for Reference

1. A.V. Dharmapadam, Dynamics, S. Viswanathan Pvt Ltd., 5th edition 1985.
2. S. Narayanan, Dynamics, S. Chand & Company Ltd., 16th revised edition 1986.
3. Dr.M.K. Venkataraman, Dynamics, Agasthiar book deport, 12th edition 2006.

Course Designed by : Ms.M. THAMILSELVI.

Course Reviewed by : Ms.N. RAJESWARI

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc Mathematics (C.A)**Semester IV****Part III - Core XI – Visual Basic****412D11****[For students admitted during the academic year 2012-13 and onwards]****Preamble****Total: 52 hours**

- Visual programming is one of the popular programming language for Windows environment.
- The students can develop their programming skills in Windows Applications through this course.
- Easy yet powerful tool for developing Windows applications in Basic.
- Internet Power and Even more powerful database features.

Module I**(11 hours)**

The Visual Basic Environment and Help System : The SDI(Single Document Interface) Environment-Toolbars-The toolbox and Custom Controls and Components.

First steps in Building the User Interface: The Toolbox-Creating controls-Properties of command buttons-Simple Event Procedures for command buttons-Access keys-Image Controls-*Textboxes-Labels-Navigating between controls-Message Boxes-The Grid.

First steps in Programming : The Code window-Statements in visual-Basic-Variables-Setting properties with code-Data types.

Chapters 2, 4 & 5

Module II**(11 hours)**

First steps in Programming: Working with variables-Input Boxes-More on Strings.

Displaying Information: Displaying Information on a form- The Format function-Picture Boxes-Rich Text Boxes-The Printer Object.

Controlling Program Flow: Determinate Loops-Indeterminate Loops- Making decisions-Select case-Nested If Then's-The Goto
Chapters 5,6 & 7.

Module III (10 hours)

*Built in Functions. -Organizing Information via Controls-Finishing the Interface:The Toolbox Revisited-Common dialog boxes-The Microsoft Windows Common Controls 6.0-*Menus-MDI forms.

Chapters 8,11 & 14.

Module IV (11 hours)

An Introduction to Graphics:Fundamentals of Graphics-The Line and Shape Controls-Lines and Boxes-*Circles ,Ellipses and Pie Charts-Curves.

File System Controls and File System Objects: File System Controls.

Communicating with Other Windows Applications: Overview of COM/OLE-

Using the OLE Client Control at Design time-OLE Automation.

Chapters 16 ,19 & 20

Module V (10 hours)

A Survey of Database development using Visual Basic-Building your own ActiveX controls-Visual Basic and Internet:*VBScript and dynamic HTML.

Chapters 22, 23 & 25.

Book for Study

1.Gary Cornell-"Visual Basic 6.0 From the Ground Up",Tata McGraw-Hill
Publishing Co.Ltd,1999-31st Reprint 2010.

B.Sc Mathematics (C.A)

Semester IV

Core Practical III – Visual Basic

412DP3

[For students admitted during the academic year 2012-13 and onwards] Total: 26 hours

6. Reading temperature in Celcius and print the equivalent in Farenheit and vice versa.
7. Designing a simple calculator to perform the basic arithmetic operations.
8. Displaying Text using standard font formatting options using Common Dialog Boxes.
9. Form Designing i) Railway reservation form .ii) Application Form for PG Admission.
10. Drawing Lines, Circles and Rectangles using Controls and Code.
11. Drawing Lines, Circles and Ellipses using controls.
12. Using modules i)to find NCR value ii)To print all possible combinations of 1,2,3,4,5,6.
13. Encoding and decoding a text using numeric key value.
14. Loading an image file into a picture or image box using Directory, File, and Drive List Boxes.
15. Mark list Creation using MDI form and DBGrid. Include proper validations.

