

**Curriculum Design**  
**SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)**  
 Affiliated to Bharathiar University  
 Department of Computer Science  
 Scheme of Examination - CBCS Pattern  
**Programme: Post Graduate Diploma in Computer Applications**  
 (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 |           |
| <b>Semester I</b>  |   |               |             |           |           |             |           |
| 17PD01             | Core I - Digital Fundamentals and Computer Architecture                 | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PD02             | Core II - C Programming   | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PD03             | Core III - Operating System   | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PD04             | Core IV - Web Designing   | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PDP1             | Core Practical I - C Programming and Web Designing                      | 3             | 3           | 40        | 60        | 100         | 4         |
| <b>Semester II</b> |   |               |             |           |           |             |           |
| 17PD05             | Core V - Visual Programming   | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PD06             | Core VI - Database Management Systems                                   | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PD07             | Core VII - Software Engineering   | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PD08             | Core VIII – Data Structures   | 3             | 3           | 25        | 75        | 100         | 4         |
| 17PDP2             | Core Practical II – Visual Programming and Database Management Systems. | 3             | 3           | 40        | 60        | 100         | 4         |
| <b>TOTAL</b>       |   |               |             |           |           | <b>1000</b> | <b>40</b> |

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - I**

**Core I - Digital Fundamentals and Computer Architecture 17PD01  
(For the students admitted from the academic year 2017 - 2018 onwards)**

**Course Objective:** **38 Hrs**

- To understand the Fundamentals of computers and how it Computer works.
- To provide a introduction to logic design and the basic building blocks used in Digital Systems.
- To provide an idea about Registers and memory management.

**Unit I:** **[8 Hrs]**

Binary Systems: Digital Computers and Digital Systems – Binary Numbers – Number Base Conversion – Octal and Hexadecimal Numbers - Complements – Binary Codes- Binary Storage and Registers.

Boolean Algebra and Logic Gates: Basic Definitions- Axiomatic Definition of Boolean Algebra-Basic Theorems and Properties of Boolean Algebra – Boolean functions-Digital Logic Gates.

[Book 1: Chapters -1, 2]

**Unit II:** **[8 Hrs]**

Simplification of Boolean Functions: The Map method - Two and Three Variable Maps- Product of sums Simplification. Combinational Logic: Adders – Subtractors. Digital Logic circuits: Combinational circuits- Flip flops. Data Representation: Error Detection Codes.

[Book 1: Chapters-3, 4] [Book 2: Chapters-1, 3]

**Unit III:** **[8 Hrs]**

Digital Components: Decoders- Multiplexers - Registers. Registers, Counters and the Memory Unit: Ripple Counters - Synchronous Counters - The Memory Unit. Basic Computer Organization and Design: Instruction Codes – Computer Instructions - Instruction Cycle.

[Book 1: Chapter-7] [Book 2: Chapters-2, 5]

**Unit IV:** **[7 Hrs]**

Central Processing Unit: General Register Organization – Stack Organization – Instruction Formats- Addressing Modes - Data transfer and Manipulation. Input - Output Organization: Asynchronous Data Transfer – Direct Memory Access (DMA).

[Book 2: Chapters-8, 11]

**Unit V:** **[7 Hrs]**

Memory Organization: Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory.

[Book 2: Chapter-12]

**Books for Study:**

1. M.Morris Mano, “Digital Logic and Computer Design”, Pearson Education, 2012.
2. M.Morris Mano, “Computer System Architecture”, Pearson Education, 2013.

**Book for Reference:**

Thomas L. Floyd, “Digital Fundamentals”, Pearson Education, Eleventh Edition 2014.

Course Designed by : Mrs.G.Kowshalya

Course Reviewed by : Mrs.B.Sasikala

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - I**

**Core II - C Programming**

**17PD02**

**(For the students admitted from the academic year 2017 - 2018 onwards)**

**Course Objective:**

**38 Hrs**

- To learn the fundamentals of ANSI C programming and the standard C libraries.
- Get a solid understanding of C functions.

**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 Operator-Arithmetic Expressions-Evaluation of Expressions-Operator Precedence and Associativity.

[Chapters: 1, 2, 3]

**Unit II:**

**[9 Hrs]**

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.

[Chapters: 4, 5]

**Unit III:**

**[8 Hrs]**

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: 6, 7]

**Unit IV:**

**[7 Hrs]**

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.

[Chapter: 9]

**Unit V:**

**[6 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-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.

[Chapters: 10, 11]

**Book for Study:**

E.Balagurusamy, "Programming in Ansi C", 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, 14<sup>th</sup> Edition, 2016.

Course Designed by : Mrs.G.Krishnaveni

Course Reviewed by : Dr.R.Sangeetha

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)**

**Semester I**

**Core III - Operating System**

**17PD03**

**(For the students admitted from the academic year 2017–2018 onwards)**

**Course Objective:**

**38 Hrs**

- To study and apply concepts relating to operating systems, such as concurrency and control of asynchronous processes, Deadlocks, Memory Management, Processors and Disk scheduling.
- To understand about the process, its synchronization and scheduling.

**Unit I:**

**[7 Hrs]**

Overview: Introduction – What Operating Systems Do – Computer-System Organization – Computer-System Architecture – Operating System Structure – Operating-System Operations. Process Management – Memory Management – Storage Management – Protection and Security – Kernel Data Structures.

[Chapter: 1]

**Unit II:**

**[8 Hrs]**

System Structures: Operating-System Services – User and Operating-System Interface – System Calls – Types of System Calls – System Programs – Operating-System Design and Implementation – Operating-System Structure – Operating-System Debugging.

[Chapter: 2]

**Unit III:**

**[8 Hrs]**

Process Concept: Process Concept – Process Scheduling – Operations on Process. Multithreaded Programming: Overview – Multicore Programming – Multithreading Models. Process Scheduling: Basic Concepts – Scheduling Criteria - Scheduling Algorithms: First-Come, First-Served Scheduling – Priority Scheduling

[Chapters: 3, 4, 5]

**Unit IV:**

**[7 Hrs]**

Deadlocks: System Model – Deadlock Characterization – Methods for Handling Deadlocks –Deadlock Prevention. Memory Management Strategies: Background – Swapping – Contiguous Memory Allocation – Segmentation. File System: File Concept – Access Methods.

[Chapters: 7, 8, 10]

**Unit V:** [8 Hrs]

Mass-Storage Structure: Overview of Mass-Storage Structure – Disk Structure – Disk Attachment – Disk Scheduling. System Protection: Goals of Protection – Principles of Protection – Domain of Protection. System Security: The Security Problem – Program Threats – System and Network Threats

[Chapters: 12, 14, 15]

**Book for Study:**

Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, “Operating System Concepts”, Wiley Publications, Ninth Edition, Reprint 2016.

**Book for Reference:**

Silberschatz, Galvin, Gagne, ”Operating System Concepts”, Wiley India(P) Ltd., Sixth Edition, Reprint 2010.

Course Designed By : Ms.E.Kokilamani

Course Reviewed By : Mrs.B.Sasikala

Course Checked By : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)**

**Semester – I**

**Core IV - Web Designing**

**17PD04**

**(For the students admitted from the academic year 2017 -2018 onwards)**

**Course Objective:**

**38 Hrs**

- To develop a Web site using text, images, links, lists, and tables.
- To design a webpage using CSS, internal style sheets, and external style sheets.
- To develop WebPages using JavaScript.

**Unit I:**

**[7 Hrs]**

Structuring Documents for the Web: A Web of Structured Documents – Introduction HTML and XHTML – Basic Text Formatting: Creating Paragraphs using the <p> Element – Creating Line Breaks Using the <br/> Element – Creating Preformatted Text Using the <pre> Element-Presentational Elements- Lists. Links and Navigation: Basic Links –Creating Links with the <a> Element.

[Chapters: 1, 2]

**Unit II:**

**[8 Hrs]**

Images, Audio, and Video: Adding Images using the <img> Element- Using Images as Links - Adding Flash, Video and Audio to your Web Pages: Adding Flash Movies to your site- Adding Videos to Your Site- Adding Videos Using Flash Video – Video Size –Automatically Playing Audio and Video When a Page Loads. Tables: Introducing Tables – Basic Table Elements and Attributes –Adding a <caption> to a Table –Grouping Sections of a Table –Nested Tables.

[Chapters: 3, 4]

**Unit III:**

**[7 Hrs]**

Forms: Introducing Forms-Creating a Form with the <form>Element- Form Controls: Text Inputs –Buttons –Checkboxes – Radio Buttons. Frames: Introducing the Frameset – The <frameset> Element – The <frame > Element

[Chapters: 5, 6]

**Unit IV:**

**[8 Hrs]**

Cascading Style Sheets: Introducing CSS – Where You can Add CSS Rules – CSS Properties- Controlling Text: The font- family Property – The font-size Property – The font –weight Property – The font –style Property-Text Formatting. More Cascading Style Sheets: Links – Backgrounds –Lists.

[Chapters: 7, 8]

**Unit V:****[8 Hrs]**

Learning JavaScript: The Document Object Model – Starting to Program with JavaScript – Variables- Operators- Conditional Statements – Looping. Working with JavaScript: Form Validation.

