

COMPUTER SCIENCE

Semester I : Computer Fundamentals and Office Automation

Unit - 1 :

Fundamentals of Computers: Computer definition, Types of Computer, Logical Organization of a Digital Computer, Memory: Main Memory: RAM, ROM and Cache, Secondary Memory: Magnetic type, Floppy disk, Hard disk, Compact disk, Input devices, Output devices, Operating system: Definition, functions of an operating system, GUI & CUI

Unit - 2:

MS Word: Word Basics : Starting word, Creating a new document, Opening preexisting document, The parts of a word window, Typing text, Selecting text, Deleting text, Undo, Redo, Repeat, Inserting text, Replacing text, Formatting text, Cut, Copy, Paste, Printing. Formatting Your Text and Documents: Auto format, Line spacing, Margins, Borders and Shading.

Working with Headers and Footers: Definition of headers and footers, creating basic headers and footers, creating different headers and footers for odd and even pages.

Tables : Creating a simple table, Creating a table using the table menu, Entering and editing text in a table, selecting in table, adding rows, changing row heights, Deleting rows, Inserting columns, Deleting columns, changing column width .

Graphics : Importing graphics, Clipart, Insert picture, Clip Art Gallery, using word's drawing features, drawing objects, text in drawing.

Mail Merge : Mail Merge concept, Main document, data sources, merging data source and main document. Overview of word menu options word basic tool bar.

Unit - 3 :

MS Power Point: Power Point : Basics, Terminology, Getting started, Views Creating Presentations : Using auto content wizard, Using blank presentation option, Using design template option, Adding slides, Deleting a slide, Importing Images from the outside world, Drawing in power point, Transition and build effects, , Numbering a slide, Saving presentation, Closing presentation, Printing presentation elements.

Unit - 4 :

MS Excel: Excel Basics: Overview of Excel features, Getting started, Creating a new worksheet, Selecting cells, Entering and editing text, Entering and editing Numbers, entering and editing Formulas, Referencing cells, moving cells, copying cells, sorting cell data, inserting rows, inserting columns, Inserting cells, Deleting parts of a worksheet, clearing parts of a worksheet.

Formatting: Page setup, changing column widths and Row heights, auto format, changing font sizes and Attributes, centering text across columns, using border buttons and Commands, changing colors and shading, hiding rows and columns.

Introduction to functions: Parts of a functions, Functions Requiring Add-ins, The Function Wizard. Examples functions by category: Data and time functions, Engineering functions, Math and Trig functions, Statistical functions, Text functions.

Excel Charts: Chart parts and terminology, Instant charts with the chard wizard, creation of different types of charts, printing charts, deleting charts, Linking in Excel

Excel Graphics: Creating and placing graphic objects, Resizing Graphics, Drawing Lines and Shapes.

Books of study:

1. Introduction to Computers with MS-Office, Leon, TMH
2. Office 2000 in easy steps, Stephen Copestake, Wiley Dreamtech

References:

1. A First Course in Computers 2003, Saxena, VIKAS
2. Computer Concepts & Windows, Stoline, SPD/LABYRINTH
3. Windows 98 in easy steps, Harshad Kotecha, Wiley Dreamtech
4. Personal Computer Software, EXCEL BOOKS
5. Windows & MS-Office 2000, Krishnan, SCITECH.

Software Lab 1

- i. Familiarization of Computer System: Demonstration of various units of Computer system, handling of devices,
- ii. Familiarization of Operating Systems: MS-WINDOWS, LINUX
- iii. Familiarization of MS-office package : Microsoft Word , Microsoft Excel, Microsoft Powerpoint

Semester II : Programming with C language

Unit-I

Algorithm for problem solving: An Introduction, Properties of an algorithm, Algorithm logic, Flowchart.

Program design: programming techniques, basic concepts of structured programming & modular designing of programs.

Programming environment: High level programming language, low level programming language, middle level programming language, Assembler, Compiler, Interpreter.

Unit-II

What is C: Historical development of C

Getting started with C: The C character Set, Types of C constants, data types in C , C keywords, identifiers, literals.

Operators: logical operators, arithmetic operators, relational operators, assignment operator, increment and decrement operators, conditional operators, bit wise operators, special operator : &, *, ., ->, size of.

Type conversion: type casting, precedence and associativity issues of operators.

Unit-III

Decision control structure: control instructions in C, if, if-else, switch ... case, nested if, if-else, switch - case

Loop control structure: for loop while loop, do-while loop, nested loops, break, continue, goto, exit statement.

Unit-IV

Arrays & Pointers: what are arrays, array initialization, 1D array, initialization of arrays, 2D arrays. Pointer Definition

Strings: What are strings, standard library string functions: strlen(), strcpy(), strcat(), strcmp(),

Functions & structures: Function declaration, definition & scope, recursion, Arrays and functions, call by value, call by reference,

Storage Classes: automatic, external (global), static & registers.