Course Designed by : Ms.K.KARTHIKA
Course Reviewed by : Ms.A.ANIS FATHIMA
Course Checked by : Ms.A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (C.A)

Semester IV

Part IV-Skill Based Course Graph Theory II – PATHS AND TREES 412MS2/ 412DS2

(For students admitted during the academic year 2012-2013 and onwards)

Total: 38 hours

Module I

(8 Hours)

Tree Structures: Mathematical Properties of Trees – Spanning Trees – Rooted Trees .
Chapter 6(Sections 6.1 – 6.3)

Module II

(8 Hours)

Counting Trees: Counting Labelled Trees – Counting Binary Trees.
Chapter 7(Sections 7.1,7.2)

Module III

(8 Hours)

Greedy Algorithms: Minimum Connector Problem – Travelling Salesman Problem.
Chapter 8(Sections 8.1,8.2)

Module IV

(7 Hours)

Path Algorithms: Fleury's Algorithm – Shortest Path Algorithm.
Chapter 9(Sections 9.1,9.2)

Module V

(7Hours)

Paths and Connectivity: Connected Graphs and Digraphs – Menger's Theorem for Graphs-Some analogues of Menger's theorem.
Chapter 10(Sections 10.1-10.3)

*** Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Course Designed by : Ms.R.ANGEL JOY

Course Reviewed by : Ms.N.RAJESWARI

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc., Mathematics (C.A)

Semester V

Part III – Core XII – Real Analysis

512D12

[For students admitted during the academic year 2012-13 and onwards]

Preamble

Total: 65 hours

Mathematical Analysis is an important division of higher Mathematics. This course facilitates the students to

- ❖ be endowed with a transition from elementary calculus to advanced topics in the theory of real variables.
- ❖ study the properties of limit and continuity, which are indispensable to the study of subjects such as optimization theory.
- ❖ know the functional relationships between the variables which have more applications in expressing the laws of physics, chemistry, mechanics etc.,

Module I:

(13 Hours)

The Real and Complex Number Systems: Introduction- Ordered Sets- Fields- The real field-
*The Extended Real Number System. Basic Topology: Finite, Countable and Uncountable Sets-
Metric Spaces.

Chapter 1 (Page Number 1-12) Chapter 2 (Page Number 24-36)

Module II**(13 Hours)**

Basic Topology: Compact sets – Perfect sets – Connected sets
Chapter 2 (Page Number 36-43)

Module III:**(13 Hours)**

Numerical Sequences and Series: Convergent Sequences- Subsequences- Cauchy Sequences – Upper and Lower Limits- Some Special Sequences- Series- Series of Nonnegative Terms- The Number e- The Root and Ratio Tests- Power Series- *Summation by Parts.

Chapter 3 (Page Number 47-71)

Module IV:**(13 Hours)**

Continuity: Limits of Functions- Continuous Functions- Continuity and Compactness- *Continuity and Connectedness- Discontinuities.

Chapter 4 (Page Number 83-95)

Module V:**(13 Hours)**

Differentiation: The Derivative of a Real Function- Mean Value Theorems- The Continuity of Derivatives- L'Hospital's Rule- Derivatives of Higher Order- Taylor's Theorem- *Differentiation of Vector-Valued Functions.

Chapter 5 (Page Number 103-113)

Book for Study:

Walter Rudin, Principles of Mathematical Analysis, , Third Edition,
McGraw Hill International Edition, 1976.

Course Designed by : Ms.A.ANIS FATHIMA

Course Reviewed by : Ms.V.PANKAJAM

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)**Semester V****Part III – Core XI/XIII—ABSTRACT ALGEBRA 512M10/ 512D13**

[For students admitted during the academic year 2012-2013 and onwards]

Total: 65 hours

Preamble

Abstract Algebra enables one to reinterpret the result of classical algebra giving them greater unity and generality. This course has been introduced in the curriculum in order

- ❖ to introduce different algebraic structures like groups, rings and fields
- ❖ To gain deep knowledge in the structure preserving mappings like homomorphism, isomorphism etc...

Module I**(13hours)**

Preliminary Notions: Mappings - *The integers (unique factorization theorem – statement only) Group Theory: Sub groups – Simple problems.

Chapter 1 (sections 1.2, 1.3), Chapter 2: (Section 2.4)

Module II**(13hours)**

Group theory: *A Counting principle – Normal subgroups and quotient groups – Homomorphisms – Simple problems.

Chapter 2 (Sections 2.5 – 2.7)

Module III**(13hours)**

Group theory: Automorphisms – Cayley's theorem - *Permutation groups - Simple problems.

