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.

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


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**

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 associatively 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

**References:**
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
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


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:**

**References:**

**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

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The backbone of office automation is a LAN, which allows users to transmit data, mail and even voice across the network. All office functions, including dictation, typing, filing, copying, fax, Telex, microfilm and records management, telephone and telephone switchboard operations, fall into this category.

Modules.  

1. Computer fundamentals and Windows  
2. Office Automation (Ms Word, Excel, PowerPoint)  
3. Internet and Email  
4. Algorithm Design.

Marks Distribution.  
Max. 20.  
Discipline.  
Semester II  
1. PGDCA-21. Web Designing using HTML, DHTML, Java Script, Flash, Photoshop. 100 40 150 60.  
2. PGDCA-22.  
3. PGDCA-23.  

Automation technology is a crossover discipline that uses knowledge and scientific methods from mechanical, electrical, production and structural engineering and numerous other technical sciences. Fundamentals of automation technology by Technical book by FESTO. According to DIN 19223, an automatic machine is an artificial system that makes decisions based on the linking of inputs with the respective states of the system. These decisions then produce very specific desired outputs.