Shri Sangameshwar Education Society's

Sangameshwar College, Solapur [Autonomous]

(Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur)

Kannada Linguistic Minority Institute

NAAC Accredited with 'A' Grade (III Cycle CGPA 3.39)

PG Science Programme : M.Sc CS -I To be implemented from A.Y. 2020-2021

System : Choice Based Credit System [CBCS] with SGPA and CGPA

B.O.S. in* :M.Sc **Subject-Computer Science**

Structure and Examination for Computer Science

Semester	Code	Title of the Paper	Examination			L	T	P	Credits
			SE	CA	Total				
Sem-I		**Hard Core**							
	HCT1.1	Object Oriented Programming using C++	70	30	100	4	--	--	4
	HCT1.2	Database Management System	70	30	100	4	--	--	4
	HCT1.3	Design and Analysis of Algorithms	70	30	100	4	--	--	4
		Soft Core [Any one]							
	SCT1.1	Research Methodology	70	30	100	4	--	--	4
	SCT1.2	Software Engineering and Testing	70	30	100	4	--	--	4
		Lab							
	HCP1.1	Practical based on HCT 1.1	35	15	50	--	--	03	2
	HCP1.2	Practical based on HCT 1.2	35	15	50	--	--	03	2
	HCP1.3	Practical based on HCT 1.3	35	15	50	--	--	03	2
	HCP1.4	Project	35	15	50	--	--	03	2
		Tutorial	---	25	25	--	1	--	1
		Total for Semester-I	**420**	**205**	**625**	**--**	**--**	**--**	**25**
Sem-II		**Hard Core**							
	HCT2.1	Advanced JAVA	70	30	100	4	--	--	4
	HCT2.2	Python Programming	70	30	100	4	--	--	4
		Soft Core [Any one]							
	SCT2.1	Digital Image Processing	70	30	100	4	--	--	4
	SCT2.2	Computer Communication Network	70	30	100	4	--	--	4
		Open Elective[Any one]							
	OET2.1	Office Automation	70	30	100	3	--	--	3
	OET2.2	Web Technology	70	30	100	3	--	--	3
		Lab							
	HCP2.1	Practical based on HCT 2.1	35	15	50	--	--	03	2
	HCP2.2	Practical based on HCT 2.2	35	15	50	--	--	03	2
	SCP2.1/2.2	Practical based on SCT 2.1/2.2	35	15	50	--	--	03	2
	OEP2.1/2.2	Practical based on OET 2.1/2.2	35	15	50	--	--	03	2
	HCP2.3	Project	35	15	50	--	--	03	2
		Total for Semester-II	**455**	**195**	**650**	**--**	**--**	**--**	**25**

SEMESTER - I

HCT 1.1: Object Oriented Programming Using C++

Total Lectures: 60

Unit-I **[15]**

Introduction to Object-Oriented Programming

Basic Concepts of OOP, Benefits of OOP, Application of OOP

Overview of C++: History of C++, Applications of C++, iostream File, insertion & extraction operator, Tokens, Keywords, Identifiers, Constants, Basic Data Types, User Defined Data Types, Derived Data Types, Compiling, linking and running a C++ program, Scope Resolution Operators, Control Structures

Functions in C++: Inline Function, Function with Default Argument

Classes and Objects: Specifying Class, Access Specifiers, Defining Member Function, Creating Object, Accessing Class Members, Nesting of Member Function, Making Outside Function As Inline, Private Member Function, Array Within Class, Array of Objects, Static Data Member, Static Member Function, Object As Function Arguments, Returning Object, Object Assignment, Friend Function, Friend Class

Pointer References & The Dynamic Allocation Operators: Pointers To Objects, this Pointer, Reference Parameter, call by reference and return by reference, Passing References to Objects, Returning Reference, Independent Reference, C++'S Dynamic Allocation Operators, Initializing Allocated Memory, Allocating Array, Allocating Objects

