Syllabus
of

Post B.Sc Diploma in Computer Science and Application

(One Year Course)

P.G.D.C.S.A
Paper- 1: Information Communication Technology
(PGDCSA1)

UNIT-I: Basic of Computer

Introduction to Computer, Types and Classification. **Basic Anatomy of Computer:** Block, Diagram of Computer, Generation of Computers. **CPU:** Function of Each Unit.
Data Representation: Decimal, Binary, Their Interconversion

UNIT-II: Input/ Output Peripherals and Storage Devices

Input Devices: Keyboard**, Locator Device:** Mouse, Joy Stick Digitizing Tablet **Pick Device:** Light Pen, Touch Screen Track Ball, **Voice Recognition:** Microphone, **Scanning:** MICR, OCR, OMR, Barcode Reader, **Vision Capturing:** Webcam, Digital Camera Point of Scale, Touch Pad, Smart Card, **Output Devices:** VDU, Dot Matrix, Laser and Inkjet Printers, Plotters.
M**emory:** Primary, Cache, Flash, **Storage Classification:** Sequential, Random, **Storage Devices:** Pen Drive**,** Hard Disk, and Optical Disk, Blue Ray Disc.

Unit-III: Windows

Features of Windows, GUI, Operating with Windows, Desktop, Taskbar, Windows Explorer, Control Panel, My Computer, My Documents, Recycle Bin
Windows Accessories: Calculator, Notepad, Paint, System Information, Disk Management, Disk Defragmentation, Disk Cleanup

UNIT–IV: Network & Internet

Computer Communication, Need for Networks, Types of Network- LAN, WAN, MAN, Concept of Network Topology, Types of Topologies and its Advantages and Limitations. **Internet:** Basic Internet terms, Internet Addressing, Services provided by Internet, Detail about E-mail, Search Engine, Social and Ethical Issue, YouTube, FaceBook, Orkut
Open Source Terminologies: Open Source Software, Freeware, Shareware, Proprietary Software, FLOSS, GNU, FSF, OSI

Books:

1) Dr. Madhulika Jain, Shashank & Satish Jain ,"Information Technology Concepts", BPB , New Delhi, ISBN - 8176562769
2) Alexis and Mathews Leon, "Fundamentals of Information Technology" Leon Press, Chennai & Vikas Publishing House Pvt. Ltd, New Delhi, ISBN :8182090105

References:

1) Kamlesh Agarwal,"WAP the NET", MacMillan.
2) Douglas Comer, "The Internet Book", PHI, ISBN: 0132335530
3) Peter Norton's, "Introduction to Computers", 4TH Ed. TMH Pub., ISBN-0070593744

P.G.D.C.S.A
Paper- 2: E-COMMERCE AND WEB DESIGNING
(PGDCSA2)

UNIT-I: E-Commerce and Introduction to Internet

E-Commerce- Introduction, Application, Definition, Benefits of E-Commerce, Impediments of E-Commerce, Difference between Traditional and Electronic Commerce, E-Commerce Service,

Electronic Data Interchange (EDI): Introduction, Benefits, Value Added Services (VAS), On-line Payment Services, Trade Cycle.

Introduction- Internet, Basic Internet Terms**,** Internet Addressing, Protocols, Internet Protocols, Services of Internet, Search Engine**.**

UNIT-II: Basic of HTML and Tag

Introduction to HTML - Introduction, Features of HTML, Advantages & Disadvantages of HTML, HTML Editors, Step to Create and View HTML Document, Basic Structure of HTML Program

Tags & Attributes- Nesting of Tags, Classification of HTML Tags, Block Formatting Tags.

List - Introduction to Lists, Unordered List, Ordered List, Definition List, Nested List, Difference Between Ordered and Unordered List.

Linking - Introduction, Type of Hyperlink Creation, Working with Links, Pathname and Types, Types of Linking or Anchors.

UNIT-III: Advanced HTML

Graphics in Web Page - Image Tag, Align Images, Embedding Inline Images and External Images,

Tables - Basic table tags and their related attribute

Frames- Frames, <Frame> and <Frameset> tags,

Form designs, Form Controls, Text controls, password fields, radio buttons, and check boxes. Reset and submit buttons, form control selection, option processing and text area.

UNIT -IV: CSS and XML

CSS: Defining style sheets features, adding style to document, Unlink to a single sheet. Embedding style sheet, Using inline style and its properties,

XML: Introduction. XML and SGML, Design goals of XML, Application of XML; XML Software, XML tags, Structure of XML documents, Element markup, Attribute markup,

Namespaces: Qualified name and Unqualified names, Namespace scope, default name space, working with formatting

Working with DTD: Introduction, HTML and DTD, Benefits of the DTD, Structure of DTD, and Declarations of variable in DTD, Element name, Occurrence indicators, Connectors,

Books:

1) Greenstein and Feinman," Electronic Commerce", TMH, 2000, TMH, ISBN-0-07-042141-2,.
2) Bhushan Dewan, "E-Commerce by ", S.Chand,2001, 1ST Ed., ISBN - 81-219-2083-3,

References:

1) Complete HTML , BPB,2010, ISBN-13:978-0-07-070194-6.
2) C.Xavier, "Web Technology and Design",TMH,2010, ISBN-13:978-81-224-1450-9

P.G.D.C.S.A
Paper-3: System Analysis and Design
(PGDCSA3)

UNIT –I: Basic Concept

System Concept- System Concept, Electronic of The System, Types of System. **The System Development Life Cycle –** Introduction, Consideration for Candidate Systems, Prototyping. **The Role of the System Analyst –** Introduction, Multi Faceted Role of The Analyst, The Analyst/User Interface, Rising Position in System Development.

