DEPARTMENT OF COMPUTER APPLICATIONS

EMPLOYABILITY/ENTREPRENEURSHIP/ SKILL DEVELOPMENT COURSES

(For the students admitted during the academic year 2017 – 2018 and onwards)

Course: Part III - Core IV Programming in Java	**Course Code: 317K04**
Semester: III	**No. of Credits: 4**
No. of hours : 60	**C:T:S - 52:6:2**
CIA Max. Marks: 25	**ESE Max. Marks:75**

(C: Contact hours, T: Tutorial, S: Seminar)

Syllabus:

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.

Course: Part III - Core Practical III Programming in Java	Course Code: 317KP3
Semester: III	No. of Credits: 4
No. of hours :75	P: T: R - 65:5:5
CIA Max. Marks: 40	ESE Max. Marks:60

(P: Practical, T: Tutorial, R: Record work)

Syllabus:

List of Programs

1. Program to implement the concept of Decision making and branching.
2. Program to implement the Constructor.
3. Program using Multithreading.
4. Preparation of Mark list using Inheritance.
5. Program using Exception handling.
6. Program to implement packages using Employee payroll.
7. Usage of Vector class.
8. Generating advertisements using Applets.
9. Program for simple calculator using Applet.
10. Program to draw any cartoon using Graphics.
11. Program to implement interfaces.
12. Program to perform various Mouse Events using Applets
13. Working with Panel and Layout.
14. Program to display personal information using Swings.
15. Program to sort list of names using RMI.

Course: Part IV – Non Major Elective: Basics of Internet	Course Code: 317NFM
Semester: III	No. of Credits: 2
No. of hours :30	P:T:R -25:3:2
CIA Max. Marks: 50	

(P: Practical, T: Tutorial, R: Record work)

Syllabus:

List of Programs

1. Create an Email-ID.
2. Send and Receive mail by attaching the document with Cc and Bcc Options.
3. Search a journal through search engines.
4. Download Social Awareness Videos from You-Tube.
5. Upload your Curriculum vitae in any Job Portals.
6. Purchase any products through Online Shopping.
7. Create a Group Mail ID.
8. Convert Word Document to PDF using Convertor.
9. Convert any Video to MP3 Format.
10. Book a ticket through Online Reservation.
11. Create an own Design of your BlogSpot.
12. Store any type of documents in Google Drive.

Course: Part IV - Skill Enhancement Course I: Interactive Media – Surfing Techniques	Course Code: 317KS1
Semester: III	No. of Credits: 3
No. of hours :45	P:T:R - 38:5:2
CIA Max. Marks: 75	

(P: Practical, T: Tutorial, R: Record work)

Syllabus:

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. Booking travel tickets.
11. To Register and study any course in Online Educational website.
12. To store a documents using Google drive.

Course: Part III - Core VIII Relational Database Management System	Course Code: 417K08
Semester: IV	No. of Credits: 4
No. of hours :60	C:T:S -52:5:3
CIA Max. Marks: 25	ESE Max. Marks:75

(C: Contact hours, T: Tutorial, S: Seminar)

Syllabus:

Unit I: 11 Hrs

Introduction: Database-System Applications - Purpose of Database Systems - View of Data - Database Languages - Relational Databases - Database Design - Data Storage and Querying – Transaction Management - Database Architecture – Data Mining and Information Retrieval - Database Users and Administrators - History of Database Systems.

Introduction to the Relational Model: Structure of Relational Databases – Database Schema – Keys – Relational Query Languages – Relational Operations.

Unit II: 11 Hrs

Introduction to SQL: Overview of the SQL Query Language – SQL Data Definition – Basic Structure of SQL Queries – Set Operations – Null Values – Aggregate Functions – Nested Sub Queries.

Unit III: **10 Hrs**

Intermediate SQL: Join Expressions – Views – Transactions – Integrity Constraints – SQL Data Types and Schemas – Authorization.

Advanced SQL: Accessing SQL From a Programming Language – Functions and Procedures – Triggers.

Formal Relational Query Languages: The Relational Algebra – The Tuple Relational Calculus – The Domain Relational Calculus.

Unit IV: **10 Hrs**

Database Design and the E-R Model: Overview of the Design Process – The Entity-Relationship Model – Constraints – Removing Redundant Attributes in Entity Sets - Entity-Relationship Diagrams – Reduction to Relational Schemas - Entity-Relationship Design Issues – Extended E-R Features.

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 – Modeling Temporal Data.