[Chapters: 11, 12]

**Book for Study:**

Jon Duckett, “Beginning HTML, XHTML, CSS, and JavaScript”, Wiley Publications, Reprint 2015.

**Book for Reference:**

Chris Bates, “Web Programming Building Internet Application”, Wiley Publications, Reprint 2016.

Course Designed by : Ms.P.Yasodha

Course Reviewed by : Mrs.G.Krishnaveni

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)****Semester - I****Core Practical I – C Programming and Web Designing 17PDP1**

**(For the students admitted from the academic year 2017 - 2018 onwards)**

**Course Objective:****38 Hrs**

- To provide basic Knowledge on developing C Programs and its concepts.
- To get a solid understanding of C functions.
- To develop the skill and knowledge of web page design.
- To enhance the students in a better way of developing a web page.

**List of Programs:****C Programming:**

1. Write a program to find out sum of n numbers.
2. Program to find Biggest of three numbers.
3. Program to generate a Fibonacci series.
4. Program for matrix addition.
5. Program to illustrate Function.
6. Program to illustrate Structure.
7. Program to perform String Operations.
8. Program to illustrate Pointers.

**. Web Designing:**

1. Design a Timetable using HTML
2. Develop a Biodata using simple HTML tags
3. Design a college Web page using Frames in HTML .
4. Design a web Page for Hospital using Hyperlink in HTML
5. Develop a simple webpage using CSS .
6. Develop a webpage for student marklist using javascript.

Course Designed by : Mrs.G.Krishnaveni

Course Reviewed by : Dr.R.Sangeetha

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - II**

**Core V - Visual Programming**

**17PD05**

**(For the students admitted from the academic year 2017 – 2018 onwards)**

**Course Objective:**

**38 Hrs**

- To enable the students to develop their programming skills in windows applications.
- To make the students to know about the Event Driven Programming Environment.
- To enable knowledge in the GUI Environment.

**Unit I:**

**[7 Hrs]**

Writing Software: Working with Variables – Comments and Whitespace – Data Types – Storing Variables – Methods.

[Chapter: 3]

**Unit II:**

**[7 Hrs]**

Controlling the Flow: Making Decisions – The If Statements – Select Case – Loops. Working with Data Structures: Understanding Arrays – Working with ArrayLists.

[Chapters: 4, 5]

**Unit III:**

**[8 Hrs]**

Building Windows Applications: Responding to Events – Counting Characters – Counting Words – Creating More Complex Application – Creating the Toolbar – Creating the Status Bar – Creating an Edit Box – Clearing the Edit Box – Responding to Toolbar Buttons – Using Multiple Forms – About Dialog.

[Chapter: 6]

**Unit IV:**

**[8 Hrs]**

Displaying Dialogs: The MessageBox – The OpenFileDialog Control – The SaveDialog Control – The FontDialog Control – The ColorDialog Control. Creating Menus: Understanding Menu Features – Creating Menus – Context Menus.

[Chapters: 7, 8]

**Unit V:**

**[8 Hrs]**

Debugging and Error Handling: Major Error Types – Error Handling. Accessing Data Using Structured Query Language: What is Database? – Understanding Basic SQL Syntax – Executing Queries in SQL Server. Database Programming with SQL Server and ADO.NET: ADO.NET Data Namespaces - The ADO.NET Classes in Action - Data Binding.

[Chapters: 9, 12,13]

**Book for Study:**

Bryan Newsome, “Beginning Visual Basic 2015”, A Wiley Brand, Reprint 2016.

**Book for Reference:**

Sanjeev Sharma & Nandan Tripathi, “Visual Basic6”, Excel Books, First Edition 2009.

Course Designed by : Ms.R.Subha sree  
Course Reviewed by : Mrs.G.Krishnaveni  
Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - II**

**Core VI - Database Management Systems**

**17PD06**

**(For the students admitted from the academic year 2017 - 2018 onwards)**

**Course Objective:**

**38 Hrs**

- To provide the knowledge of basic concepts of Database Systems.
- To enhance the programming skills of the students in SQL\*Plus and PL/SQL.

**Unit I:**

**[8 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:**

**[8 Hrs]**

Oracle 9i: An Overview: Oracle9i: An Introduction - The SQL\*Plus Environment - Structured Query Language (SQL) - Logging in to SQL\*Plus - SQL\*Plus Commands. 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.

[Chapters: 3, 4]

**Unit III:**

**[7 Hrs]**

Working with Tables: Data Management and Retrieval: Data Manipulation Language (DML) - Adding a New Row/Record - Customized Prompts – Updating Existing Rows/Records - Deleting Existing Rows/Records - Retrieving Data from a Table - Arithmetic Operations - Restricting Data with a WHERE clause - Sorting. Working with Tables: Functions and Grouping: Built-In Functions – Grouping Data.

[Chapters: 5, 6]

**Unit IV:**

**[8 Hrs]**

Multiple Tables: Joins and Set operators: Join: Non-Equijoin - Outer Join-Self-Join - Set operators. PL/SQL: A Programming Language: Fundamentals of PL/SQL - PL/SQL Block Structure -Comments - Data Types – Other Data Types – Variable Declaration - Assignment Operation - Bind Variables - Printing in PL/SQL. More on PL/SQL: Control Structures and Embedded SQL: Control Structures - SQL in PL/SQL - Data Manipulation in PL/SQL.

[Chapters: 7, 10, 11]

**Unit V:**

**[7 Hrs]**

PL/SQL Cursors and Exceptions: Cursors - Implicit Cursors - Explicit Cursors - Cursor FOR loops - SELECT...FOR UPDATE Cursor - WHERE CURRENT OF Clause - Exceptions - Types of Exceptions. PL/SQL Composite Data Types: Records, Tables and Varrays: PL/SQL Records - PL/SQL Tables. PL/SQL Named Blocks: Procedures - Functions - Packages.

[Chapters: 12, 13, 14]

**Book for Study:**

Nilesh Shah, “Database Systems Using Oracle”, PHI Learning Private Limited, Second Edition 2013.

**Book for Reference:**

Raghu Ramakrishnan, Johannes Gehrke, “Database Management Systems”, McGraw Hill Education (India) Edition, Third Edition 2014.

Course Designed by : Ms. R. Subha Sree  
Course Reviewed by : Mrs. G. Krishnaveni  
Course Checked by : Mrs. S. Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - II**

**Core VII – Software Engineering 17PD07**

**(For the students admitted from the academic year 2017 - 2018 onwards)**

**Course Objective: 38 Hrs**

- Inculcates the knowledge about Software, Software Requirements, Life Cycle Model, Specification, Design and Software Testing.

**Unit I: [7Hrs]**

Software and Software Engineering: Introduction- Types of Software- Generic Stages in Software Development- Software Errors- Software Stakeholders.

Software Development Life Cycle Models: Life Cycle Models- Pre-Development Activities and Deliverables-Waterfall Model-Prototyped Waterfall Model- Object-Oriented Model- Incremental and Iterative Model- Spiral Model.

[Chapters: 1, 2]

**Unit II: [8 Hrs]**

Software Requirements: Software Analysis- Product Vision and Project Scope- Requirements Engineering- Elicitation of Functional Requirements- Elicitation of Non-Functional Requirements- Requirements Validation- Requirements Maintenance.

[Chapter: 3]

**Unit III: [7 Hrs]**

Software Specification: Software Modeling- Behavior Modeling- Process Modeling- Data Modeling- Formal Specification Techniques- Validating Specifications and Traceability- Completing the Software Requirement Specification Document.

[Chapter: 4]

**Unit IV: [8 Hrs]**

Software Design: Mapping Specification to Design- Recurring Concepts and Design Properties- High-Level Architectural Design- Intermodule Coupling- Structured Design- Detailed Design- Intramodule Cohesion- Database Design- Graphical User Interface Design- The Software Design Document.

[Chapter: 5]

**Unit V: [8 Hrs]**

Software Testing: Testing and Test Coverage- Dynamic and Static Testing- Anatomy of a Test Case- Black Box, White Box, and Grey Box Testing- Black Box-Based Unit Testing Techniques- White Box-Based Unit Testing Techniques- Integration Testing- System-Level Testing.

[Chapter: 8]

**Book for Study:**

Kassem A.Saleh, “Software Engineering”, J.Ross Publishing, Inc., Second India Reprint, 2010.

**Book for Reference:**

Roger S. Pressman, BruceR. Maxim, “Software Engineering: A Practitioner’s Approach”, McGraw-Hill Education, 2015.

Course Designed by : Mrs.S.Shobana

Course Reviewed by : Mrs.B.Sasikala

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)**  
**Semester - II**

**Core VIII – Data Structures**

**17PD08**

**(For the students admitted from the academic year 2017 - 2018 onwards)**

**Course Objective:**

**38 Hrs**

- To choose the appropriate data structure and algorithm design method for a specified application.
- To solve problems using data structures such as linear lists, stacks, queues, hash tables, binary trees, heaps, binary search trees, and graphs and writing programs for these solutions.

**Unit I:**

**[8 Hrs]**

Introduction: 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 – Average, Best and Worst Case Complexities – Analyzing Recursive Programs. Arrays: Introduction – Array Operations – Number of Elements in an Array – Applications. Stacks: Introduction – Stack Operations – Applications. Queues: Introduction – Operations on Queues – Applications.