Chapter 2 (Sections 2.8– 2.10)

Module IV (13hours)

Ring Theory: Definitions and examples of rings – Some special cases of rings –

* homomorphisms – Ideals and quotient rings - Simple problems.

Chapter 3(Sections 3.1 – 3.4)

Module V (13hours)

Ring Theory: More ideals and quotient rings – The field of quotients of an integral domain -

*Euclidean rings - Simple problems.

Chapter 3(Sections 3.5 – 3.7)

Book for study:

I.N. Herstein, Topics in Algebra, Second Edition, Wiley Eastern limited, (2007)

Course Designed by : Ms.N.JEYANTHI

Course Reviewed by : Ms.M.THAMILSELVI

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc. Mathematics (C.A)

Semester V

Part III-Core XIV – Discrete Mathematics 512D14

[For students admitted during the academic year 2012-2013 and onwards]

Preamble **Total: 65 hours**

Discrete Mathematics, the study of finite systems is important, as the computer age has advanced. This course facilitates the students

- to develop the ability to perceive , to formulate and to solve mathematical Problems related to finite systems in engineering and computer science.
- to gain confidence in applying the ideas to solve practical problems in the areas like switching theory ,coding theory, artificial intelligence etc.,
- to understand the background necessary for the interpretation of finite mathematical systems.

Module I (13 Hours)

Mathematical logic: Introduction-Statements and Notation. Connectives: Negation

Conjunction– Disjunction – Statement formulas and truth tables – Conditional and

Biconditional – Well-formed Formulas- Tautologies–Equivalence of formulas–

Duality law – Tautological Implications-Formulas with Distinct Truth Tables-

*Functionally Complete Sets of Connectives- Other Connectives.

Chapter 1 (Sections 1.1, 1.2(1.2.1-1.2.4, 1.2.6-1.2.14))

Module II (13 Hours)

Mathematical logic: Normal forms: Disjunctive normal forms – Conjunctive normal forms –

Principal disjunctive normal forms –Principal conjunctive normal forms –Ordering and uniqueness of normal forms. The theory of inference for statement calculus-*Validity using truth tables – Rules of inference – Consistency of premises and indirect method of proof. The

predicate Calculus: Predicates – The statement function, Variables and Quantifiers – Predicate formulas- Free and Bound Variables – The Universe of discourse. Inference theory of the

predicate Calculus:Valid formulas and Equivalences- Some valid formulas over finite universes – Special Valid formulas involving Quantifiers- *Theory of inferences for the predicate calculus

– Formulas involving more than one quantifier.

Chapter1: (Sections 1.3(1.3.1-1.3.5), 1.4(1.4.1-1.4.3), 1.5, 1.6)

Module III**(13 Hours)**

Set theory: Relations and ordering: Partial ordering- Partially ordered set: Representation and Associated Terminology.

Algebraic Structures: Semigroups and monoids: Definitions and Examples-

Homomorphism of semigroups and monoids- *Subsemigroups and submonoids.

Grammars and Languages: Discussion of Grammars- Formal definition of a language. Introduction to computability theory: Introduction: Finite state Acceptors and Regular Grammars.

Chapter2: (Sections 2.3(2.3.8, 2.3.9))

Chapter 3(Sections 3.2, 3.3(3.3.1, 3.3.2)), Chapter 6(Section 6.1)

Module IV**(13 Hours)**

Lattices and Boolean Algebra: Introduction: Lattices as partially ordered sets: Definition and Examples- Some properties of lattices – Lattices as Algebraic systems- *Sublattices, Direct Product, and Homomorphism –Some Special Lattices. Boolean Algebra: Definition and Examples- Subalgebra, Direct Product, and Homomorphism.

Chapter 4(Sections 4.1, 4.2)

Module V**(13 Hours)**

Lattices and Boolean Algebra: Boolean Functions: Boolean Forms and Free Boolean Algebras-*Values of Boolean Expressions and Boolean Functions.

Representation and Minimization of Boolean functions: Representation of Boolean functions- Minimization of Boolean functions.

Chapter 4(Sections 4.3, 4.4)

Book for study

J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with applications to Computer Science, Tata McGraw-Hill Edition- 1997, 36th Reprint 2009.