Course: Part III - Core IX Software Engineering and Testing	**Course Code: 417K09**
Semester: IV	**No. of Credits: 3**
No. of hours :75	**C:T:S - 65:5:5**
CIA Max. Marks: 25	**ESE Max. Marks:50**

(C: Contact hours, T: Tutorial, S: Seminar)

Syllabus:

Unit I: **13 Hrs**

Software Processes: Process and Project – Component Software Processes – Software Development Process Models – Project Management Process.

Software Requirements Analysis and Specification: Value of a Good SRS – Requirement Process – Requirement Specification – Functional Specification with Use Cases – Other Approaches for Analysis – Validation.

Unit II: **13 Hrs**

Software Architecture: Role of Software Architecture – Architecture Views – Component and Connector View.

Planning a Software Project: Effort Estimation – Project Schedule and Staffing – Quality Planning – Risk Management Planning – Project Monitoring Plan – Detailed Scheduling.

Unit III: **13 Hrs**

Design: Design Concepts – Function-Oriented Design – Object-Oriented Design – Detailed Design – Verification – Metrics.

Unit IV: **13 Hrs**

Coding and Unit Testing: Programming Principles and Guidelines – Incrementally Developing Code – Managing Evolving Code – Unit Testing – Code Inspection – Metrics.

Unit V: **13 Hrs**

Testing: Testing Concepts – Testing Process – Black Box Testing – White Box Testing – Metrics.

Course: Part III - Core Practical IV Visual Programming and RDBMS	**Course Code: 417KP4**
Semester: IV	**No. of Credits: 4**
No. of hours: 90	**P:T:R -75:10:5**
CIA Max. Marks: 40	**ESE Max. Marks:60**

(P: Practical, T: Tutorial, R: Record work)

Syllabus:

List of Programs

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 Function.
6. a) Design a Form to display an Advertisement Banner using Image box Control with String Function.
   b) Write a Program to Move a Picture in a Mouse Move.
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 Sales Details of Sales Person & generate weekly & monthly report of Sales details for Individual Sales person (using DAO control).
9. Write a Program to develop an application using OLE Link Control.
10. Write a Program for Text Editor using Common Dialog Control to display the Font, Save & Open dialog box without using the Action control property.

RDBMS Programming

1. Using DDL Commands

- To create a table
- To alter a table
- To drop a table
- To create a view
- To drop a view

2. Using DML Commands

- To insert, delete and update rows into a table
- To write a simple queries using SELECT
- To write queries using SELECT and WHERE clause

- To write queries using Logical operators
- To write queries using NULL
- To write queries using order by clause
- To write queries using Distinct clause
- To write queries using Aggregate Functions
- To write queries using Group by Clause
- To write queries using String Function
- To write queries using Date Function
- To write queries using Sub queries
- To write queries using Joins

3. Using DCL and TCL

- To write query using Grant and Revoke statement.
- To write query using Rollback and Commit statement.

Course: Part IV - Skill Enhancement Course II: Interactive Media – Web Designing	**Course Code: 417KS2**
Semester: IV	**No. of Credits: 3**
No. of hours :45	**P:T:R - 38:5:2**
CIA Max. Marks: 75	

(P: Practical, T: Tutorial, R: Record work)

Syllabus:

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 been entered with data else display an alert.

Course: Advanced Learners Course I Cloud Computing	Course Code: 417ALK
Semester: IV	No. of Credits: 4
ESE Max. Marks:100	

Syllabus:

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

Course: Part III – Core X VB.Net	Course Code:517K10
Semester: V	No. of Credits: 4
No. of hours :75	C:T - 65:10
CIA Max. Marks: 25	ESE Max. Marks:75

(C: Contact hours, T: Tutorial)

Syllabus:

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, Languages in .NET, Visual Studio.Net – 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.

Data Types and Operators: Data Types – Declaration of Variables – Constant - Operators – Arithmetic Operators – Concatenation Operators – Relational Operators – Compound Assignment Operator – Logical Operators – Bitwise Operators – Scope of variables.

Unit II: **13 Hrs**

Control Statements: If Statement – 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 – Timer- Picture Box- Link Label - Arrays.

Unit III: **13 Hrs**

Procedures and Structures – Creating Menus and using Dialog boxes.

Unit IV: **13 Hrs**

Events, Delegates and Exception Handling – Data Access with ADO.Net

Unit V: **13 Hrs**

Library Functions – Advanced Controls and Making Reports in VB.NET

Course: Part III – Core XI Data Communication Network	Course Code: 517K11
Semester: V	No. of Credits: 4
No. of hours :75	C:T:S - 65:5:5
CIA Max. Marks: 25	ESE Max. Marks:75

(C: Contact hours, T: Tutorial, S: Seminar)

Syllabus:

Unit I: 13 Hrs

Data Communication, Data Network, and the Internet: Data Communication and Networking for Today's Enterprise - A Communications Model - Data Communications –Networks - The Internet.