Unit-II **[15]**

Constructor & Destructor

Constructors, Parameterized Constructors, Constructor Overloading, Constructor with Default Argument, Dynamic Initialization of Objects, Copy Constructor, Dynamic Constructor, Destructor

Overloading as polymorphism: Function Overloading, Concept of Operator Overloading, Rules for Overloading Operators, Operator Overloading Restrictions, Overloading Unary Operators, Overloading Binary Operators, Overloading Binary Operators Using Friend, Overloading New & Delete, [ ], [ ], Comma Operator, <<, >> operators, Manipulation of Strings Using Operators

Unit-III **[15]**

Inheritance

Concept of Inheritance, Types of Inheritance, Making a Private Member Inheritable, when Constructor & Destructor Functions are Executed, Pointer to Derived Class

Virtual Functions & Polymorphism: Virtual Base Class, Virtual Function, Pure Virtual Function, Early Vs. Late Binding

Exception handling in C++: Basics of Exception Handling, Exception Handling Mechanism: try, throw, catch; Multiple catch Blocks, catch-all exception handler, User Defined Exception

Unit-IV **[15]**

The C++ I/O System Basics

C++ Streams, C++ Stream Classes, Unformatted I/O Functions, Formatted Console I/O Functions, Managing Output with Manipulators, Creating your own Manipulators**, Templates:** Introduction, Function Templates, Class Templates, Class Templates with Multiple Parameters, Out of Class Definition of Member Functions, Overloading of Template Functions, Member Function Template

Reference books

1. C++: The Complete Reference: Herbert Schildt, Tata McGraw Hill
2. Object Oriented Programming with C++: E. Balguruswami
3. Thinking In C++: Bruce Eckel

HCT 1.2 Database Management System

Total Lectures-60

Unit – I **[18]**

Introduction to DBMS

Database – Definition and architecture, Advantages of DBMS, Data models, Three-schema architecture and data independence, ER diagrams, Types of keys, cardinality, specialization, generalization, aggregation, Relational Algebra, Relational Calculus

Relational database design: Functional dependencies, Multivalued Dependencies, Normalization, Query processing and optimization

Unit – II **[12]**

SQL and PL/SQL

DDL, DML, DCL, Select: From, Where, Order by, Group by, Having, Intersect, Union, Distinct, Between, In, Between, Different types of functions, Delete, Update, Insert, Nested queries, joins, create, alter and drop, constraints, index, views, Triggers, Grant, Revoke, Commit, RollBack, Savepoint, PL/SQL: %Type, %Rowtype, Exception, Cursor, Packages

Unit – III **[18]**

Transaction Management and Concurrency Control

Transaction – properties, states, Concurrency control techniques-lock based, timestamp based, Serializability

Database Recovery: Recovery concepts, Catastrophic and non catastrophic failures, Recovery techniques – Deferred Update and Immediate Update techniques, Shadow Paging, checkpoint, Recovery in multi-database environments, Database backup and recovery

Unit – IV **[12]**

Parallel Databases

I/O Parallelism, Inter and Intra Query Parallelism, Inter and Intra operation Parallelism, Design of Parallel Systems

Distributed Databases: Centralized v/s Distributed databases, Types of distributed databases, Distributed data storage, Commit protocols

Object – Relational Databases: Abstract DataTypes, Nested Tables, Varying Arrays, Large Objects

Reference Books:

1. Database System Concepts by Henry F Korth, Abraham Silberschatz, S. Sudharshan, Sixth Edition, McGraw Hill, 2011

2. Fundamentals of Database System by R. Elmasri, S.B. Navathe, Pearson Education/Addison Wesley, 2008.

3. An Introduction to Database Systems: C. J. Date, Pearson Education India.

HCT 1.3 Design and Analysis of Algorithm

Total Lectures:60

Unit-I **[15]**

Fundamental notions

Primitives and composite data types, choice of data structure and complexity of an algorithm.