[Book 1: Chapters: 1, 2, 3, 4, 5]

**Unit II:**

**[7 Hrs]**

Linked Lists: Introduction – Singly Linked Lists – Circularly Linked Lists – Doubly Linked Lists – Multiply Linked Lists – Applications. Linked Stacks and Linked Queues: Introduction – Operations on Linked Stacks and Linked Queues.

[Book 1: Chapters: 6, 7]

**Unit III:**

**[7 Hrs]**

Trees and Binary Trees: Introduction – Trees: Definition and Basic Terminologies – Representation of Trees – Binary Trees: Basic Terminologies and Types – Representation of Binary Trees – Binary Tree Traversals – Threaded Binary Trees – Application. Graphs: Introduction – Definitions and Basic Terminologies – Representation of Graphs – Graph Traversals.

[Book 1: Chapters: 8, 9]

**Unit IV:**

**[8 Hrs]**

Hash Tables: Introduction – Hash Table Structure – Hash Functions – Linear Open Addressing – Chaining. File Organizations: Introduction – Files – Keys – Basic File Operations – Heap or Pile Organization – Sequential File Organization – Indexed Sequential File Organization – Direct File Organization. Advanced Data Structures: Heaps – B Trees.

[Book 1: Chapters: 13, 14][Book 2: Chapter: 4]

**Unit V:**

**[8 Hrs]**

Searching: Introduction – Linear Search – Transpose Sequential Search – Interpolation Search – Binary Search – Fibonacci Search. Sorting: Introduction – Types of Sorting Algorithms – Sorting Techniques – Time Complexity of Sorting Techniques.

[Book 1: Chapter: 15][Book 2: Chapter: 5]

**Books for Study:**

1. G.A Vijayalaksmi Pai, “Data Structures and Algorithms – Concepts, Techniques and Applications”, Tata McGraw Hill Education Private Limited, New Delhi, 7<sup>th</sup> Reprint 2012.
2. R. Venkatesan, S.Lovelyn Rose, “Data Structures”, Wiley Publications, First Edition 2015.

**Book for Reference:**

Seymour Lipschutz, "Data Structures", Tata McGraw Hill Education Private Limited, 21<sup>st</sup> Reprint 2012.

Course Designed by : Mrs.S.Shobana  
Course Reviewed by : Mrs B.Sasikala  
Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)****Semester- II****17PDP2****Core Practical II - Visual Programming and Database Management Systems  
(For the Candidates admitted during the academic year 2017-2018 Onwards)****Course Objective:****38 Hrs**

- To define, create and maintain a database and provides controlled access to the data.
- To enable students to understand and deal with editors, tools, class libraries, debugging techniques and more.
- To enhance the students to design and understand the event driven concepts.

**List of Programs:****Visual Programming:**

1. Write a Program to create a Window Using Event Handling.
2. Write a Program to create a student details using conditional statements and test the module.
3. Write a Program for Text Manipulations.
4. Create a program to develop an Application for loading a Picture using Drive, Directory and File List Box controls.
5. Create a Program using Menus.
6. Program for drawing various shapes and fill color to that shapes using Scroll bar.
7. Develop an Application for Employee Payroll System using ADO.NET.

**DBMS Programming:**

1. Create a table Customer with fields Customer Number, Name, Address, City, Pin code and insert 10 values in the above table.
2. Perform Select, Update and Delete Operation for the table Customer.
3. Add the fields State, Phone number to the table Customer and insert the necessary values.
4. Create a table Product with Fields: Product number, Product Name and date of sales. Display the above information in the ascending order of field Date of Sales. The Date of Sales should be displayed in 'DD/MM/YY' Format.
5. Write a PL/SQL block in which if the Salary of the Employee is > 5000 whose Employee Number = 10, display the output else set the Salary as 7500.
6. Write a PL/SQL block for Reversing a Number.

Course Designed by : Ms.R.Subha Sree  
Course Reviewed by : Mrs.G.Krishnaveni  
Course Checked by : Mrs.S.Shobana

**For the students admitted from the academic year 2017 - 2018 onwards  
Continuous Internal Assessment Components**

**Theory: 25 Marks**

| Semester | Title of the Paper                                      | CIA I & II | Assignment | Seminar | Total |
|----------|---|------------|------------|---------|-------|
| I        | Core I – Digital Fundamentals and Computer Architecture | 15         | 5          | 5       | 25    |
|          | Core II – C Programming                                 | 15         | 5          | 5       | 25    |
|          | Core III - Operating System                             | 15         | 5          | 5       | 25    |
|          | Core IV – Web Designing                                 | 15         | 5          | 5       | 25    |
| II       | Core V - Visual Programming                             | 15         | 5          | 5       | 25    |
|          | Core VI - Database Management Systems                   | 15         | 5          | 5       | 25    |
|          | Core VII - Software Engineering                         | 15         | 5          | 5       | 25    |
|          | Core VIII – Data Structures                             | 15         | 5          | 5       | 25    |

**Practical - 40 marks**

| Lab Performance | Model | Record | Total |
|-----------------|-------|--------|-------|
| 15              | 20    | 5      | 40    |

**Question Paper Pattern for Continuous Internal Assessment**

**Theory: 75 Marks**

| <b>Maximum 75 Marks</b> |  |                   |
|-------------------------|--|-------------------|
| Section A               | Short answer question of either /or type (Like 1a or 1b) to (5a or 5b) | 5 x 5 = 25 Marks  |
| Section B               | Essay type questions-open choice<br>Five out of Eight(from 6 to 13)    | 5 x 10 = 50 Marks |

**Question Paper Pattern for End Semester Examination**

**Theory: 75 Marks**

| <b>Maximum 75 marks</b> |   |                  |                                      |
|-------------------------|---|------------------|--------------------------------------|
| Section A               | Short answer question of either / or type(Like 1a or 1b) to (5a or 5 b) | 5 x 5 = 25 Marks | 5 Questions - 1 each from every unit |
| Section B               | Essay type questions - open choice<br>Five out of Eight ( from 6 to 13) | 5 x 10= 50 Marks | Questions must be from all the units |

## Blue Print

### Question Paper Pattern (75 Marks) - Theory Papers

| Unit | Section A<br>(5 x 5 = 25) |   |   |   |   | Section B<br>(5 x 10 = 50) |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
|------|---------------------------|---|---|---|---|----------------------------|---|---|---|---|--------------------------------------|---|---|---|----|----|----|----|--|--|--|--|--|--|--|--|
|      | 1                         |   | 2 |   | 3 |                            | 4 |   | 5 |   | 6                                    | 7 | 8 | 9 | 10 | 11 | 12 | 13 |  |  |  |  |  |  |  |  |
|      | a                         | b | a | b | a | b                          | a | b | a | b | Questions must be from all the units |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| I    | T                         | T |   |   |   |                            |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| II   |                           |   | T | T |   |                            |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| III  |                           |   |   |   | T | T                          |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| IV   |                           |   |   |   |   |                            | T | T |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| V    |                           |   |   |   |   |                            |   |   | T | T |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |

### Practical - 60 Marks

|           | Aim & Algorithm | Program | Execution | Record | Total |
|-----------|-----------------|---------|-----------|--------|-------|
| Program 1 | 05              | 10      | 10        | 10     | 60    |
| Program 2 | 05              | 10      | 10        |        |       |

**Curriculum Design**  
**SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN (AUTONOMOUS)**  
 Affiliated to Bharathiar University  
 Department of Computer Science  
 Scheme of Examination - CBCS Pattern  
**Programme: Post Graduate Diploma in Computer Applications**  
 (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 |           |
| <b>Semester I</b>  |  |                |             |           |           |             |           |
| 16PD01             | Core I - Digital Logic and Computer Architecture                       | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PD02             | Core II - Office Automation and Web Designing                          | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PD03             | Core III - Operating System  | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PD04             | Core IV - C Programming  | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PDP1             | Core Practical I - Office Automation Tools, HTML and C Programming     | 3              | 3           | 40        | 60        | 100         | 4         |
| <b>Semester II</b> |  |                |             |           |           |             |           |
| 16PD05             | Core V - Visual Programming  | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PD06             | Core VI - Database Management Systems                                  | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PD07             | Core VII - Software Engineering and Testing                            | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PD08             | Core VIII - Computer Networks  | 3              | 3           | 25        | 75        | 100         | 4         |
| 16PDP2             | Core Practical II - Database Management Systems and Visual Programming | 3              | 3           | 40        | 60        | 100         | 4         |
| <b>TOTAL</b>       |  |                |             |           |           | <b>1000</b> | <b>40</b> |

**Post Graduate Diploma in Computer Applications (PGDCA)**

**Semester - I**

**Core I - Digital Logic and Computer Architecture**

**16PD01**

**(For the students admitted from the academic year 2016 - 2017 onwards)**

**Preamble:**

**38 Hrs**

- This course provides a modern introduction to logic design and the basic building blocks used in Digital Systems, in particular Digital Computers.
- Provides idea to the students about how most Digital Systems use combinational logic.