Protocol Architecture, TCP/IP, and Internet-Based Applications: The Simple Protocol Architecture-The TCP/IP Protocol Architecture-Standardization within a Protocol Architecture-Multimedia. Data Transmission: Concept and Terminology-Analog and Digital Data Transmission- Transmission Impairments.

Unit II: 13 Hrs

Signal Encoding Techniques: Digital Data, Digital Signals-Digital Data, Analog Signals- Analog Data, Digital Signals-Analog Data, Analog Signals.

Digital Data Communication Techniques: Types of Errors-Error Detection-Error Correction-Line Configurations. Data Link Control Protocols: Flow Control-Error Control.

Unit III: 13 Hrs

Multiplexing: Frequency Division Multiplexing-Synchronous Time Division Multiplexing. Circuit Switching and Packet Switching: Switched Communications Networks-Circuit-Switching Networks- Circuit-Switching Concepts-Softswitch Architecture- Packet-Switching Principles.

Routing in Switched Data Networks: Routing In Packet-Switching Networks-Examples: Routing In ARPANET.

Unit IV: 13 Hrs

Local Area Network Overview: Topologies and Transmission Media-LAN Protocol Architecture-Bridges-Hub and Switches-Virtual LANs.

Wireless LANs: Overview-Wireless LAN Technology. Internet Protocols: Principles of Internetworking-Internet Protocol Operation-Internet Protocol-Virtual Private Networks and IPSecurity.

Unit V: 13 Hrs

Internetwork Operation: Multicasting-Routing Protocols-Mobile IP.Computer and Network Security Techniques: Virtual Private Networks and IPsec- Wi-Fi Protected Access-Intrusion Detection – Firewalls-Malware Defense.

Course: Part III - Core XII Data Mining and Warehousing	Course Code: 517K12
Semester: V	No. of Credits: 3
No. of hours :75	C:T:S - 65:5:5
CIA Max. Marks: 25	ESE Max. Marks: 50

(C: Contact hours, T: Tutorial, S: Seminar)

Syllabus:

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.

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.

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.

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.

Unit V: 13 Hrs

Data Warehousing: An introduction – Characteristics of a data warehouse – Data Marts- Other Aspects of Data Mart. Online Analytical Processing – OLTP and OLAP Systems – Data Modeling – Star Schema for Multidimensional View – Data Modelling – Multifact Star Schema or Snow Flake Schema.

Applications of Data Warehousing and Data Mining in Government: Introduction – National Data Warehouses – Other Areas for Data Warehousing and Data Mining.

Course: Core Practical V VB.Net	Course Code: 517KP5
Semester V	No. of Credits: 4
No. of hours :90	P:T - 75:10:5
CIA Max. Marks: 40	ESE Max. Marks:60

(P: Practical, T: Tutorial, R: Record Work)

Syllabus:

List of Programs

1. Application form using Controls
2. Customization of windows
3. Notepad Applications
4. Calculator
5. Sequential Access File
6. Random Access File
7. Employee details using Database
8. Supplier details Management System
9. Hospital Management System
10. Newspaper Vendor Management System

Course: Part III – Elective I Information Storage and Management	Course Code: 517SE1/517GE1/517KE1
Semester: V	No. of Credits: 4
No. of hours: 90	C:T:S - 75:10:5
CIA Max. Marks: 25	ESE Max. Marks:75

(C: Contact hours, T: Tutorial, S: Seminar)

Syllabus:

Unit I: 15 Hrs

Introduction to Information Storage: Information Storage – Evolution of Storage Architecture – Data Center Infrastructure – Virtualization and Cloud Computing.

Data Center Environment: Application - Database Management System (DBMS) – Host (Compute) – Connectivity – Storage – Disk Drive Components – Disk Drive Performance – Host Access to Data – Direct-Attached Storage – Storage Design Based on Application – Disk Native Command Queuing – Introduction to Flash Drives – Concept in Practice: VMware ESXi.

Unit II : 15 Hrs

Data Protection: RAID: RAID Implementation Methods – RAID Array Components – RAID Techniques – RAID Levels – RAID Impact on Disk Performance – RAID Comparison – Hot Spares.

Intelligent Storage Systems: Components of an Intelligent Storage System – Storage Provisioning – Types of Intelligent Storage Systems – Concepts in Practice: EMC Symmetrix and VNX.