Course Designed by : Ms.A.ANIS FATHIMA

Course Reviewed by : Ms.K.POORNIMA

Course Checked by : Ms.A.ANIS FATHIMA

B.Sc Mathematics (C.A)

Semester V

Part III –Core XV- JAVA Programming

510D15

[For students admitted during the academic year 2010-11 and onwards]

Preamble**Total: 52 hours**

Java is one of the popular programming languages for developing consumer electronic devices .This is portable, powerful, highly reliable and even easy to use.

- It enables the students to develop Internet Based Applications.
- The Students can develop their programming skills in server side and GUI Applications.

Module I**(10 Hours)**

Classes, Objects and Methods : Introduction-Defining a class-Adding Variables – Adding Methods – Creating Objects-Accessing Class Members-Constructors – Methods Overloading-Static Members-Nesting of Methods-Inheritance : Extending a class-Overriding Methods-Final Variables and Methods-Final Classes – Finalizer Methods-Abstract Methods and Classes-Visibility Control. Arrays, Strings and Vectors-Interfaces: Arrays-*One Dimensional Arrays- Creating an Array-Two Dimensional Arrays-Strings –Vectors-Wrapper Classes. Interfaces:

Multiple Inheritance: Introduction-Defining Interfaces-Extending Interfaces-Implementing Interfaces-Accessing Interface Variables.

Book 1: Chapter 8: (Sections 8.1 – 8.17),

Chapter 9: (Sections 9.1 – 9.7),

Chapter 10: (Sections 10.1 – 10.5)

Module II

(11 Hours)

Packages: Putting Classes Together: Introduction – Java API Packages – Using System Packages – Naming Conventions-Creating a Package-Accessing a Package-Using a Package-Adding a Class to a Package-Hiding Classes. Multithreaded Programming: Introduction-Creating Threads –Extending the Thread Class – Stopping and Blocking a Thread – Lifecycle of a Thread-*Using Thread Methods-Thread Exceptions-Thread priority – Thread Synchronization-Implementing the ‘Runnable’ Interface. Managing Errors and Exceptions : Introduction – Types of Errors – Exceptions-Syntax of Exception Handling Code – *Multiple Catch Statements-Using finally Statement –Throwing our own Exceptions – Using Exceptions for debugging.

Book 1: Chapter 11: (Sections 11.1 – 11.9),

Chapter 12: (Sections 12.1 – 12.10),

Chapter 13: (Sections 13.1 – 13.8)

Module III

(11 Hours)

Applet Programming : Introduction-How Applets differ from Applications-

Preparing to Applets –Building Applet Code- Applet Life Cycle –*Creating an Executable Applet –Designing a Web Page- Applet Tag-Adding Applet to HTML

File-Running the Applet-More About Applet Tag-Passing Parameters to Applets-

Aligning the Display –*More about HTML Tags – Displaying Numerical Values-

Getting Input From the User. Graphics Programming: Introduction-The Graphics

Class-Lines and Rectangles-Circles and Ellipses-Drawing Arcs-Drawing Polygons-

Line Graphs-Using Control Loops in Applets-Drawing Bar Charts. Managing

Input/Output Files in JAVA : Introduction – Concept of Streams- Stream Classes-Byte

Stream Classes-Character Stream Classes –Using Streams-Other Useful I/O Classes-

Using the File Class- Input/Output Exceptions-Creation of Files – Reading/ Writing

Characters- Reading/ Writing Bytes-Handling Primitive Data Types-Concatenating

and Buffering Files-Random Access Files-Interactive Input and Output-Other Stream

Classes.

Book1: Chapter 14: (Sections 14.1 – 14.16),

Chapter 15: (Sections 15.1 – 15.9),

Chapter 16: (Sections 16.1 – 16.17)

Module IV

(10 Hours)

Java.awt : Components-Building GUI with java.awt-Buttons-Labels-CheckBoxes and

Radio Buttons-Choices-Lists-Text Fields and Text Areas-Scrollbars-Canvases-

Common Component Methods. Containers and Layout Managers: Organizing

Components-Containers-*Layout Managers-Containers-Container Basics-Panels-

Frames-Dialogs-Scroll Panes-Layout Managers-Insets-*The Null Layout Manager

Book 2: Chapter 19(pages 326-329, 330-362) , Chapter 20 (pages 406-429)

Module V

(10 Hours)

Remote Method Invocation: What is Remote Method Invocation-*Creating an Applet

Client-Creating a Custom Socket-Using the Activation Model.JDBC : The Java

Database Connectivity:JDBC Overview-JDBC Implementation-The Connection

Class Metadata Functions – The SQL Exception class-The SQLWarnings Class.