**Unit I:**

**[8 Hrs]**

Binary Systems: Digital Computers and Digital Systems - Binary Numbers - Number Base Conversion - Octal and Hexadecimal Numbers - Complements - Binary Codes: Error Detection Codes - Binary Storage and Registers. Boolean Algebra and Logic Gates: Basic Definitions - Axiomatic Definition of Boolean Algebra - Basic Theorems and Properties of Boolean Algebra - Boolean Functions - Digital Logic Gates.

(Book 1: Chapter - 1, 2)

**Unit II:**

**[8 Hrs]**

Simplification of Boolean Functions: The Map method - Two and Three Variable Maps - Four Variable Map - Product of Sums Simplification - NAND and NOR Implementation. Combinational Logic: Adders - Subtractors. Digital Logic Circuits: Flip Flops - Sequential Circuits.

(Book 1: Chapter - 3, 4) (Book 2: Chapter - 1)

**Unit III:**

**[8 Hrs]**

Registers, Counters and the Memory Unit: Ripple Counters - Synchronous Counters - The Memory Unit. Digital Components: Decoders - Multiplexers - Registers. Basic Computer Organization and Design: Instruction Codes - Computer Instructions - Instruction Cycle.

(Book 1: Chapter - 7) (Book 2: Chapter - 2, 5)

**Unit IV:**

**[7 Hrs]**

Central Processing Unit: General Register Organization - Stack Organization - Instruction Formats - Addressing Modes - Data Transfer and Manipulation. Input-Output Organization: Asynchronous Data Transfer - Direct Memory Access.

(Book 2: Chapter - 8, 11)

**Unit V:**

**[7 Hrs]**

Memory Organization: Main Memory - Auxiliary Memory - Associative Memory - Cache Memory - Virtual Memory.

(Book 2: Chapter - 12)

**Books for Study:**

Book 1: M.Morris Mano, "Digital Logic and Computer Design", Pearson Education, 2012.

Book 2: M.Morris Mano, "Computer System Architecture", Pearson Education, Third Edition, 2013.

**Book for Reference:**

Thomas L. Floyd, "Digital Fundamentals", Prentice Hall Inc, 2015.

Course Designed by : Mrs.G.Kowshalya

Course Reviewed by : Mrs.B.Sasikala

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - I**

**Core II - Office Automation and Web Designing 16PD02**

**(For the students admitted from the academic year 2016 - 2017 onwards)**

**Preamble:** **38 Hrs**

- The Study enables the student to specialize in documentation.
- Spreadsheet Concept gives knowledge about Account maintenance.
- Gives basic Knowledge about Animating Pictures.
- Inculcates the essential skills in office automation tools.
- It enables the student to design their own web page using HTML, DHTML and Java Script.

**Unit I:** **[8 Hrs]**

Introduction to computers - Basic Anatomy of computers - MS Office - Introduction - MS word: Word Basics - Menus - Toolbar and their Icons - Word Formatting Toolbar.  
(Book 1: Chapter - 1,2)

**Unit II:** **[8 Hrs]**

MS Excel: Excel Basics - Menus, Commands, Toolbars and their Icons - Toolbars - Icons - MS PowerPoint: Menus - Toolbars - Navigating in PowerPoint - MS Access: Introduction - Parts of an Access Window.  
(Book 1: Chapter - 6,7,8)

**Unit III:** **[8 Hrs]**

MS Outlook: Introduction - Parts of an Outlook Window - Menus and Toolbars Working with Outlook - MS Publisher: Introduction - Menus - Toolbars - MS FrontPage: Menus – Toolbars.  
(Book 1: Chapter - 9,10,11)

**Unit IV:** **[7 Hrs]**

Introduction to HTML - Lists - Tables - Linking documents - Frames.  
(Book 2: Chapter - 2,3,5,6,7)

**Unit V:** **[7 Hrs]**

Dynamic HTML: Cascading Styles Sheets - Class - Java Script: Introduction to Java Script - Java Script in Web Pages.  
(Book 2: Chapter - 12,8)

**Books for Study:**

Book 1: Sanjay Saxena, “MS Office 2000 for Everyone”, Vikas Publication, Second Reprint, 2013.

Book 2: Ivan Bayross, “Web Enabled Commercial Application Development Using HTML, DHTML, Java Script, Perl CGI”, BPB Publication Reprinted 2011.

**Book for Reference:**

Ron Mansfield “Working in Microsoft Office”, Tata McGraw Hill Publishing Company Limited, Second Edition 2010.

Course Designed by : Mrs.S.Mahalakshmi

Course Reviewed by : Mrs.B.Sasikala

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)**

**Semester - I**

**Core III - Operating System**

**16PD03**

**(For the students admitted from the academic year 2016 - 2017 onwards)**

**Preamble:**

**38 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:**

**[7 Hrs]**

Introduction: What Operating System Do? - Operating System Structure - Operating System Operations - Process Management - Memory Management - Storage Management. System Structures: Operating System Services - User and Operating System Interface - System Calls - Types of System Calls.

(Chapter: 1,2)

**Unit II:**

**[9 Hrs]**

Process Concept: Process Concept - Process Scheduling - Interprocess Communication. Multithreaded Programming: Overview - Multicore Programming - Multithreading Models. Process Scheduling: Basic Concepts - Scheduling Criteria - Scheduling Algorithm.

(Chapter: 3,4,5)

**Unit III:**

**[9 Hrs]**

Deadlocks: System Model - Deadlock Characterization - Methods for Handling Deadlocks - Deadlock Prevention - Deadlock Avoidance. Memory - Memory Strategies: Background - Swapping - Contiguous Memory Allocation - Segmentation - Paging.

(Chapter: 7,8)

**Unit IV:**

**[7 Hrs]**

File System: File Concept - Access Methods. Implementing File System: File System Structure - File System Implementation - Directory Implementation - Allocation Methods - Free Space Management - Efficiency and Performance.

(Chapter: 10,11)

**Unit V:**

**[6 Hrs]**

Mass - Storage Structure: Overview of Mass - Storage Structure - Disk Structure - Disk Attachment - Disk scheduling. System Protection: Goals of Protection - Principles of Protection. System Security: The Security Problem - Cryptography as a Security Tool - User Authentication.

(Chapter: 12,14,15)

**Book for Study:**

Abraham Silberschatz, Peter B Galvin, Gerg Gagne, "Operating System Concepts", Ninth Edition, Reprint 2016.

**Book for Reference:**

Silberschatz, Galvin, Gagne, "Operating System Concepts", Wiley India (P) Ltd., Sixth Edition, Reprint 2010.

Course Designed by : Mrs. J. Rajeswari  
Course Reviewed by : Mrs.G. Krishnaveni  
Course Checked by : Mrs.S.Shobana

## Post Graduate Diploma in Computer Applications (PGDCA)

### Semester - I

#### Core IV - C Programming

16PD04

(For the students admitted from the academic year 2016 - 2017 onwards)

#### Preamble:

38 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.
- Get a solid understanding of C functions.

#### Unit I:

[7 Hrs]

Overview of C: History of C - Important of C - Basic Structure of C Programs - Executing a 'C' Program. Constants, Variables, and Data Types: Introduction - Character Set - C Tokens - Keywords and Identifiers - Constants - Variables - Data Types - Declaration of Variables - Assigning values to Variables. Operators and Expressions.

(Chapter: 1, 2, 3)

#### Unit II:

[8 Hrs]

Managing Input and Output Operations: Introduction - Reading a Character - Writing a Character. Decision Making and Branching - Decision Making and Looping: Introduction - The while Statement - The do statement - The FOR Statement - Arrays.

(Chapter: 4, 5, 6, 7)

#### Unit III:

[7 Hrs]

Character Arrays and Strings: Introduction - Declaring and Initializing String Variables - String-Handling Functions. User-Defined Functions: Introduction - Need for User-Defined Functions - 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 Values - Functions that Return Multiple Values - Recursion - The Scope, Visibility and Lifetime of Variables.

(Chapter: 8, 9)

#### Unit IV:

[8 Hrs]

Structures and Unions: Introduction - Defining a Structure - Declaring Structure Variables - Accessing Structure Members - Structure Initialization - Arrays of Structures - Arrays within Structures - 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 - Pointers and Arrays - Pointers and Character Strings.

(Chapter: 10, 11)

#### Unit V:

[8 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. Developing a C Program: Some Guidelines: Introduction - Program Design - Program Coding - Common Programming Errors.

(Chapter: 12, 13, 15)

#### Book for Study:

E.Balagurusamy, "Programming in Ansi C", Tata McGraw Hill Publishing, Sixth Edition, Fourth reprint 2013.

#### Book for Reference:

V.Rajaraman, "Computer Programming in C", PHI Learning Private Limited, 2011.

Course Designed by : Ms.E.Kokilamani  
Course Reviewed by: Mrs.B.Sasikala  
Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - I**

**Core Practical I - Office Automation Tools, HTML and C Programming**      **16PDP1**  
**(For the students admitted from the academic year 2016 - 2017 onwards)**      **38 Hrs**

**Preamble:**

- Inculcates the essential skills in Office Automation tools.
- Creates an idea to design their Webpage using HTML & DHTML.
- Gives basic Knowledge to develop C Programs and its concepts.