Unit III: 15 Hrs

Fiber Channel Storage Area Networks: Fiber Channel: Overview – The SAN and Its Evolution – Component of FC SAN – FC Connectivity – Switched Fabric Ports – Fiber Channel Architecture – Fabric

Services – Switched Fabric Login Types – Zoning – FC SAN Topologies – Virtualization in SAN – Concepts in Practice: EMC Connectrix and EMC VPLEX. IP SAN and FCoE: iSCSI – FCIP – FcoE.

Unit IV: **15 Hrs**

Network-Attached Storage: General-Purpose Servers versus NAS Devices – Benefits of NAS – File System and Network File Sharing – Components of NAS – NAS I/O Operation – NAS Implementations – NAS File-Sharing Protocols – Factors Affecting NAS Performance – File-Level Virtualization – Concepts in Practice: EMC Isilon and EMC VNX Gateway.

Object-Based and Unified Storage: Object Based Storage Devices – Content-Addressed Storage – CAS Use Cases – Unified Storage – Concepts in Practice: EMC Atmos, EMC VNX, and EMC Centera.

Unit V: **15 Hrs**

Securing the Storage Infrastructure: Information Security Framework – Risk Triad – Storage Security Domains – Security Implementations in Storage Networking – Securing Storage Infrastructure in Virtualized and Cloud Environments – Concepts in Practice: RSA and VMware Security Products.

Managing the Storage Infrastructure: Monitoring the Storage Infrastructure – Storage Infrastructure Management Activities – Storage Infrastructure Management Challenges – Developing an Ideal Solution – Information Lifecycle Management – Storage Tiering – Concepts in Practice: EMC Infrastructure Management Tools.

Course: Part IV - Skill Enhancement Course III: Interactive Media – Animation Techniques	**Course Code: 517KS3**
Semester V	**No. of Credits: 3**
No. of hours :45	**P:R - 38: 7**
CIA Max. Marks: 75	

(P: Practical, R: Record work)

Syllabus:

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 frames 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.

Course: Part III - Core XIII ASP.Net	Course Code: 617K13
Semester: VI	No. of Credits: 4
No. of hours :75	C:T - 65:10
CIA Max. Marks: 25	ESE Max. Marks:75

(C: Contact hours, T: Tutorial)

Syllabus:

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).

Course Part III – Core -XIV Programming in PHP	Course Code: 617K14
Semester: VI	No. of Credits: 3
No. of hours :60	C:T - 52:8
CIA Max. Marks: 25	ESE Max. Marks:50

(C: Contact hours, T: Tutorial)

Syllabus:

Unit I: 11 Hrs

Why PHP and MySQL? – Server-Side Scripting Overview – Getting Started with PHP – Learning PHP Syntax and Variables.

Unit II: 10 Hrs

Learning PHP Control Structures and Functions – Learning PHP String Handling – Learning Arrays: Creating Arrays – Retrieving Values – Multidimensional Arrays – Deleting from Arrays.

Unit III: **10 Hrs**

Learning PHP Number Handling – Introducing Object Oriented PHP: What is Object Oriented Programming? – Basic PHP Constructs for OOP – Advanced OOP Features – Interfaces – Constants – Abstract Classes – OOP Style in PHP.

Working with Cookies and Sessions: What's a Session? – Home-grown Alternatives – How Sessions Work in PHP – Session Functions – Cookies.

Learning PHP Types – Learning PHP Advanced Functions.

Unit IV: **10 Hrs**

Performing Math with PHP – Handling Exceptions with PHP – Debugging PHP Programs –Integrating PHP and Java.

Unit V: **11 Hrs**

Introducing Databases and MySQL – Learning Structured Query Language (SQL) –Integrating PHP and MySQL – Integrating Web Forms and Databases.

Course : Part III – Core Practical VI ASP.Net and PHP	**Course Code: 617KP6**
Semester : VI	**No. of Credits: 4**
No. of hours :90	**C:P - 75: 15**
CIA Max. Marks: 40	**ESE Max. Marks:60**

(C: Contact hours, P: Practical)

Syllabus:

List of Programs

ASP.Net

1. Write a .Net application for calculating simple and compound interest.
2. Develop a Web form Application.
3. Design Employee details using web controls.
4. Develop an application to invoke server events.
5. Develop a job portal website (use Rich web controls).
6. Design a registration form (use Validation control).
7. Write a .Net application for implementing custom control.
8. Develop an application for Form Base Authentication.
9. Create a program for Consumer Application.
10. Write a program to develop an application for displaying customer details using database.

PHP

1. Design a College Webpage using PHP
2. Design a Simple Calculator
3. Design a webpage to display student details and validate the data.
4. Design an ID card using PHP.
5. Display the student's details in webpage by reading details from MySQL database.