Stacks: Processing the stacks, Linked list implementation, Application of Stacks for expression solving, Non recursive implementation of recursive Algorithms

Queues: Processing the queues, Linked list implementation, Dequeues, Priority queues and their applications

Unit II **[15]**

Linked List

Processing linked list, Circularly linked list, Doubly linked list, Multilinked lists, String and characters manipulation using arrays and linked list.

Trees: Representation of hierarchical relationships, Tree processing, Binary trees, linked list implementation, traversal algorithms, tree traversals, Binary trees, Threaded binary trees, Height balanced trees, General Trees.

Unit-III **[13]**

Sorting and searching

Various sorts viz. Insertion, Bubble sort, Selection sort, Quick sort, Merge sort, Radix / Bucket sort, searching algorithms and their complexities, . Binary tree indexing, B-tree indexing, Hash indexing.

Unit-IV **[17]**

Divide and Conquer Method

The general method ,merge sort,binary search,finding maximum and minimum, Strassen's matrix multiplication, Quick sort

Greedy strategy: The general method, knapsack problem, scheduling algorithms-Job scheduling , single source shortest path

Dynamic Programming The general method, multistage graph, 0/1 knapsack

Backtracking: The general method, 8-queen’s problem, graph coloring problem, knapsack problem,

knapsack problem

Reference Books:

1.Data structures and algorithms- Alfred Aho, John Hopcraft and Jeffrey Ullman, Addision, Wesley publication

2. Introduction to data structures- Bhagat Singh and Thomas Nap, West
Publishing Company

3. Fundamentals of computer Algorithms- ELLIS HOROWITZ & SARTAJ SAHNI, computer Science press 1803 Research Blvd. Rockville, Maryland 20850

SCT-1.1 Research Methodology

Total Lectures:60

Unit 1 **[15]**

Foundations of Research

Meaning, Objectives, Motivation, Utility. Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific method –Understanding the language of research –Concept, Construct, Definition, Variable. Research Process: Problem Identification & Formulation –Research Question–Investigation Question –Measurement Issues – Hypothesis –Qualities of a good Hypothesis –Null Hypothesis & Alternative Hypothesis. Hypothesis Testing –Logic & Importance.

Unit II **[15]**

Research Design

Concept and Importance in Research –Features of a good research design – Exploratory Research Design concept, types and uses, Descriptive Research Designs –concept, types and uses. Experimental Design: Concept of Independent & Dependent variables. Qualitative and Quantitative Research: Qualitative research Quantitative research –Concept of measurement, causality, generalization, replication. Merging the two approaches. Measurement: Concept of measurement–what is measured? Problems in measurement in research –Validity and Reliability. Levels of measurement –Nominal, Ordinal, Interval, Ratio. Concept of Online Publication, Impact Factor, H-Index e-Journal.

Unit III **[15]**

Sampling

Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non Response. Characteristics of a good sample. Probability Sample –Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Determining size of the sample –Practical considerations in sampling and sample size

Unit IV **[15]**

Data Analysis

Tabulation of data Construction of frequency distribution Cumulative frequency distribution. Difference between graphs and diagram. Representation and interpretation of data using various graphs and diagrams. Graphs: Histogram and Ogive curves. Charts: Simple, Multiple, Subdivided bar diagram and Pie chart. Bivariate analysis –Cross tabulations and Chi-square test including testing hypothesis of association. Introduction to Data Analysis using SPSS.

Reference Books:

1.Research Methodology Methods and Techniques by C.R Kothari , New Edge International Pub
2.Essentials of Research Methodology By Thangamani Ramalingam
3. Research Design Qualitative ,Quantitative and Mixed Methods Approaches By John W Cresweel and J David Cresweel

SCT1.2 Software Engineering and Testing

Total Lectures:50

Unit-I **[15]**

Introduction To Software Engineering : Nature of Software, Software Process, Software Engineering Practice, Software Myths, SDLC, Generic Process model.
Analysis and comparison of Process Models: Waterfall Model,Spiral Model, Incremental Models, Evolutionary Models, RAD Model, Specialized Process Models, Introduction to CleanRoom Software Engineering.