**List of Programs:**

1. Prepare a document to send an annual report to the university using Word Editor.
2. Prepare a mark sheet for the overall department students using Spread Sheet.
3. Prepare a LCD Presentation for the department activities & achievements.
4. Create a database for the college using a backend tool.
5. Prepare a work schedule for a day as a team leader.
6. Design a webpage which displays text in physical and logical styles.
7. Create a web page in DHTML using CSS (use all attributes).
8. Program to find the Sum of N Numbers.
9. Program to find Biggest of three numbers.
10. Program to find the Factorial of the Given Number.
11. Program to reverse the given Integer Number.
12. Program to construct a Pyramid of Digits.
13. Program to perform String Operations.
14. Write a program to open a text file and write some text using fprintf () function. Open the file and verify the contents.

Course Designed by : Ms.E.Kokilamani  
Course Reviewed by : Mrs.B.Sasikala  
Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - II**

**Core V - Visual Programming**      **16PD05**  
**(For the students admitted from the academic year 2016 - 2017 onwards)**

**Preamble:**

**38 Hrs**

- The students can develop their programming skills in windows applications through this paper.
- The students can also know about the Event Driven Programming Environment using this paper.
- This paper will improve the knowledge in the GUI Environment.

**Unit I:**

**[8 Hrs]**

The Visual Basic Environment: The Initial Visual Basic Screen - The SDI (Single Document Interface) Environment - Toolbars - The toolbox and Custom Controls and Components. Customizing a form and Writing Simple Programs: Starting a New Project - The Properties Window - Common Form Properties.

(Chapter: 2,3 )

**Unit II:** [8 Hrs]  
First Step in Programming: The Code Window - Data Types - Working with Variables - Constants - Input Boxes. Displaying Information: The Format Function - Picture Boxes - RichTextBoxes.  
(Chapter: 5,6 )

**Unit III:** [7 Hrs]  
Controlling Program Flow: Determinate Loops - Indeterminate Loops - Making Decisions - Selected Case.  
(Chapter: 7 )

**Unit IV:** [7 Hrs]  
Finishing the Interface: The Microsoft Windows Common Controls 6.0 - Menus - MDI Forms.  
(Chapter: 14 )

**Unit V:** [8 Hrs]  
Communicating with Other Windows Applications: Overview of COM/OLE - OLE Automation. A Survey of Database Development using Visual Basic: Using Data control - Structured Query Language Basics - An Introduction to Programming with Database Objects - Other Useful Methods and Events for the Data Control - Monitoring Changes to the Database - The Data Form Wizard.  
(Chapter : 20,22)

**Book for Study:**  
Gray Cornell, "VISUAL BASIC 6 from the GROUND UP", McGraw Hill Education (India) Private Limited, 36<sup>th</sup> reprint 2013.

**Books for Reference:**  
Book 1: Rakesh Saini, M.M.S.Rauthan, Alok Agarwal, Kumar Sharma, "Programming in Microsoft Visual Basic 6.0", Vayu Education of India, First Edition 2010.  
Book 2: Sanjeev Sharma, Nandan Tripathi, "Visual Basic 6", Excel Books, First Edition 2009.

Course Designed by : Ms.M.Suriyapraha  
Course Reviewed by : Mrs.L.Sankara Maheswari  
Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - II**

**Core VI - Database Management Systems 16PD06**

**(For the students admitted from the academic year 2016 - 2017 onwards)**

**Preamble:** 38 Hrs

- It provides the knowledge of the basic concepts of Database Systems.
- It enhances the programming skills of the students in SQL \* Plus and PL/SQL.

**Unit I:** [7 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.  
(Chapter: 1,2)

**Unit II:****[7 Hrs]**

Oracle 9i: An Overview: Oracle9i - The SQL\*Plus Environment - Structured Query Language (SQL) - Logging in to SQL\*Plus - SQL\*Plus Commands - Alternate Text Editors - SQL\*Plus Worksheet. Oracle Tables: Data Definition Language (DDL) : Naming Rules and Conventions - Data Types - Constraints - Creating an Oracle Table - Displaying Table Information - Viewing a Table's Structure - Viewing Constraint Information - Altering an Existing Table - Adding a New Column to an Existing Table - Modifying an Existing Column - Adding a Constraint - Dropping a Column - Dropping a Constraint - Enabling /Disabling Constraints - Dropping a Table - Renaming a Table - Truncating a Table.

(Chapter: 3,4)

**Unit III:****[8 Hrs]**

Working with Tables: Data Management and Retrieval: Data Manipulation Language (DML) - Adding a New Row/Record - Customized Prompts - Updating Existing Rows/Records - Deleting Existing Rows/Records - Retrieving Data from a Table - Arithmetic Operations - Restricting Data with a WHERE clause - Sorting. Working with Tables: Functions and Grouping: Built-In Functions. Multiple Tables: Joins and Set operators: Join: Non-Equijoin - Outer Join- Self-Join - Set operators.

(Chapter: 5,6,7)

**Unit IV:****[9 Hrs]**

PL/SQL : A Programming Language: Fundamentals of PL/SQL - PL/SQL Block Structure -Comments - Data Types - Variable Declaration - Assignment Operation - Bind Variables - Printing in PL/SQL . More on PL/SQL: Control Structures and Embedded SQL : Control Structures - SQL in PL/SQL - Data Manipulation in PL/SQL . 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 - Exceptions - Types of Exceptions.

(Chapter: 10,11,12)

**Unit V:****[7 Hrs]**

PL/SQL Composite Data Types: Records, Tables, and Varrays: PL/SQL Records - PL/SQL Tables - PL/SQL Varrays. PL/SQL Named Blocks: Procedures - Calling a Procedure - Procedure Header - Procedure Body - Parameters - Actual and Formal Parameters - Functions - Packages - Triggers - Data Dictionary Views.

(Chapter: 13,14)

**Book for Study:**

Nilesh Shah, "Database Systems Using Oracle", Pearson Education Second Edition, First Impression 2015.

**Book for Reference:**

Raghu Ramakrishnan, Johannes Gehrke, "Database Management Systems", McGraw Hill Education (India) Edition, Third Edition 2014.

Course Designed by : Ms.P.Yasodha  
Course Reviewed by : Mrs.D.Pavithra  
Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)**

**Semester - II**

**Core VII - Software Engineering and Testing**

**16PD07**

**(For the students admitted from the academic year 2016 - 2017 onwards)**

**Preamble:**

**38 Hrs**

- To explain the basics of software engineering and testing
- To highlight the strategies for software testing
- To bring out the ways and means of controlling and monitoring testing activity

**Unit I:**

**[8 Hrs]**

Introduction - What is Software - Characteristics of Software - Evolution of Software for Business - Software Development Process: Software Processes - Software Development Life Cycle Models - Waterfall Model - The “V” Model - The Spiral Model. Software Requirement Engineering: Requirement Engineering Process - Requirement Inception - Requirement Elicitation - Requirement Elaboration - Requirement Validation. Software Design Approaches: Overview of the FO Approach - Overview of the OO Approach - Structured Analysis: Introduction to Structured Analysis - Data flow Diagram - Entity Relationship model.

(Book 1: Chapter - 1, 2, 3, 4,5)

**Unit II:**

**[8 Hrs]**

Structured Design: Structured Design Methodologies - Coupling and Cohesion - Structure Chart - Data Design - Detail Design. Object-Oriented Concepts And Principles: Key Concepts - Relationships - Modeling Techniques - The Unified Approach to Modeling. Object - Oriented Analysis: Use-case Modeling - Activity Diagram and State Diagram - Interaction Diagrams.

(Book 1: Chapter - 6, 7, 8)

**Unit III:**

**[8 Hrs]**

Object-Oriented Design: System Context and Architectural Design - Principles of Class Design - Types of Design Classes - Component Diagram and Deployment Diagram - Patterns - Framework. User Interface Design: Types of User Interfaces - Characteristics of User Interface - Textual User Interface - Graphical User Interface - User Interface Design. Coding and Documentation: Coding Standards - Coding Guidelines - Software Documentation - Documentation Standard and Guidelines.

(Book 1: Chapter - 9,10,11)

**Unit IV:**

**[7Hrs]**

Introduction - Observations about Testing - Testing as an Engineering Activity - Responsibility of Process in Software Quality - Testing Axioms - Basic Definitions - Software Testing Principles.

Black Box Approach to Test Case Design: Introduction - Test Case Design Strategies and Techniques - Using the Black Box Approach to Test Case Design - Random Testing - Requirements Based Testing - Equivalence Class Partitioning - Compatibility Testing - User Documentation Testing - Domain Testing.

(Book 2: Chapter - 1, 3)

**Unit V:**

**[7 Hrs]**

White Box Approach to Test Case Design: Methods Used in the White Box Testing Strategies - Test Adequacy Criteria - Static versus Structural Testing - Code Functional Testing. Testing Levels: Unit Testing - Integration Testing - System Testing - Acceptance Testing - Performance Testing - Regression Testing. Test Management: People and Organizational Issues in Testing - Organization Structures for Testing Teams - Testing Services - Test Planning - Test Plan Components.

(Book2 : Chapter - 4, 5, 7)

**Books for Study:**

Book 1: Jibitesh Mishra, Ashok Mohanty, "Software engineering", Person Education, First Impression, 2012.

Book 2: Dr.D.Chitra, Prof.A.Kaliappan, "Software Testing", Technical Publications, First edition 2016.