Course: Part III – Elective II Basics of IoT	Course Code: 617SE2/617GE2/617KE2
Semester: VI	No. of Credits: 4
No. of hours: 90	C:T:S - 75:10:5
CIA Max. Marks: 25	ESE Max. Marks:75

(C: Contact hours, T: Tutorial, S: Seminar)

Syllabus:

Unit I: 15 Hrs

The Internet of Things: An Overview: The Flavour of the Internet of Things – The "Internet" of "Things" – The Technology of the Internet of Things – Enchanted Objects – Who is Making the Internet of Things?

Design Principles for Connected Devices: Calm and Ambient Technology – Magic as Metaphor – Privacy – Web Thinking for Connected Devices – Affordances. Internet Principles: Internet Communications: An Overview – IP Addresses – MAC Addresses – TCP and UDP Ports – Application Layer Protocols.

Unit II : 15 Hrs

Thinking About Prototyping: Sketching – Familiarity – Costs versus Ease of Prototyping – Prototypes and Production – Open Source versus Closed Source – Tapping into the Community.

Prototyping Embedded Devices: Electronics – Embedded Computing Basics – Arduino – Raspberry Pi – BeagleBone Black – Electric Imp – Other Notable Platforms.

Unit III : 15 Hrs

Prototyping the Physical Design: Preparation – Sketch, Iterate and Explore – Nondigital Methods – Laser Cutting – 3D Printing – CNC Milling – Repurposing/Recycling.

Prototyping Online Components: Getting Started with an API – Writing a New API – Real-Time Reactions – Other Protocols.

Unit IV: 15 Hrs

Techniques for Writing Embedded Code: Memory Management – Performance and Battery Life – Libraries – Debugging.

Business Models: A Short History of Business Models – The Business Model Canvas – Who Is the Business Model For? – Models – Funding an Internet of Things Startup – Lean Startups.

Unit V : 15 Hrs

Moving to Manufacture: What Are You Producing? – Designing Kits – Designing Printed Circuit boards – Manufacturing Printed Circuit Boards – Mass-Producing the Case and Other Fixtures – Certification – Costs – Scaling Up Software.

Ethics: Characterizing the Internet of Things – Privacy – Control – Environment – Solutions.

Course: Part III - Project and Viva Voce	Course Code: 617KPV
Semester VI	No. of Credits: 4
No. of hours: 90	P:T - 75:10
CIA Max. Marks: 25	ESE Max. Marks: 75

(P: Practical, T: Tutorial)

Course Evaluation Methods:

Direct Methods	Indirect Method
Review I Review II Report	Course Exit Survey

Internal Assessment components:

Maximum 25 Marks		
Review I	Documentation - 03 Presentation - 03 Viva Voce - 04	10 Marks
Review II	Documentation - 05 Presentation - 03 Viva Voce - 05 Submission on time - 02	15 Marks

Project and Viva Voce for ESE

Maximum 75 Marks		
External	Report	25 Marks
	Viva Voce	25 Marks
Internal	Viva Voce	25 Marks

Course: Part IV - Skill Enhancement Course IV Interactive Media - Multimedia Systems	Course Code: 617KS4
Semester VI	No. of Credits: 3
No. of hours: 45	P:T - 38: 7
CIA Max. Marks: 75	

(P: Practical, T: Tutorial)

Syllabus:

List of Programs

Desktop Publishing

1. Create a Program using Drawing Tools
2. Create a logo.
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.

Course: Advanced Learners Course II Big Data Analytics with R and Hadoop	**Course Code: 617ALK**
Semester: VI	**No. of Credits: 4**
ESE Max. Marks: 100	

Syllabus:

Unit I:

Getting Ready to Use R and Hadoop: Understanding the features of R language – Installing Hadoop – Understanding Hadoop features.

Unit II:

Writing Hadoop MapReduce Programs: Understanding the basics of MapReduce – Introducing Hadoop MapReduce – Understanding the Hadoop MapReduce fundamentals – Learning the different ways to write Hadoop MapReduce in R.

Unit III:

Integrating R and Hadoop: Introducing RHIPE: Environment variables – Understanding the architecture of RHIPE – Understanding the RHIPE samples – Understanding the RHIPE function reference – Introducing RHadoop: Understanding the architecture of RHadoop – Understanding the RHadoop examples – Understanding the RHadoop function reference.

Unit IV:

Learning Data Analytics with R and Hadoop: Understanding the data analytics project life cycle – Understanding data analytics problems.

Unit V:

Importing and Exporting Data from Various DBs: Learning about data files as database – Understanding MySQL – Understanding Excel.