Unit-II **[15]**

Requirement Analysis Requirements Capturing
requirements engineering[elicitation, specification, validation, negotiation, prioritizing requirements, real life application case study.] software Requirement Specification.[SRS].
Overview of Analysis Modeling: Elements of the analysis model, data modeling, functional modeling, behavioral modeling, the mechanics of structured analysis, data dictionary.

Unit-III **[10]**

UML models
use case diagram, class diagram and Sequence diagram, data modeling, data and control flow, model, behavioral modeling using state diagrams - real life application case study.
Design Concepts & Principles: Software Design and software Engineering, design process, Design principles, Design concepts, Design methods-Data design, Architectural design and process, Interface design, Procedural design.

Unit-IV **[10]**

Software Testing Concepts
Purpose of Software Testing, Testing Principles, Testing aspects: Requirements, Test cases, Strategies for Software Testing, Test Life Cycle, Faults & Failures, Planning Verification and Validation, Software Inspections, Levels of Testing
White-Box Testing: Test Adequacy Criteria, Static Testing, Structural Testing, Code Complexity Testing, Mutation Testing, Data Flow Testing.
Black-Box Testing: Test Case Design Criteria, Requirement Based Testing, Positive and Negative Testing, Boundary Value Analysis and Equivalence Partitioning State Based Testing, Domain Testing.
Software Quality Assurance [SQA]: Verification and Validation, SQA Plans, Software Quality Frameworks, ISO 9000 Models.

Reference books:

1. Software Engineering[Fifth Edition]: Roger S. Pressman, McGraw Hill, 1997.
2. Software Engineering: Shooman, McGraw Hill, 1987.
3. Software Engineering: Ian Sommerville, Addison Wesley, 1985.
4. Fundamentals of Software Engineering: Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, Prentice Hall India, 2003.
5. Tom Pender, “UML Bible”, John Wiley & sons
6. William E. Perry, “Effective Methods for Software Testing”, John Wiley and Sons.

HCT 2.1 Advanced Java

Total Lectures-60

Unit I

Servlet **[18]**

Introducing CGI, Introducing Servlet, Advantages of Servlet over CGI ,Features of Servlet, Introducing Servlet API, Javax.servlet package, Javax.servlet.http package Introducing Servlet, Advantages of Servlet over CGI ,Features of Servlet, Servlet life Cycle, Working with GenericServlet and HttpServlet ,RequestDispatcher interface Include() and forward(),Use of RequestDispatcher, Introducing session ,Session tracking mechanism ,Cookies ,Advantages & disadvantages, use of cookies, Hidden form filed ,Advantages & disadvantages ,use of Hidden form filed,URL rewritten Disadvantages, use of URL rewritten, HttpSession, Advantages & disadvantages use of URL HttpSession

Unit II

JSP **[18]**

Introduction to JSP, Advantages of JSP over Servlet, JSP architecture, JSP life cycle
Implicit objects in JSP- request, response, out, page, pageContext, application, session, config, exception, JSP tag elements- Declarative, Declaration, scriplet, expression, action. Java Bean- Advantages & Disadvantages, useBean tag- setProperty and getProperty, Bean In Jsp, JSTL core tag: General purpose tag, conditional tag, networking tag ,JSTL SQL tags, JSTL formatting tags, JSTL xml tags, Custom tag: empty tag, body content tag, iteration tag, simple tag Introducing internationalization & Java: local class, ResourseBundle class

Unit III

Hibernate **[12]**

Introduction Hibernate(HB), Architecture of HB, Application of HB: HB with annotation, HB web application, Inheritance mapping: Table per Hierarchy(TPH), TPH using annotation, Table Per Concrete (TPC), TPC using annotation, Table Per Subclass (TPS), TPS using annotation.
Collection mapping: Mapping list, one to many by list, one to many by bag, one to many by set, one to many by map.