**Books for Reference:**

Book 1: James S.Peters, Witold Pedrycz, "Software Engineering An Engineering Approach" John Wiley & Sons, 2012.

Book 2: Boris Beizer, "Software Testing Techniques", Dreamtech Press, Second Edition, 2013.

Course Designed by : Ms.E.Koilamani

Course Reviewed by : Mrs.D.Pavithra

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)  
Semester - II**

**Core VIII - Computer Networks**

**16PD08**

**(For the students admitted from the academic year 2016 - 2017 onwards)**

**Preamble:**

**38 Hrs**

- To understand the concepts of Networks.
- 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

**Unit I:**

**[8 Hrs]**

Introduction: Data communication - Networks - Protocols and standards. Basic concepts: Line configuration - Topology-Transmission mode- Categories of networks-Inter networks. The OSI model: The Model-functions of the layers-TCP/IP protocol suite.

(Chapter: 1,2,3)

**Unit II:**

**[8 Hrs]**

Networking and Internetworking Devices: Repeaters - Bridges- Routers - Gateways. Transmission of Digital data: Interfaces and modems: Digital Data Transmission- Modems. Transmission media: Guided media.

(Chapter: 21,6,7)

**Unit III:**

**[7 Hrs]**

Error Detection and Correction: Types of errors - Detection - Cyclic Redundancy Check (CRC) - Checksum-Error correction. Data link protocols: Asynchronous protocols-Synchronous protocols. Frame relay: Congestion control- Leaky bucket algorithm.

(Chapter: 9,11,18)

**Unit IV:**

**[8 Hrs]**

Switching: Circuit Switching - Packet Switching - Message Switching. TCP/IP protocol suite: Network layer- Addressing-Subnetting - Transport layer.

(Chapter: 14,24)

**Unit V:**

**[7 Hrs]**

Transport Layer: Duties of Transport Layer-Connection. TCP/IP protocol suite Application layer: Domain Name System. N/W security: Four Aspects of Security - Privacy - Access Authorization.

(Chapter: 22,25,27)

**Book for Study:**

Behrouz A. Forouzan, "Data Communication and Networking", Second edition update, Tata McGraw-Hill edition, 30<sup>th</sup> reprint 2011.

**Book for Reference:**

Rathi Narayan, "Computer Networks", Eswar Press, Copyright 2010.

Course Designed by : Ms.S.Ponmalar

Course Reviewed by: Mrs.L.SankaraMaheswari

Course Checked by : Mrs.S.Shobana

**Post Graduate Diploma in Computer Applications (PGDCA)****Semester- II**

**Core Practical II - Database Management Systems and Visual Programming 16PDP2**

**(For the Candidates admitted during the academic year 2016-2017 Onwards) 38 Hrs**

**Preamble**

- DBMS is used to define, create and maintain a database and provides controlled access to the data.
- Students will understand and deal with editors, tools, class libraries, debugging techniques and more.
- Visual Programming helps the students to design and understand the event driven concepts.

**List of Programs:****DBMS Programming:**

1. Create a table Customer with fields Customer Number, Name, Address, City, Pincode and insert 10 values in the above table and perform Select, Update and Delete Operation for the table Customer.
2. Add the field's State, Phone number to the table Customer and insert the necessary values.
3. Create a table Product with Fields: Product number, Product Name and date of sales. Display the above information in the ascending order of field Date of Sales. The Date of Sales should be displayed in 'DD/MM/YY' Format.
4. Write a PL/SQL block in which if the Salary of the Employee is > 5000 who's Employee Number = 10, display the output else set the Salary as 7500.
5. Write a PL/SQL block to print the Fibonacci Series.
6. Write a PL/SQL block to raise an Exception if the sales condition is satisfied to get the commission. (Condition: If the actual sales are less than the target sales, raise exception).

**Visual Programming:**

1. Write a Program to create a Window Using Event Handling.
2. Write a Program to create a student details using conditional statements and test the module.
3. Write a Program for Text Manipulations (Changing Foreground, Background & Alignment) and validate the controls.
4. Create a program to develop an Application for loading a Picture using Drive, Directory & File List Box controls.

5. Design a form to print the numbers in Pyramid Shape.
6. Design a form to display the List of Product by declaring Array.
7. Write a Program to develop an application for displaying Employee details using Database (Use DAO Control) and test the application using Integration testing.
8. Program for drawing various shapes and fill color to that shapes using Scroll bar.

Course Designed by : Ms.P.Yasodha  
Course Reviewed by : Mrs.D.Pavithra  
Course Checked by : Mrs.S.Shobana

For the students admitted from the academic year 2016 - 2017 onwards

**Continuous Internal Assessment Components**

**Theory:**

| Semester | Title of the Paper                               | CIA I & II | Assignment | Seminar | Total |
|----------|--|------------|------------|---------|-------|
| I        | Core I - Digital Logic and Computer Architecture | 15         | 5          | 5       | 25    |
|          | Core II - Office Automation and Web Designing    | 15         | 5          | 5       | 25    |
|          | Core III - Operating System                      | 15         | 5          | 5       | 25    |
|          | Core IV - C Programming                          | 15         | 5          | 5       | 25    |
| II       | Core V - Visual Programming                      | 15         | 5          | 5       | 25    |
|          | Core VI - Database Management Systems            | 15         | 5          | 5       | 25    |
|          | Core VII - Software Engineering and Testing      | 15         | 5          | 5       | 25    |
|          | Core VIII - Computer Networks                    | 15         | 5          | 5       | 25    |

**Practical - 40 marks**

| Lab Performance | Model | Record | Total |
|-----------------|-------|--------|-------|
| 15              | 20    | 5      | 40    |

**Question Paper Pattern for Continuous Internal Assessment**

**Theory: 75 Marks**

| Maximum 75 Marks |  |                   |
|------------------|--|-------------------|
| Section A        | Short answer question of either /or type (Like 1a or 1b) to (5a or 5b) | 5 x 5 =25 Marks   |
| Section B        | Essay type questions-open choice Five out of Eight(from 6 to 13)       | 5 x 10 = 50 Marks |

## Question Paper Pattern for End Semester Examination

**Theory: 75 Marks**

| Maximum 75 marks |   |                  |                                      |
|------------------|---|------------------|--------------------------------------|
| Section A        | Short answer question of either / or type<br>(Like 1a or 1b) to (5a or 5 b) | 5 x 5 = 25 Marks | 5 Questions - 1 each from every unit |
| Section B        | Essay type questions - open choice<br>Five out of Eight ( from 6 to 13)     | 5 x 10= 50 Marks | Questions must be from all the units |

### Blue Print Question Paper Pattern (75 Marks) -Theory Papers

| Unit | Section B<br>(5 x 5 = 25) |   |   |   |   | Section C<br>(5 x 10 = 50) |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
|------|---------------------------|---|---|---|---|----------------------------|---|---|---|---|--------------------------------------|---|---|---|----|----|----|----|--|--|--|--|--|--|--|--|
|      | 1                         |   | 2 |   | 3 |                            | 4 |   | 5 |   | 6                                    | 7 | 8 | 9 | 10 | 11 | 12 | 13 |  |  |  |  |  |  |  |  |
|      | a                         | b | a | b | a | b                          | a | b | a | b | Questions must be from all the units |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| I    | T                         | T |   |   |   |                            |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| II   |                           |   | T | T |   |                            |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| III  |                           |   |   |   | T | T                          |   |   |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| IV   |                           |   |   |   |   |                            | T | T |   |   |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |
| V    |                           |   |   |   |   |                            |   |   | T | T |                                      |   |   |   |    |    |    |    |  |  |  |  |  |  |  |  |

**Practical - 60 Marks**

|           | Aim & Algorithm | Program | Execution | Record | Total |
|-----------|-----------------|---------|-----------|--------|-------|
| Program 1 | 05              | 10      | 10        | 10     | 60    |
| Program 2 | 05              | 10      | 10        |        |       |

**POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)**  
**Semester wise Distribution with Scheme of Examination**  
**(For the Candidates admitted during the academic year 2013-2014 & Onwards)**

| Semester  | Subject   | Credits | Instruction Hours | Duration of Exams (ESE) | Marks |     | Total |
|-----------|---|---------|-------------------|-------------------------|-------|-----|-------|
|           |   |         |                   |                         | CIA   | ESE |       |
| <b>I</b>  | Core I – Introduction to Information Technology                   | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core II - Office Automation Tools                                 | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core III – C Programming  | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core IV – Digital Fundamentals and Computer Architecture          | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core Practical I - C Programming & Office Automation Tools        | 4       | 6                 | 3                       | 40    | 60  | 100   |
| <b>II</b> | Core V - Visual Basic   | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core VI - Oracle  | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core VII – Software Testing                                       | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core VIII – Information Security                                  | 4       | 6                 | 3                       | 25    | 75  | 100   |
|           | Core Practical II – Visual Basic with Oracle and Software Testing | 4       | 6                 | 3                       | 40    | 60  | 100   |

# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

## Semester-I

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

### Core I – Introduction to Information Technology

QPC:13PD01

**Credits: 4**

**Hours : 90**

**(C:50, Test:10, Sem:10, Ass:5, SS:15)**

#### Preamble:

- Have a basic understanding of the role of information technology in facilitating human Information processing, group collaboration and organization business.
- Understand how the computer hardware and software components make up a computer system and what the role of each component in the system is.
- Understand what is happening inside the computer when you interact with the computer as a user.
- Understand the function of the different components of the computer system and how to specify the computer system you need

#### Unit I:

**[10 Hrs]**

Data and Information – Acquisition of Numbers and Textual Data – Data Storage: Introduction – Memory Cell – Random Access Memory – Read Only Memory – Floppy Disk Drive – Compact Disk Read Only Memory.