Book 2: Chapter 36 (pages 810-828), Chapter 39 (pages 874-894)

Books for Study

Book 1: E.Balagurusamy - “ Programming with JAVA”-A Primer,Tata McGraw Hill Publishing Company Limited. New Delhi ,Fourth Edition – Third Reprint 2010

Book 2: Joseph L. Weber ,”Using JAVA 2 Platform “,Special Edition-Prentice Hall of India Pvt.Ltd., 1999.

B.Sc Mathematics (C.A)

Semester V

Core Practical I- Java Programming

510DP4

[For students admitted during the academic year 2010-11 and onwards]

1. Finding the Sum of the series $x + x^2/2! + x^3/3! + \dots$
2. Prime Number Checking.
3. String manipulations using string functions.
4. Implementation of multithreading.
5. Preparing Mark list using Inheritance.
6. Banking Transactions using Inheritance.
7. Drawing polygons using Applets.
8. Using Textboxes, Labels, buttons to display name, address, city,pincode details using button click.
9. Arranging AWT Components in a window using Layout Manager.
- 10.Counting the number of words,characters,digits,alphabets,Special Characters and white spaces in a file.

Course Designed by : Ms.K.KARTHIKA

Course Reviewed by : Ms.K.POORNIMA

Course Checked by : Ms.A.ANIS FATHIMA

Mathematics (CA)

Semester V

Part III-Elective I - MATHEMATICAL CRYPTOGRAPHY 510DE1

[For candidates admitted during the academic year 2010-2011 and onwards]

Preamble

Total: 75 Hours

Information security has gained practical importance due to the rapid growth of electronic communication. Cryptography helps us to solve the problems in information security. The syllabus is framed with two main objectives.

- To make the students understand the significance of number theory in Cryptography and theoretical Computer Science.
- To give them the basic knowledge in Cryptography.

Module I

(15 Hours)

Some topics in elementary Number Theory: Time estimates for doing arithmetic Divisibility and the Euclidean Algorithm – Congruences – *Some applications to factoring.
Chapter 1 (Sections 1 – 4)

Module II

(15 Hours)

Cryptography: Some simple crypto Systems - *Enciphering Matrices.
Chapter III (Sections 1, 2)

Module III (15 Hours)

Public Key: The idea of Public key Cryptography - *RSA – Discrete Log.

Chapter IV (Sections 1 – 3)

Module IV (15 Hours)

Public Key: Knapsack – Zero Knowledge protocols and oblivious transfer. Primality and factoring: Pseudo primes - *The rho method.

Chapter IV(Sections 4, 5) Chapter V(Sections 1,2)

Module V (15 Hours)

Primality and factoring: Fermat factorization and factors bases – The Continued fraction method – The quadratic Sieve method.

Chapter V(Section 3 – 5)

Note: Simple problems only

Book for Study

Neal Koblitz. “A Course in Number Theory and Cryptography” – Graduate texts in Mathematics springer – Second Edition, 2002 – Reprint.

Course Designed by : Ms.S.KALAISELVI

Course Reviewed by : Ms.N.Rajeswari

Course Checked by : Ms. A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester V

Part IV-Skill Based Course Graph Theory III – PLANAR GRAPHS AND COLOURING OF GRAPHS 512MS3/ 512DS3

(For students admitted during the academic year 2012-2013 and onwards)

Module I (7 Hours)

Planarity : Planar graphs – Euler’s formula

Chapter 11(Sections 11.1,11.2)

Module II (9Hours)

Planarity :Cycle Method for Planarity Testing – Kuratowski’s Theorem – Duality.

Chapter 11(Sections 11.3-11.5)

Module III (9 Hours)

Vertex Colourings and Decompositions: Vertex Colourings – Algorithm for Vertex Colouring – Vertex Decompositions.