UNIT-II:

System Planning and The Initial Investigation – Introduction, Base For Planning in System Analysis, Initial Investigation.

Information Gathering – Introduction, Information Gathering Tools.

The Tools of Structured Analysis – Introduction, The Tools of Structured Analysis, Pros & Cons of Each Tool. **Feasibility Study –** Introduction, System Performance Definition, Feasibility Study.

UNIT-III:

Cost Benefit Analysis – Introduction, Data Analysis, Cost Benefit Analysis, Procedure For Cost Benefit Determination.

System Design-Introduction, The Process of Design, Design Methodology, Major Development Activities, Audit Considerations.

Input/output and Form Design – Introduction, Input Design, Output Design, Form Design.

UNIT-IV:

File Organization and Data Base Design –Introduction, File Structure, and File Organization, Database Design, Data Structure, Normalization and The Role of Database Administrator.

System Implementation (System Testing & Quality Assurance)- Introduction, The Test Plan, Quality Assurance, Levels of Quality Assurance, Role of Data Processing Auditor.

Software Documentation-.Requirement Documentation, Architecture /Design Documentation, Technical Documentation, User Documentation, Marketing Documentation, Documentation Standard, Online Documentation

Books:

1) Elias Award, "System Analysis & Design", Golgotha Publication, 2nd Edition, ISBN: 81751568-X
2) Edward," System Analysis & Design ", Tata McGraw Hill,ISBN:8120317270
3) Rajaraman," Analysis and Design of Information System", PHI Publication, ISBN - 8120312270

References:

1) Kendall & Kendall, "System Analysis & Design ",PHI Publication, 5th Edition,ISBN-8120321553
2) Dennis, "System Analysis & Design", Wiley Student Publication,3rd Ed. ISBN-9788126508808
3) ISRD Group," Structured System Analysis & Design", TMH Pub. ISBN- 0070612048

P.G.D.C.S.A
Paper-4: Data Structures and File System
(PGDCSA4)

UNIT I: Introduction to Data Structures

Data Structure and Algorithms- Introduction, Data Structures, Fundamentals of DS, Operations on DS

Arrays – Introduction, Types of Arrays, Memory/Storage Representation of One and Two Dimensional Array, Multidimensional Array. Declaration of Array

Sorting- Definition of Sorting, Comparison of Sorting Method, Bubble Sort, Insertion Sort, Selection Sort, Merging.

Searching- Definition**,** Type of Searching (Binary Search, Linear Search.)

UNIT II: Stacks and Queue

Stacks- Introduction & Definition, Application of Stack, Various Representation of stack, Operation on stack (push and pop) Hierarchy of Operation, Representation of Arithmetic Expression (Infix, Postfix, Prefix) Multiple Stack.

Queues- Introduction, Applications of Queue, Various Representations of Queue, Operation on queue. Concept of Deque, Priority Queues, Circular Queue.

UNIT III: Recursion and Link List

Recursion- Introduction, Recursion Properties, Applications of Recursion(Factorial, Addition of Two Number, Power of A Number, Fibonacci Series, Multiplication of Two Number, Tower of Hanoi.) Advantages and Disadvantages of Recursion.

Linked List- Introduction, Dynamic Memory Management, Definition of Linked List, Application of Linked List, and Representation of Linked List, Memory Allocation, Garbage Collection, and Free List. Operation on Linked List Inserting, Removing, Searching, Sorting, Merging Nodes from A List. Concept of Double Linked List.

UNIT IV: Tree and Graphs

Trees- Introduction**,** Definition of trees, Binary tree, Type of Binary Tree, Operation on Binary Tree, Traversal of Binary Tree, Binary Search Tree(BST), Expression trees, Memory Representation of Binary Tree, Threaded Binary Tree, AVL Tree, B-Tree.

Graphs: - Definition of Graph, Various Terminology Used in Graph, Sequential Representation of Graph, Path Matrix, Spanning Tree, and Minimum Spanning Tree (Kruskal Algorithm, PRIM'S Algorithm), Traversing a Graph.

Books:

1) D. Samanta, "Classical Data Structure", PHI, New Delhi.
2) Lipschutz Schaums, "Data Structure", Outline Series TMH, 2003, ISBN-0-07-099032-8

Reference:

1) Tenenbaum, "Data Structures Using C and C++", PHI, "2nd Ed.", 2006, ISBN-81-317-0328-2.
2) Deshpande and kakade, "C and Data Structure", Dreamtech, 2007, ISBN-81-7722-424-7.