#### Unit II:

**[10 Hrs]**

Central Processing Unit – Computer Networks – Output Devices.

#### Unit III:

**[10 Hrs]**

Computer Software – Data Organization: Introduction – Organizing a database – Structure of Database – Database Management System – Example of Database Design.

#### Unit IV:

**[10 Hrs]**

Logic Circuits – Computer Architecture.

#### Unit V:

**[10 Hrs]**

Some Internet Applications – Electronic Commerce: Introduction – Business to Customer e-commerce – Business to Business e-commerce – Customer to Customer e-commerce – Advantages and Disadvantages of e-commerce.

#### Book for Study

1. V.Rajaraman, "Introduction to Information Technology", PHI Pvt Ltd., New Delhi, 2004.
2. V.Rajaraman, "Fundamentals of Computers", PHI Pvt Ltd., New Delhi, 2008.

#### Book for Reference

1. Alexis leon, Mathews Leon, "Fundamentals of Information technology", leon Techworld, Copyright 1999.

Course Designed by : Ms. V.Nandini

Course Reviewed by : Ms. K.Sangeetha

Course Checked by : Ms. B.Sreemathi

# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

## Semester - I

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

Core II –Office Automation Tools

QPC: 13PD02

**Credits: 4**

**Hours : 90**

(C:50, Test:10, Sem:10, Ass:5, SS:15)

### Preamble:

- Study of the Course enables the student to specialize in documentation.
- Spreadsheet Concept gives knowledge about Account maintenance.
- Gives idea about Animating Pictures.
- This course covers the essential skills for using all the office programs, separately and as a team.

### Unit I:

[10 Hrs]

Introduction to Windows 2000 – Running your Applications organizing Program and Documents – Sharing data between Applications – Printers and Printings.

### Unit II:

[10 Hrs]

Introducing Microsoft Office – Common Office Tools and Techniques – Word Basics – [Formatting Text and documents] – Working with Headers, Footers and Footnotes - Tabs, Tables and Sorting – Writers Tools – Mail Merge.

### Unit III:

[10 Hrs]

Excel Basics – Rearranging Worksheets – Excel Formatting Tips and Techniques – An Introduction to Functions – Excel’s Chart Features.

### Unit IV:

[10 Hrs]

PowerPoint Basics – Creating Presentations the Easy Way – Working with Text in PowerPoint – Working with Graphics and Multimedia in PowerPoint - Showtime.

### Unit V:

[10 Hrs]

Introduction to Access – [Creating a Simple Database and Tables] – Forms – Entering and Editing Data – Finding, Sorting and Displaying Data – Printing Reports, Forms, Letters and Labels.

### Book for Study

1. Ron Mansfield, “Working in Microsoft Office”,. Tata McGraw Hill Publishing Company Limited
2. Mark Minasi & Todd Philips, “Mastering Windows 2000 Professional”, BPB Publications.

Course Designed by : Ms. S.Subashini

Course Reviewed by : Ms. G.Krishnavani

Course Checked by : Ms. B.Sreemathi

# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

## Semester I

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

Core III – C Programming

QPC: 13PD03

**Credits: 4**

**Hours : 90**

(C:50, Test:10, Sem:10, Ass:5, SS:15)

**Preamble:**

- C has emerged as the language of choice for most applications due to Speed, Portability and Compactness of Code.
- Helps to learn the fundamentals of ANSI C programming and the standard C libraries.
- Get a solid understanding of C functions.
- It allows to develop programs using well defined control structures and provides modularity
- The collection of these modules makes a program debugging and testing easier.

**Unit I:**

[10 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.

**Unit II:**

[10 Hrs]

Managing Input & Output Operations - Decision Making and Branching - Decision Making and Looping.

**Unit III:**

[10 Hrs]

Arrays - Characters Arrays and Strings – User defined Functions.

**Unit IV:**

[10 Hrs]

Structures and Unions – Pointers.

**Unit V:**

[10 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-Creating a linked list-Inserting and deleting an item-The preprocessor.

**Book for Study:**

1. “Programming in ANSI C”, E.Balagurusamy, Tata McGraw Hill Publishing, V<sup>th</sup> Edition, 2010 Reprint.

**Book for Reference:**

1. “Programming with ANSI and Turbo C”, Ashok N.Kamthane, Person Education, 2008.
2. “Let us C”, Yashvanth kanethker”, BPB Publications, 2010.

Course Designed by : Ms. V.Nandini

Course Reviewed by : Ms. K.Sangeetha

Course Checked by : Ms. B.Sreemathi

# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

## Semester - I

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

Core IV – Digital Fundamentals and Computer Architecture QPC: 13PD04

Credits: 4

Hours : 90

(C:50, Test:10, Sem:10, Ass:5, SS:15)

Preamble:

- This course endeavors to impart the basic knowledge of the parts of the Digital computer.
- Provides idea to the students about the hardware components.
- How are they connected together to form a computer system.
- What is actually taking place inside a computer system.

**Unit I:**

[10 Hrs]

Binary Systems: Digital Computers and digital systems – Binary Numbers – Number Base Conversion – Octal and Hexadecimal Numbers – Complements – Binary Codes.

**Unit II:**

[10 Hrs]

Boolean Algebra and Logic Gates: Basic definition – Axiomatic definition of Boolean Algebra – Boolean Functions – Digital Logic Gates – IC Digital Logic Families.

Simplification of Boolean Functions: The Map Method – Product of sums and sum of product simplification – NAND and NOR implementation – Don't Care Conditions.

**Unit III:**

[10 Hrs]

Combinational Logic and Sequential Logic: Adders – Subtractors – Code Conversion – Binary Parallel adder – Decimal Adder – Decoders – Encoders – Multiplexers – Demultiplexers – Flip flops – Triggers of Flip flop execution tables – Counters – Registers – Counters and the Memory Unit – Shift Registers – Ripple Counters – Synchronous Counters.

**Unit IV:**

[10 Hrs]

Programming the Basic Computer: Machine Language – Assembly Language – Rules of the Languages – Programming Arithmetic and Logic Operations – General Register Organization – Control Word – Examples of Micro Operations – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation Program Control.

**Unit V:**

[10 Hrs]

Input Output Organization: Peripheral Devices - I/O Interface – Asynchronous Data transfer – Modes of Transfer – Main Memory – Auxiliary Memories – Associative Memory – Cache Memory – Virtual Memory.

**Book for Study:**

1. Morris Mano, "Digital Logic and Computer Design", Prentice Hall of India 1998.
2. Morris Mano, "Computer System Architecture", Prentice Hall of India 1998.

**Book for Reference:**

1. Thomas C. Bartee "Computer Architecture and Logic Design", McGraw Hill International Edition 1998.
2. John P Hayes "Computer System and Organization", McGraw Hill International Edition 1998. (Third Edition)

Course Designed by : Ms. S. Subashini

Course Reviewed by : Ms. G. Krishnaveni

Course Checked by : Ms. B. Sreemathi

**POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)  
Semester I****Core Practical I – C Programming and Office Automation Tools**

(For the Candidates admitted during the academic year 2013-2014 & onwards)

**QPC: 13PDP1**

**List of Programs****C Programming :**

1. Program to check Eligibility for Vote.
2. Program to check whether the given number is Prime or Not.
3. Program to find the Sum of N Numbers.
4. Program to find the biggest of three numbers.
5. Program to find the factorial of the given number.
6. Program to generate a Fibonacci series.
7. Program to reverse the given integer number.
8. Program to perform Character Functions.
9. Program to calculate the Electricity Bill Calculation.
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 perform matrix manipulation.
14. Program to Construct a Pyramid of digits and Reverse the Pyramids
15. Program to perform String Operations.
16. Write a C program using Functions with arguments and return values
17. Program to illustrate Structure.
18. Program to illustrate Union.
19. Program to illustrate Pointers.
20. Program to write and read the text from file using command line argument.

**Office Automation Tools:**

1. Prepare an application with Bio-data using MS Word
2. Prepare a Class Timetable using Ms Word.
3. Prepare an information letter about the student's academic result using mail Merge.
4. Create a Newsletter using MS Word.
5. Prepare a Payroll in Excel

6. Create Student Details using Sort and Filter options in Excel
7. Prepare charts and graphs in Excel.
8. Prepare a spreadsheet using Logical Functions in Excel.
9. Prepare a slide in power point regarding sports day invitation (use hyper link)
10. Prepare a power point slide using animation effects.