Chapter 12(Sections 12.1-12.3)

Module IV (9 Hours)

Edge Colourings and Decompositions : Edge Colourings – Algorithm for Edge Colouring – Edge Decompositions.

Chapter 13(Sections 13.1-13.3)

Module V (9 Hours)

Case Studies : Four Cubes Problem – Knight’s Tour Problem – Gray Codes – Rotating Drum Problem – Ranking in Tournaments – Interval Graphs.

Chapter 2(Section 2.5), Chapter 3(Section 3.4), Chapter 4(Section 4.5),

Chapter 5(Section 5.4)

***Proof of the theorems are not included.**

Book for Study

Graphs And Applications- An Introductory Approach, Joan M.Aldous and Robin J.Wilson, Springer- First Indian Reprint 2007.

Course Designed by : Ms.R.ANGEL JOY

Course Reviewed by : Ms.N.RAJESWARI

Course Checked by : Ms.A.R.THILAGAVATHI

B.Sc Mathematics(CA)

Semester VI

Core XVI -FUZZY MATHEMATICS

[For students admitted during the academic year 2012-13 and onwards]

Preamble

Total: 65 hours

The primary purpose of this paper is

- ❖ to provide the students with the comprehensive coverage of theoretical foundations of fuzzy set theory.
- ❖ to provide a broad overview of the increasingly important applications of fuzzy mathematics in various areas.

Module I

(13 Hours)

Fuzzy Set Theory : Introduction-Concept of a Fuzzy set-Relations between Fuzzy sets- Operations on Fuzzy sets –Properties of the Standard Operations –*Certain Numbers Associated with a Fuzzy set- Certain Crisp Sets Associated with a Fuzzy set- Certain Fuzzy Sets Associated with a Given Fuzzy set-Extension Principle

Chapter 6

Module II

(13 Hours)

Fuzzy Relations: Introduction- Fuzzy Relations- Operations on Fuzzy Relations- α -cuts of a Fuzzy Relation-*Composition of Fuzzy Relations-Projections of Fuzzy Relations-Cylindric Extensions- Cylindric Closure- Fuzzy Relation on a Domain

Chapter 7

Module III

(13 Hours)

Fuzzy Logic: Introduction-Three-valued Logics-N-valued Logics for $N \geq 4$ -Infinite-valued Logics-Fuzzy Logics- Fuzzy Propositions and their Interpretations in terms of Fuzzy sets-*Fuzzy Rules and their Interpretations in terms of Fuzzy Relations-Fuzzy inference or Approximate Reasoning-More on Fuzzy inference-Generalizations of Fuzzy Logics

Chapter 8

Module IV

(13 Hours)

Fuzzy Methods in Control Theory:Introduction - Introduction to Fuzzy Logic Controller-Fuzzy Expert Systems-Classic control theory vs Fuzzy control –Illustrative Examples-*Working of an FLC through Examples-Details of the Components of FLC-Mathematical Formulation of an FLC

Chapter 9

Module V

(13 Hours)

Fuzzy Methods in Decision Making:Introduction - Introduction to Decision Making - *Introduction to Fuzzy Methods in Decision Making

Chapter 10

Book for Study

Introduction to Fuzzy sets and Fuzzy logic, M.Ganesh, Third print, 2008.

Course Designed by : Ms.W.A.SUJATHA

Course Reviewed by : Ms.K.POORNIMA

Course Checked by : Ms.A.ANIS FATHIMA

B.Sc. Mathematics/ Mathematics (CA)

Semester VI

Part III – Core XIV/XVII - COMPLEX ANALYSIS 612M14/612D17

[For students admitted during the academic year 2012-13 & onwards]

Preamble:

Total : 65 hours

- ❖ Complex Analysis is recognized as an essential part of the mathematical background for Engineers, Physicists, Mathematicians and other Scientists.
- ❖ The present course material helps the students to give the student an understanding as concisely as possible, but accurately, the main ideas of complex analysis as well as the main techniques of applying it to problems in mathematics and physics.
- ❖ To study the analytic functions of complex variables which are closely connected in solving Laplace equation, to which numerous problems of mechanics and physics reduce.