Structures definitions and basic concepts

Book of study:

1. Fundamentals of computers by P K Sinha
2. E. BalaGuruswamy, Programming in ANSI C, TMH (2007)

References:

1. Byron S Gottfried, Programming in C , Shaum's Outline series.
2. B. Kernighan and D. Ritchie, The ANSI C Programming Language, PHI

Software Lab 2

1. Programs using control structures: if, switch, for, while, do...while, nested structures, break and continue
2. Programs using Arrays: Array based programs, Creation of array, matrix addition, matrix multiplication, transpose of a matrix,
3. User Defined Functions: Programs using return type functions, void type functions, example program using recursive functions,

Semester III : Web Technology and Programming

Unit-I

Concept of the point to point and Broadcast Network, OSI Reference Model, Bus, Ethernet LAN, Token Ring, Star, Hub, WAN, MAN, TCP/IP, Routers, Gateways, Bridge, Switches, Subnet, Internet & Intranet, Introduction to TCP/IP and Shell Account Internet Addressing

Unit-II

Concept of ISP (Internet Service Provider), Internet Backbones, Concept of URL Address, Domain Names, Hypertext Concepts and World Wide Web, FTP, NNTP. The Email Electronic Post Service, SMTP, Configuring a Computer for an email, Free E-mail sites and setting e.g. hotmail, mail city, email with additional features, websites.

Unit-III

Web server and proxy server, Web caches, Web browse like Internet Explorer, Netscap Navigator, Netscap Communication Suit, Internet Viruses, Internet security issues, Embedded and S/W based firewall, Data encryption and Digital signatures and certificates.

Unit-IV

The art of creating the website and home page, The HTML programming basics, Syntax and rules, Tables, Frames, Forms, Example of HTML page, Choice of page color, banners, Linking with HTML page

Unit-V

The search and search engine for internet, Internet Agents, mobile agents, meta search sites, outlook express and front page.

Books of study:

Internet & Web Technologies, Raj Kamal, Tata Mc Graw Hill

Reference

HTML Black Book, Steven Holzner, Dreamtech Publishers

Software Lab 3

Internet browsing, email - creation of account, reception, compilation, sending etc

Web page designing using HTML tags and linking with other pages.

Semester IV : Visual Programming Techniques

Unit 1:

Data Base Management System: basic concepts & structure, Data definition and data manipulation using MS ACCESS

Unit 2 :

Visual Basic - Basic Concepts: Getting Started with Visual Basic advantages of VB, VB Development Overview, Designing and building the User Interface, creation of forms and adding controls to the form, Setting control properties, Writing Event Driven Code

Visual Basic Projects : Using different types of Projects, Project Explorer Window, VB procedures, subroutines & functions, Comments, Controlling Program Flow IF.. THEN...ELSEIF, SELECT...CASE, Loops-FOR...NEXT, DO, WHILE...WEND. Visual Basic Variables-Data Types Byte, Integer, Long, Single, Double, Currency, Boolean, Date, Object, String & Variant. Variable Declaration-Implicit & Explicit

Unit 3 :

Designing the User Interface : VB Form, Adding Forms, Form Properties, Setting Properties with Code, Using Form Drawing Methods, Loading & Unloading Forms, Form Events, Dialog Boxes-Message Box & Input Box, MDI Applications-MDI Parent Form/Child Forms.

Unit 4 :

controls: Tool Box-Label, Text Box, Frame, Command Button, Check Box, Option Button, List Box, Combo Box, Horizontal Scrollbar, Vertical Scrollbar, Timer, Drive List Box, Directory List Box, File List Box, Line, Shape, Image Box, Picture Box, Data Control, OLE Control, Customizing Tool Box, Adding Controls to Forms, Naming Controls, Copying Controls, Control Arrays

Unit 5:

Mastering Menus and Toolbars : Menus, Menu Editor, Pop-up Menus, Customising Toolbar, Jet, DAO, Advanced Data Access Methods, ADO, OLEDB

Working with other Applications & Database Access: Visual Basic Data Control, Creating Queries in Visual Basic

Books of study:

Peter Norton's Guide to Visual Basic 6 by Peter Norton and Michael Groh, Techmedia publications Chapters: 1-7, 18, 19, (2007)

References:

1. Visual Basic 6 from the Ground Up by Gary Cornell, TataMcGraw-Hill (2008)
2. Programming in Visual Basic 6.0 by Julia Case Bradley and Anita C Millsbaugh, Tata McGraw-Hill (2005)
3. Using Visual Basic 6 by Bob Roselman, Richard Peasley and Wayne Prunchiah, PHI

Software Lab IV

1. Designing User Interface using- List Box, Combo Box, Image and Picture Box, Directory-File-Drive list boxes, Rich text box, etc
2. Creating Menus- Creating Menus and writing Codes, Linking Menus with MDI forms.
3. Database Connectivity using Controls - Designing user interface with forms and controls and create database connectivity by DAO and ADO Control.
4. Creating Reports - Create reports using Data Report in VB

| Complimentary Course for | Course | No. of hours per week | | Durn. of Exam in hours | Credits |
|--------------------------|---------------------------------------------|-----------------------|----------|------------------------|-----------|
| | | Lecture | Lab. | | |
| semester 1 1. B | Computer Fundamentals and Office Automation | 2 | | 3 | 3 |
| | Software Lab 1 | | 2 | 0 | 0 |
| semester 2 2. B | Programming with C language | 2 | | 3 | 4 |
| | Software Lab2 | | 2 | 3 | 3 |
| semester 3 3. B | Web Technology and Programming | 2 | | 3 | 3 |
| | Software Lab 3 | | 2 | 0 | 0 |
| semester 4 4. B | Visual Programming Techniques | 2 | | 3 | 3 |
| | Software Lab 4 | | 2 | 3 | 3 |
| | Total | 8 | 8 | | 19 |

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