Unit IV

Spring **[12]**

Introduction to spring, Spring modules, Spring application, Dependency injection: constructor Injection (CI), CI dependant object, CI with collection, CI with map, CI inheriting bean, Spring JDBC: JDBC template, PreparedStatement, ResultsetExactor, RowMapper, NamedParameter, Simple JDBC template, Spring with Hibernate

Reference Bøoks:

1)“JDBC, Servlet and JSP Black Book”- Santosh Kumar K
2) “Java EE Server programming”- Sharanam Shah and Vaishali Shah.
3) “Java Server Programming Black book”
4)“Hibernate”- Sharanam Shah & Vaishali Shah
5) “Spring Persistence with Hibernate”- Paul Tepper Fisher, Brian D Murphy.

HCT 2.2: Python Programming

Total Lectures:60

Unit I **[20]**

String, List, Tuple ,Dictionary ,Function, Module, Set, Package

String -Declaring string ,String manipulation using string functions, formatting string literals
List-Introduction to list **,**list functions
Tuple- Introduction to tuple **,**manipulating tuple.
Dictionary- Introduction**,** Accessing values in dictionaries**,** create,delete and update dictionary items.**Function-** Types of function**,** Defining function **,**calling function**,** advantages of function function parameters, Anonymous function, Global and local variables, inbuilt functions-map,zip,reduce,filter ,any,chr ,ord etc. **Modules-**Importing module**,** creating and exploring modules **,**math module**,** time module**,**random module**,** OS,calendar,sys etc. **Set-**Introduction to set**,** manipulate set. **Package-**Introduction**,** importing from package**,** json
File-File opening **,**closing file**,** various types of file modes**,** reading and writing to file manipulating directories **Exception handling -** try,else**,** finally**,** raise keyword.
Regular Expression- various types of regular expression**,** using match and search function.
GUI -Introduction to GUI library **,**Advantages **,**Layout management **,**Events and binding Drawing on canvas(line,oval,rectangle etc)
widget such as Frame,Label,Button,Checkbutton,Entry,Listbox,Radiobutton,Text,Spinbox etc.
Database-Introduction**,** Connections**,** Executing queries**,** Transactions **,**Error Handling

Unit II **[15]**

OOPs Concept

Introduction to OOP, Classes and objects, Inheritance Method overloading and method overriding ,Abstract method and Abstract class, Interfaces in python ,Abstract class VS Interfaces,constructor,instance methods ,class methods, static methods.
Generators- Introduction**,** communicating with generators with send()
Decorators –Introduction**,** simple function decoratoes**,** classes as decorators**,** chained decorators decorator arguments .**Threads –** Introduction**,** Uses of Threads**,** creating Thread without using a class**,** creating a Thread by creating a Sub Class to Thread Class**,** creating a Thread without creating a Sub Class to Thread Class, Communication between Threads, Thread communication using notif() and wait() methods

Unit III **[15]**

Networking

Sockets and Networking ,TCP/IP protocol, User Datagram Protocol(UDP), knowing IP address, Reading the source code of a Web Page, TCP/IP server , TCP/IP client ,UDP server UDP client ,File server ,File client ,Two way communication between server and client, sending a simple mail,Socket Basics, socket module, network clients,creating network servers

Data science using python

Data Frame-Creating Data Frame from an Excel Spreadsheet**,** Creating Data Frame from .csv file**,** Creating Data Frame from python Dictionary**,** Creating Data Frame from python List of Tuples, Operations on Data Frames.
Data visualization-Bar Graph **,**Histogram **,**Creating a pie chart **,**creating line graph

Unit IV **[10]**

NumPY

Introduction, creating NumPYarrays, indexing and slicing in NumPy.