Module I

(13 Hours)

Analytic Functions: Introduction-Functions of a Complex Variable - Limits-Theorems on Limit – Continuous Functions-Differentiability-The Cauchy-Riemann Equations-Analytic Functions – Harmonic Functions - Conformal mapping.

Chapter 2(Sections 2.0-2.9)

Module II

(13 Hours)

Bilinear transformations: Introduction-Elementary Transformations-Bilinear Transformations-Cross Ratio-Fixed points of Bilinear Transformations-Some special Bilinear Transformations. Power series: Power series.

Chapter 3(Sections 3.0-3.5) Chapter 4(Section 4.3)

Module III

(13 Hours)

Complex Integration: Introduction-Definite integral-Cauchy's Theorem-Cauchy's Integral Formula – Higher Derivatives.

Chapter 6(Section 6.0-6.4)

Module IV

(13 Hours)

Series Expansions: Introduction-Taylor's series-Laurent's series-zeros of an Analytic Function – Singularities.

Chapter 7(Section 7.0-7.4)

Module V

(13 Hours)

Calculus of Residues: Introduction-Residues-Cauchy's Residue Theorem-Evaluation of Definite Integrals.

Chapter 8(Section 8.0-8.3)

Book for study

S.Arumugam, A.Thangapandi Isaac, A.Somasundaram, Complex Analysis, Scitech Publications (India) Pvt Ltd, Reprint 2012.

Course Designed by : N.JEYANTHI

Course Reviewed by : A.R.THILAGAVATHI

Course Checked by : A.R.THILAGAVATHI

B.Sc. Mathematics/ Mathematics (C.A)

Semester VI

Part III – Core XV/XVIII—LINEAR ALGEBRA 612M15/612D18

[For students admitted during the academic year 2012-2013 and onwards]

Preamble

Total: 65 hours

The prime objectives of this course are

- To introduce a new algebraic structure, vector space and its concepts like linear dependence, basis, dimension etc., which have wide applications in many branches of mathematics
- To highlight the difference between the vector space and the algebraic structures groups and rings.
- To introduce many types of matrices which are useful for representing problems in an efficient way.
- To infer the relationship between the linear transformation in vector spaces and matrices.

Module I

(13 hours)

Vector spaces and Modules: Elementary basic concepts – Linear Independence and basis - * Simple problems.

Book 2: Chapter 4 (Sections 4.1, 4.2)

Module II

(13 hours)

Vector spaces and Modules: Dual spaces – Inner product spaces - *Simple problems.

Book 2: Chapter 4 (Sections 4.3, 4.4)

Module III

(13 hours)

Linear Transformations: The Algebra of Linear Transformations – Characteristic Roots - *Matrices – Simple problems.

Book 2: Chapter 6 (Sections 6.1 to 6.3)

Module IV

(13 hours)

Linear Transformations: Hermitian, Unitary and Normal Transformations - *Simple problems.

Book 2: Chapter 6 (Sections 6.10)

Module V

(13 hours)

Matrices: Symmetric and Skew-symmetric matrices - *Hermitian and Skew – Hermitian matrices – Orthogonal and Unitary matrices. Linear Transformations of vector spaces: Characteristic roots and characteristic vectors of a square matrix.

Book 1: Chapter 1 (Sections 1.7 to 1.9) Chapter 3 (Sections 3.9)

Book for study

Book 1: For Modules I to IV: I.N. Herstein, Topics in Algebra, Wiley Eastern

Book 2: For Module V : R.Balakrishnan and N.Ramabhadran, A Text book of Modern Algebra, Vikas Publishing House Pvt Ltd , Third Edition, 1979.

Course Designed by : Ms.N.JEYANTHI

Course Reviewed by : Ms.M.THAMILSELVI

Course Checked by : Ms.A.R.THILAGAVATHI

BSc.,Mathematics (C.A)

Semester VI

Part III-Elective II-Programming with Oracle SQL* plus 612DE2

[For students admitted during the academic year 2012-13 and onwards]

Preamble

Total: 52 hours

Oracle is a most popularly used backend tool for managing Relational Database System.

- ❖ It enables the student to Study about how data is structured and stored.
- ❖ Provides higher Data Security Measures.
- ❖ Provides Automatic Backup and Recovery facilities for data.