P.G.D.C.S.A
Paper-5: Event Driven Programming with Visual Basic
(PGDCSA5)

UNIT-I : Introduction to Visual Basic

Integrated Development Environment (IDE) – Features, Event driven programming,

Programming Constructs: Data Types, Variable, Constant, Operator, System defined Function, Dialog Box and Creating User Interface

Control flow statement: if-then, select-case, for-next, while wend, do-loop statement. With..End With, DoEvent statement

UNIT-II: VB Control and Procedure

Visual Basic Control: Form, Label, Textbox, Frame, Checkbox, Option Button, ListBox, ComboBox, Timer, Scrollbar, Picture, Image, File Controls, Artwork control

ActiveX Control: Tab Strip, Status Bar, Slider, Month View, DTPicker, Rich Text Box, Common Dialog

Procedure: Types of Procedure, Subroutine, Function, Module

UNIT-III: Menu, Interface and Array

Menu Editor, Creating Menus, Utility features provided by menu editor, modifying menu at run time, pop-up menu, Creating Toolbar using Image List

Interface: SDI, MDI,

Array: One Dimensional Array, Built-in Array function, For..Each Loop, Arrays Types

UNIT-IV: ActiveX Data Object

Use of ADO Object, ADO Architecture, Connecting ADODC to Bound Control, ADO Object Methods for Editing, Updating and Searching

Data Environment, Data Report,

Debugging and Error Handling: Types of Error, Debugging, Handling Run Time Error.

Books:

1) Evangelos Petroutsos ,"Mastering Visual Basic 6 ", BPB, 2005 ISBN-81-7635-269-1.
2) Moel Jerke,"Complete Reference Visual Basic 6",TMH, 2004, ISBN -0-07-463666-9.
3) Steve Brown,"Visual Basic 6.0 Complete", BPB Publication

References:

1) Peter Norton's ,"Visual Basic 6.0" ,SAMS TechMedia,2006, ISBN-81-7635-150-4
2) Michael Halvorson, " Learn Visual Basic 6.0 Now",PHI
3) Michael Vine ,"Visual Basic Programming – For Absolute Beginner", PHI, ISBN: 0761535535
4) Paul Sheriff ,"Teaches Visual Basic 6",PHI

P.G.D.C.S.A
SEMESTER - II
PORJECT
(2PGDCSA8)

Instruction:

Towards the end of the second semester of study, a student will be examined in the course "Project Work".

a. Project Work may be done individually or in groups (Maximum 2 students) in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to monitor the progress of individual student.
b. The Project Work should be done using the tools covered in PGDCCA
c. The Project Work should be of such a nature that it could prove useful or be relevant from the System-oriented/Application/commercial / management angle.
d. The project work will carry 100 marks.
e. The external viva-voce examination for Project Work would be held as per the Examination Time Table of the second year of study, by a panel of one external and one Internal examiner.
f. Head/Co-ordinator of Computer Dept. must reject any project title which was already carried out in any computer course in the college. It must maintain a Record that lists the projects along with other detail (like Guide, Session, and Number of students working on project etc) that was carried out so far and must be shown to external examiner at the time of examination.

Types of Project

As majority of the students are expected to work out a project in some industry/research and development laboratories/educational institutions/software export companies, it is suggested that the project is to be chosen which should have some direct relevance in day-today activities of the candidates in his/her institution. The Applications Areas of project - Financial/Marketing/Database Management System/ Relational Database Management System/E-Commerce /Internet/ Manufacturing/ web Designing/Hardware and Software interaction based etc.

Project Proposal (Synopsis)

The project proposal should be prepared in consultation with the guide. The project guide must be a person having minimum Qualification MCA/M.Sc.(Computer)/ M.Sc. (Maths/Electronics/Statistics/Physics + Post B.Sc. Dip. In Comp. Sc. & Appl.) The project proposal should clearly state the objectives and environment of the proposed project to be undertaken. It should have full details in the following form:

1. Title of the project
2. Objectives of the Project
3. Project Category (DBMS/RDBMS/OOPS/Web Designing/Internet etc.)
4. Tools/Platform, Languages to be used
5. A complete Structure of the program:

i. Analysis.
ii. Numbers of Modules.
iii. Data Structures or Tables
iv. Process Logic.
v. Types of Report Generation.

6. Scope of future Application.

Project Report Formulation.

1. Title Page.
2. Certificate Page.
3. Declaration Page.
4. Acknowledgment Page.
5. Index or Content Page.
6. Documentation.
   i. Introduction/Objectives.
   ii. Preliminary System Analysis.
      - Identification of Need.
      - Preliminary Investigation.
      - Feasibility Study.
      - Need of New System.
      - Flaws in Present System.
   iii. Project Category.
   iv. Software Requirement Specification.
   v. Detailed System Analysis.
      - Data Flow Diagram.
      - Numbers of Modules and Process Logic.
      - Data Structures and Tables.
      - Entity-Relationship Diagram.
   vi. System Design.
      - Source Code.
      - Input screen & Output Screen.
   vii Validation Checks.
   viii Implementation, Evaluation and Maintenance.
   ix Security Measures taken.
   x Future Scope of the project.
   xi Bibliography