Pandas-Introduction**,** installation of panda**,** data frame**,** series**,** range data**,** slice data**,**drop a column,**,** concatenation.

Django-Introduction to django**,** ddjango templates**,** introduction to WSGI

Reference Books:

1. Core Python Programming , R.Nageshrao,Dreamtech Press.
2. Learn Python the hard way,Zed A.SHAW.
3. Introduction to Computer Science using python,Charles Dierbach,WILEY India Edition.

HCT 2.1: Digital Image Processing

Total Lectures-60

Unit I **[15]**

Introduction Digital image processing, Applications of digital image processing, Fundamental steps in digital image processing, and Components of an image processing system. Digital image fundamentals: Image sampling and quantization, some basic relationships between pixels, Linear and nonlinear operation. Image enhancement in the spatial domain: Some basic gray level transformations, Histogram processing, Enhancement using arithmetic/logic operations, Basics of spatial filtering, Smoothing spatial filters, Sharpening spatial filters.

Unit II **[15]**

Image enhancement in the frequency domain

Introduction to the Fourier transform and frequency domain, Smoothing frequency-domain filters, Sharpening frequency domain filters, homomorphic filtering. Image restoration:
A model of the image degradation/restoration process,
Noise models, Restoration in the presence of noise only-spatial filtering, Periodic noise reduction by frequency domain filtering.

Unit III **[15]**

Morphological image processing

Preliminaries, Dilation and erosion, Opening and closing, the hit-or-miss transformation, Some basic morphological algorithms. Image segmentation: Detection of discontinuities, Edge linking and boundary detection, Thresholding, Region-based segmentation, Segmentation by morphological watersheds.

Unit IV **[15]**

Representation and description

Representation, Boundary descriptors, Regional descriptors, Use of principal components for description, Relational descriptors. Object recognition: Patterns and pattern classes, Recognition based on decision- theoretic methods, Structural methods.

Reference Books:

1. Digital image processing: Gonzalez and Woods, 4th edition, Pearson.
2. Image Processing, Analysis and Machine Vision: Milan Sonka, Vaclav Hlavac, Roger Boyle, 3rd Edition, Brooks/Cole .
3. Fundamentals of Digital Image Processing: Anil K. Jain, Pearson.

HCT2.2 Computer Communication Network

Total Lectures-60

Unit I **[12]**

Introduction

Uses of Computer networks: Business Applications, Home Applications, Mobile Users, Social Issues; Network Hardware: Local Area Networks, Metropolitan Networks, Wide Area Networks, Wireless Networks, Home Networks, Internetworks; Network Software: Protocol Hierarchies, Design Issues for the Layers, Connection-Oriented and Connectionless Service Primitives, Relationship of Services to Protocols; Example of Networks: The Internet, The ARPANET, NSFNET, Internet usage, Architecture of the internet.

Data Link Layer

Data Link Layer Design Issues: Services Provided to the Network Layer, Framing, Error Control, Flow Control; Error Detection and Correction: Error-Correcting Codes, Error-Detecting Codes; Elementary Data Link Protocols: An Unrestricted Simplex Protocol, A Simplex Stop-and-Wait Protocol, A Simplex Protocol for a Noisy Channel; Sliding Window Protocols: A One-Bit Sliding Window Protocol, A Protocol Using Go Back N, A Protocol Using Selective Repeat; Example Data Link Protocols: HDLC—High-Level Data Link Control, The Data Link Layer in the Internet.