Module: I

(11 hours)

What is Database?-What is Database Management System?-What is Relational Database Management System?- Introduction to Oracle-Software Development Tools of Oracle-Introduction to Structured Query Language-Interactive SQL Part-I: Table Fundamentals-The Create Table Command-Viewing Data in the Tables-Eliminating Duplicate Rows When Using a Select Statement-Sorting Data in a Table-Inserting Data into a Table from Another Table-Delete Operations-Updating the Contents of a table-Modifying The Structure of Tables-Destroying Tables.

Chapters 1 and 7

Module: II

(10 hours)

Data Constraints-Types of Data Constraints-Interactive SQL Part III: Computations done on table data-Arithmetic Operations-Renaming columns used with Expression Lists-Logical Operators-Range Searching-Pattern Matching-Oracle Functions-Date Conversion Functions-Date Functions.

Chapter 8 and 9

Module: III

(10 hours)

Interactive SQL Part-IV: Grouping data from Tables in SQL-Sub queries-Joins-Using Union, Intersect and Minus Clause-Indexes-Multiple Indexes on a Table-Views-Sequences.

Chapters 10 and 11

Module: IV

(10 hours)

Security Management Using SQL: Granting and Revoking Permissions-Revoking Privileges Given-Introduction to PL/SQL:Advantages of PL/SQL-The Generic PL/SQL block-The PL/SQL Execution Environment-PL/SQL-PL/SQL Transactions: Oracle Transactions.

Chapters 15 and 16

Module: V

(11 hours)

What is Cursor?-Cursor For Loops-Parameterized Cursors-Error Handling in PL/SQL-Oracle 's Named Exception Handlers-PL/SQL Database Objects: What are Procedures/Functions?-Where do Stored Procedures and Functions Reside?- Advantages of using a Procedure or Function-Procedures versus Functions-Database Triggers-Types of Triggers-Deleting a Trigger.

Chapter 16, 17 and 18

Book for study:

Ivan Bayross-"SQL,PL/SQL The Programming Language of Oracle",3rd Revised Edition,BPB Publications,First Edition 2005,Reprinted 2009.

Course Designed by : Ms.K.KARTHIKA
Course Reviewed by : Ms.A.ANIS FATHIMA
Course Checked by : Ms.A.ANIS FATHIMA

B.Sc. Mathematics (C.A)

Semester VI

Part III-Elective Course III-Programming with Oracle SQL* plus and MATLAB Practical
[For students admitted during the academic year 2012-13 and onwards] 612DEP

Total hrs: 52 hours

1. i Creating a table
 - ii.Inserting values in the table.
 - iii.Performing select, update and delete operations in the table.
2. Adding fields and inserting necessary values in an existing table.
3. Creating and joining two tables and displaying all the information.
4. Creating a table and displaying the information in ascending/descending order.
5. PL/SQL block to display the details of an employee based on the specified conditions.
6. PL/SQL block for reversing a number-using trigger.
7. PL/SQL block to perform the splitting operation on a table using trigger or cursor.
8. PL/SQL block to print the Fibonacci series.
9. Raising an exception using PL/SQL block to perform specified operations in a table using cursor.
10. PL/SQL block to create a weekly report for employee details.
11. Solving a system of linear Equations.
12. Arithmetic operations on arrays.
13. Drawing 2D and 3D plots.
14. Finding derivatives and integrals of polynomials.
15. Creating a structure for an employee data base containing employee code, name, designation and salary.
16. A function subprogram to calculate the compound interest, given the initial amount, time period of deposit, rate of interest and time of compounding.
17. Program to process the applications for admission to an engineering college and to list the candidates eligible for admission based on the following conditions:
 - i. Marks in Maths ≥ 60
 - ii. Marks in Physics ≥ 55
 - iii. Marks in Chemistry ≥ 55
 - iv. Total marks ≥ 180
18. Creating inset figures.
19. Solving a first order Linear ordinary differential equation with given initial conditions.
20. Solving set of simultaneous linear ordinary differential equations.

Course Designed by : Ms.K.KARTHIKA

Course Reviewed by : Ms.K.POORNIMA

Course Checked by : Ms.A.ANIS FATHIMA