Course Designed by : Ms. V.Nandini  
 Course Reviewed by : Ms. K.Sangeetha  
 Course Checked by : Ms. B.Sreemathi

## **POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS(PGDCA)** **Semester-II**

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

**Core V- Visual Basic**

**QPC:13PD05**

**Credits: 4**

**Hours : 90**

**(C:50, Test:10, Sem:10, Ass:5, SS:15)**

**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.

**Unit I:** **[10 Hrs]**  
 Visual Basic: Background - VB Forms: Data Entry Screens - VB Toolbox In-depth

**Unit II:** **[10 Hrs]**  
 Variables, Data types and User Defined Types-Dialog Boxes, Conditional Statements and Loops.

**Unit III:** **[10 Hrs]**  
 Units, Arrays, Collections and Enums -Events: A Closer look - OLE.

**Unit IV:** **[10 Hrs]**

Menus, Control Arrays, Multiple Forms-Windows Common Controls: MonthView, DTPicker, Status bar and Scrollbar.

**Unit V:** **[10 Hrs]**  
 DAO-Code Based approach to DAO-ADO Data control-ADO Based Advanced Controls.

**Book for Study:**

1. Sanjeev Sharma & Nandan Tripathi, "Visual Basic6"- Excel Books-First Edition 2009.

**Book for Reference:**

1. Steven Holzner,"Visual basic 6 Programming black book",Paraglyph Press,USA.
- 2.Noel Jerke"The Complete reference visual basic6", Tata McGraw Hill.

Course Designed by : Ms. V.Devi  
 Course Reviewed by : Ms. J.Arulmary  
 Course Checked by : Ms. B.Sreemathi

# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

## Semester-II

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

Core VI - Oracle

QPC: 13PD06

Credits: 4

Hours : 90

(C:50, Test:10, Sem:10, Ass:5, SS:15)

### Preamble:

- It provides the knowledge of the basic concepts of SQL, PL/SQL and Oracle.
- It enhances the programming skills of the Students in PL/SQL and Oracle.

### Unit I

[10 Hrs]

Database Concepts: What is Database – What is Database Management Systems (DBMS)– What is Relational Database Management Systems – DBMS Vs RDBMS- Normalization – Introduction to Oracle – Software Development tools of Oracle – Introduction to Structured Query Language (SQL) – Interactive SQL : Table Fundamentals – Viewing Data in the tables – Eliminating the duplicate rows when using SELECT Statement – Sorting data in a Table – Creating a table from a table – Delete operations – Updating the content of a table – Modifying the structure of tables – Renaming, truncating & Destroying Tables.

### Unit II

[10 Hrs]

Data Constraints – Types of Data Constraints – Defining different constraints on a table – User Constraints table – Defining, Dropping integrity constraints Via ALTER table command. Computations Done on Table data- Oracle Functions – Date Conversion Functions – Date Functions – Miscellaneous Functions.

### Unit III

[10 Hrs]

Grouping Data from Tables in SQL – SubQueries – Joins – Concatenating Data from a Table Columns - using the UNION, INTERSECT & MINUS Clause. Advanced SQL: Indexes- Multiple indexes on a table-Using Rowid to delete duplicate rows from a table – Using Rownum in SQL statements-Views-Clusters-Sequences-Snapshots. Security Management using SQL: Granting and Revoking Permissions- Revoking Privileges given.

### Unit IV

[10 Hrs]

Introduction to PL/SQL: Advantages of PL/SQL- The generic PL/SQL Block- The PL/SQL Execution environment-PL/SQL-Control Structure.PL/SQL Transactions: Oracle Transactions-Processing a PL/SQL block-What is cursor?- Cursor for loops-Parameterized Cursors.

### Unit V

[10 Hrs]

Locks – 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 Vs Functions – Database Triggers.

### Book for Study:

Ivan Bayross , “ SQL,PL/SQL The Programming Language of Oracle”, 3<sup>rd</sup> Edition BPB Publications.

**Book for Reference:**

1. C.J.Date “ An Introduction to Database System” , 6<sup>th</sup> Edition Addison Wesley Publishing Company Inc.
2. Ramakrishnan , Gehrke “Database Management System”, Third Edition Mc Graw Hill Higher Education.

Course Designed by : Ms. K.Sangeethapriya

Course Reviewed by : Ms. S.Anitha

Course Checked by : Ms. B.Sreemathi

**POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)****Semester - II**

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

Core VII – Software Testing

QPC: 13PD07

**Credits: 4**

**Hours : 90**

(C:50, Test:10, Sem:10, Ass:5, SS:15)

**Preamble:**

- To explain the basics of software testing
- To highlight the strategies for software testing
- To bring out the ways and means of controlling and monitoring testing activity

**Module I:**

[10 Hrs]

Introduction: The Purpose of Testing. Some Dichotomies: Testing Vs Debugging. - A Model for Testing the Taxonomy of Bugs.

**Module II:**

[10 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:**

[10 Hrs]

Domain Testing: Domains and Paths – Domains and Interface Testing. Metrics and Complexity: Linguistic Metrics – Structural Metric - Path Products and Path Expressions.

**Module IV:**

[10 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:**

[10 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.

Course Designed by : Ms.S.Anitha

Course Reviewed by : Ms.B.Sasikala

Course Checked by : Ms.B.Sreemathi

# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

## Semester-II

(For the Candidates admitted during the academic year 2013-2014 & Onwards)

Core VIII - Information Security QPC: 13PD08

**Credits: 4**

**Hours : 90**

(C:50, Test:10, Sem:10, Ass:5, SS:15)

**Preamble:**

- Understand the basics of Information Security
- To know the legal, ethical and professional issues in Information Security
- To know the aspects of risk management
- To become aware of various standards in this area
- To know the technological aspects of Information Security

**Unit I:**

**[10 Hrs]**

History - What is Security? - Critical Characteristics of Information - NSTISSC Security Model - Components of an Information System - Securing Components - Balancing Information Security and Access - Approaches to Information security Implementation - The SDLC – Securing the SDLC - Sec SDLC - Security Professionals and the Organization - Need for Security - Threats.

**Unit II:**

**[10 Hrs]**

Attacks - Legal, Ethical and Professional Issues in Information Security - International Laws and Legal bodies - Ethics and Information Security - Introduction to Risk Management - Risk Identification - Risk Assessment - Risk Control Strategies.

**Unit III:**

**[10 Hrs]**

Selecting a Risk Control Strategy - Feasibility studies - Risk Management Discussion Points - Information Security, Policy, Standards and Practices - The Information Security Blueprint - Design of Security Architecture.

**Unit IV:**

**[10 Hrs]**

Security Education, Training and Awareness program - Continuity Strategies - Incident Response Plan (IRP) - Disaster Recovery Plan - Business Continuity Plan - Security Technologies - Scanning and Analysis Tools.

**Unit V:**

**[10 Hrs]**

Cryptography - Access Control Devices - Physical Security - Security and Personnel.

**Book for Study:**

A.Angel Freedaraja, K.Benitlin Subha, “Information Security”, Sams Publishers, First Edition 2012.

**Book for Reference:**

1. Harold F. Tipton, “Information Security Management Handbook”, Fifth Edition.
2. Radia Perlman, “Network Security: Private Communication in a Public World”, Second Edition.

Course Designed by : Ms. D.Pavithra

Course Reviewed by : Ms. L.Sankara Maheswari

Course Checked by : Ms. B.Sreemathi

**POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)**

**Semester-II**

**(For the Candidates admitted during the academic year 2013-2014 & Onwards)**

**Core Practical II – Visual Basic with Oracle and Software Testing**

**QPC:13PDP2**

**List of Programs:**

**Visual Basic**

1. Write a Program to create a Window Using Event Handling.
2. Write a Program to create a student details using conditional statements and test the module.
3. Write a Program to design a Calculator with Various Arithmetic Operators and test the input values by preparing the test cases.
4. Write a Program for Text Manipulations (Changing Foreground, Background & Alignment) and validate the controls.
5. Create a program to develop an Application for loading a Picture using Drive, Directory & File List Box controls.
6. Design a form to print the numbers in Pyramid Shape.
7. Design a form to display the List of Product by declaring Array.
8. Write a Program to develop an application for displaying Employee details using Database (Use DAO Control) and test the application using Integration testing.
9. Program for drawing various shapes and fill color to that shapes using Scroll bar.
10. Design a form using Windows common controls.

**Oracle**

1. Create a table Customer with fields customer number, name address, city, pin code and insert 10 values in the above table.
2. Perform select, update and delete for the table Customer.
3. Add the fields state, Phone number to the table Customer and insert the necessary values.
4. Create a table Student with the fields register number, Student number, Create another table marks with fields register number, mark of 3 subjects. Join these two tables and display all the above information.
5. Create a table Product with Fields : product number, Product name and date of sales. Display the above information in the ascending order of field date of sales. The date of sales should be displayed in 'DD/MM/YY' Format.
6. Write a PL/SQL block in which if the salary of the employee is > 5000 whose employee number = 10, display the output else set the salary as 7500.
7. Write a PL/SQL block for reversing a number.
8. Write PL/SQL block to find the sum of the series  $1! + 2! + 3! + \dots + N!$ .
9. Write a PL/SQL block to print the Fibonacci series.
10. Write a PL/SQL block to raise an exception if the sales condition is satisfied to get the commission. (Condition: If the actual sales are less than the target sales, raise exception).

Course Designed by : Ms. K.Sangeetha Priya

Course Reviewed by : Ms. S.Anitha

Course Checked by : Ms. B.Sreemathi