Unit II **[18]**

Network Layer

Network Layer Design issues: Store and Forward packet Switching, Services Provided to the Transport Layer, implementation of Connectionless Service, Implementation of Connection-oriented Services, Comparison of Virtual Circuit and Datagram subnets; Routing algorithms: The Optimality Principle, Shortest Path Routing, Flooding, Distance Vector Routing, Link state Routing, Hierarchical Routing, Broadcast Routing, Routing for Mobile Hosts; Congestion Control Algorithms: General Principles of Congestion Control, Congestion Prevention Policies, Congestion Control in Virtual-Circuit Subnets, Congestion Control in Datagram Subnet, Load Shedding, Jitter Control; Quality of Service: Requirements, Techniques for Achieving Good Quality of Service; Internetworking: Differences in Networks, Network Connection, Concatenated Virtual Circuits, Connectionless Internetworking; Tunneling; Internetwork Routing, Fragmentation; The Network Layer in the Internet: The IP Protocol, IP Addresses, Internet Control Protocols, Mobile IP; IPV6.

Unit III **[18]**

The Transport Layer

The Transport Service: Services Provided to the Upper Layers, Transport Service Primitives, Berkeley Sockets; Elements of Transport Protocols: Addressing, Connection Establishment, Connection Release Flow Control and Buffering, Multiplexing, Crash Recovery; The Internet Transport Protocol – UDP: Introduction to UDP, Remote Procedure Call, The Real-Time Transport Protocol; The Internet Transport Protocols – TCP: Introduction to TCP, The TCP Service Model, The TCP Protocol, The TCP Segment Header, TCP Connection Establishment, TCP Connection Release, Modeling TCP Connection Management TCP Transmission Policy, TCP Congestion Control, Wireless TCP and UDP.

Unit IV **[12]**

The Application Layer

DNS – The Domain Name System: The DNS Name Space, Resource Records, Name Servers; Electronic Mail: Architecture and Services, The User Agent, Message Formats, Message Transfer, Final Delivery; The World Wide Web: Architectural Overview, Static Web Documents, Dynamic Web Documents, HTTP, Performance Enhancements, The Wireless Web.

Reference Books:

1. Computer Networks: Andrew S. Tanenbaum, 4th Edition, Pearson Education, Asia, 2002.
2. Communication Networks: Fundamental Concepts and Key Architectures, Alberto Leon-Garcia, Indra Widjaja, Tata McGraw Hill, 2006.
3. Data Communications and Networking: Behrouz A. Forouzan, Tata McGraw Hill, Second Edition, 2001.

OET 2.1 : Office Automation

Total Lectures-60

Unit I **[10]**

Introduction to Computer

Computer Architecture,Introduction to Hardware and Software, Input and Output Devices,Computer Memory,Physical units demo of computer machine. **Microsoft Accessories:** Notepad,WordPad,MS paint **Basic DOS commands :** Comparison of DOS and Windows. Switching Between DOS and Windows ,Basic DOS Commands(File/Directory Manipulations,Copying of files and Disks,Delete/Undelete)

Unit II **[15]**

Microsoft Word

Word Processing Basic

An Introduction to Word Processing,Opening Word Processing Package,The Menu Bar,Using the Help,Using the Icons below menu bar.**Opening Documents and Closing documents:** Opening Documents,Save and Save AS, Page Setup,Printing of Documents,Display/Hiding of Paragraph Marks and Inter Word Space Moving Around in a Document,Scrolling the Document, Scrolling by line/paragraph, Fast Scrolling and Moving Pages.**Table Manipulation:**Concept of table: Rows Columns and Cells,Draw Table,Changing cell Width and Height,Alignment of Text in Cell,Copying of cell,Delete/insertion of row and columns,Borders for Table.**Printing:**Printing,Print Preview,Print a selected page,Page setting

Unit III **[13]**

Microsoft PowerPoint

Basics: Difference between presentation and Document,Using Power Point,Opening a PowerPoint Presentation,Using Wizard for creating a presentation

Creation of Presentation: Title,Text Creation,Fonts and Sizes,Bullets and indenting, Moving to Next Slide**Preparation of Slides:** Selection of type of Slides, Importing text from word documents, Moving to next Slide, The Slide manager**Preparation of Slides:**Selection of type of Slides,Importing text from word documents,Moving to next Slide,The Slide manager

Providing aesthetics Slide Designs, Background and Text colors, Making your own slide format, Footnotes and slide numbering **Presentation of the Slides:**Using the Slide Show,Printing the Slides and Handouts, Slide sorter, Title sorter

Unit IV **[12]**

Microsoft Excel

Elements of Electronics SpreadSheet Application/usage of Electronic SpreadSheet,Opening of Spread Sheet,The menu bar,Creation of cells and addressing of cells,Cell inputting **Manipulation of cells** Enter texts numbers and dates,Creation of tables,Cell Height and Widths,Copying of cells.

Providing Formulas: Using basic functions / formalism a cell,Sum function,Average,Percentage, Other basic functions,Mathematical equations,User defined equations

Unit V **[10]**

Introduction to Internet and Operating System

Basic of Computer networks:LAN,MAN,WAN **Internet:**Client Server Architecture,Mobile Technology,Server Side and client side languages, Html,URL Introduction,Email access and Creation of account,Internet Banking with security certification ,Browser types ,Data Downloading

Operating System: Unix/Linux,Windows **(**System S/W Application S/W and Driver S/W.)

Different Software Tools : Audio and Video,Word to PDF and PDF to Word, Image Reader And Converter, Scanner handling **,Control Panels (System setting).**

Reference Books:

1.Computer Fundamental by V.Rajaraman PHI Learning View All
2.Computer Fundamental MS-Office by Anupama Jain,Avneet Mehra Vitasta Publishing Pvt.Ltd
3.MS-OFFICE Training Guide by Satish Jain M. Geetha, Kratika BPB pub.

OET2.2:Basic Web Technology

Total Lectures-60

Unit I

Overview of HTML **[10]**

Introduction to web technology, Introduction to internet, Requirement of Internet, Introduction to HTML, structure of HTML, creating and opening of HTML file, Tags-Singular and paired tags, text formatting tags, Anchor Tags, List, Image, Image mapping, table, Frames and frameset.

Unit II **[10]**

Introduction to HTML5 :

Introduction to HTML5, Need of HTML5,DOCTYPE element, Tags- Header, Section, Article, Nav, Footer, Figure, Aside, Input tags in HTML5 (Placeholder, Autofocus, Required , attributes),Graphics in HTML5,Media Tags in HTML5

Unit II

Basics of CSS **[15]**

Introduction to CSS, Use of CSS, Advantages of CSS, Types of CSS, Types of selectors, Properties-Background, Border, Text, Font, Margin, Padding, Box Model, Link, Lists, Table, Opacity, Floating, Advance in CSS-Animation, Multiple column layout, User Interface, 2D/3D transformation, overflow, Display, Positioning, Media Type, Values Replaced content, CSS-Rounded corners, Multiple backgrounds, User Interface.

Unit IV

Interactive Web Pages using Form

[10]

Form Object ,Text Element, Button Element, Submit Element, Reset element, Radio Element, Progress Bar, CheckBox, Working With Basics of XML - Introduction to XML ,Difference Between HTML and XML, Creating xml Document

Unit V

Introduction to JavaScript : **[15]**

Introduction to JavaScript, JavaScript Variables, Data types, Operators, Built- in Functions in JavaScript, Control Structures in JavaScript, Built in Objects (Math, String, Date) and User defined objects, DOM,JavaScript Validation and Event handling

Array, History, Navigator, location, windows, Validation in JavaScript, Event and Event handling in JavaScript.

Reference Books:

1.HTML5 Black Book by Kogent Learning Solutions Inc Dreamtech Press
2.Beginning HTML and CSS Rob Larsen Wrox Publication
3.HTML_&_CSS_The_Complet e_Reference Thomas A. Powell. (Fifth Edition).McGraw Hill
4.Computer Fundamentals MS Office-Including Internet and Web technology by Anupam Jain,Navneet Mehra Vitasta Publishing Pvt.Ltd.