FUNDAMENTALS OF PROGRAMMING USING C AND C++

OBJECTIVE:

1. To understand the basics of C program .
2. To understand the concept of functions and arrays.
3. To understand the concept of structures and pointers.
4. To understand the basic concept of OOPS and C++.
5. To understand the concept of polymorphism and inheritance.

Unit I: Basics of C programming

Overview of C: History of C - Structure of C program – Constants, Variables, Data types – Character set – Tokens – Keywords and Identifiers – Declarations – Operators and Expressions: Arithmetic, Relational, Logical, Assignment, Increment and Decrement, Conditional, Bitwise, Special operators – **Input and Output operations:** Data Input and Output – Reading and Writing a Character.

Unit II: Control Statements

Control Statements: Simple IF Statement – The ELSE-IF statement – Nesting of IF…ELSE statement – ELSE IF Ladder – GOTO-SWITCH statement – The **?:** operator – Looping statements: WHILE-DO statement, DO-WHILE statement – The FOR statement.

Unit III: Arrays and Functions

Arrays: Defining and processing Arrays – Multidimensional Arrays –String functions – String manipulations..Functions: User-Defined functions – Need for user defined functions – Elements of user defined functions – Defining and Accessing Arguments – Category of functions

Unit IV: Basics of C++ Programming

Basic concepts of OOP- Benefits of OOP - simple C++ Program - C++ Input/output operator-Classes and Objects: specifying a class-defining member function-nesting of member function-Arrays with in class - friend function-Constructor and destructor-parameterized constructor-destructor.

Unit V: Polymorphism and Inheritance

Operator overloading-overloading unary and binary operators-Inheritance: Introduction-defining derived classes-single inheritance-multilevel inheritance-multiple inheritance-hierarchical inheritance-Hybrid inheritance.

TEXT BOOK :

1. "Programming in ANSI C" – E.Balagurusamy – 6th Edition – Tata McGrawHill publications**.**

   (Unit I- Chapter 1,2,3,4 Unit II – Chapter -5,6 Unit III – Chapter –7,8,9)

2. "Object oriented Programming with C++" – E.Balagurusamy – 6th Edition – Tata McGraw Hill publications. **(Unit IV – Chapter -1,2,5,6, Unit V – Chapter – 7,8)**

REFERENCE BOOK :

1. "Programming with C" – Byron S.Gott fried – Schaum's outline series – Tata McGrawHill publications

FUNDAMENTALS OF PROGRAMMING USING C AND C++ PRACTICAL

1. Write a C program to find the Ascending and descending order of numbers using arrays and also print the largest and smallest numbers.
2. Write a C program to Sort the given names in Alphabetical order.
3. Write a C program to perform the Matrix operations Addition, Subtraction, Multiplication using functions.
4. Write a C program to find the factorial value of a given number using recursive function.
5. Write a C program to generate Fibonacci Numbers using recursive functions.
6. Write a C program to perform the String Manipulations Without using string functions (string length, string comparison, string copy, palindrome checking, counting words and lines in strings.
7. Write a C++ program using class and object
8. Write a C++ program to illustrate friend function
9. Write a C++ program to illustrate single inheritance
10. Write a C++ program to illustrate multiple inheritance

PROGRAMMING IN JAVA

OBJECTIVE:

1. To understand the introduction of JAVA.
2. To gain the knowledge about control statements, arrays and classes.
3. To get the knowledge about inheritance, packages, interfaces and exceptions.
4. To understand the concepts of I/O classes and threads.
5. To understand the concepts of applet, graphics and event handler.

Unit I : Introduction, Data Types, Structure of JAVA, Operator

Introduction-Object Oriented Programming-Features of Java Programs-Literals- Data Types-Variables - Comments-Expression and Statements-Type Conversion-Block Statements and Scope-Operators-Arithmetic Operators-Bitwise Operators-Relational Operators-Boolean Logical Operators-Ternary Operators-Operator Precedence.

Unit II : Control Statement , Arrays & Classes

Control Statements-The if…else Statement-The Switch Statement-The while Statement-The do…while Statement-The for..Statement-The break Statement-Arrays-One Dimensional Array-Multi Dimensional Array-Classes-Defining a class-The new Operator and Objects-The dot Operator-Method Declaration and Calling-Constructors-Instance Variable Hiding-this pointer-Method Overloading-Passing Objects as Parameters to Methods.

Unit III : Inheritance ,Package, Interfaces , Exceptions

Inheritance-Creating Subclasses-Method Overriding-Final classes-Final Method-Final Variables-Object Destruction and Garbage Collection-Recursion-Abstract Classes-Packages and Interfaces-Package-The import Statement-Access Modifier-Interfaces-Exceptions-Types of Exceptions-Catching Exceptions-Creating Your Own Exceptions- The finally Block.

Unit IV : I/O Classes, Strings Threads

Input and Output Classes-I/O Streams-The File Class-Byte Stream - Filtered Byte Streams – SequenceInputStream - ObjectOutputStream-ObjectInputStream - Random Access File-Character Stream-Strings - The String Class-The String Buffer Class-Threads-Multitasking-Creating a Thread - States of a Thread-Multithreaded Programming.

Unit V : Applets, Graphics & Event Handling

Applets-Applet Basics-Methods of Building an Applet-Some General Methods of Applet-The HTML Applet Tag-Reading Parameters into Applets-Colors in Applet-Interfaces in Applet-Graphics-Drawing Lines-Drawing Rectangles-Drawing Ovals and Circles-Drawing Arcs- Colors in Graphics-Event Handling-Events-Event Listener.

TEXT BOOK:

1. Programming in Java2 By Dr. K. Somasundaram

Unit I : Chapters(1,2,3,4) Unit II : Chapters(5,6,7) Unit III : Chapters(8,9,12) Unit IV : Chapters(13,14,15) Unit V :Chapters(16,17,18))

REFERENCE BOOK :

1 .Programming With Java By C.Muthu.

2 . Programming With Java By E.Balaguruswamy.

PROGRAMMING IN JAVA PRACTICAL

1. Write a java program to sort 'n' numbers using Array.
2. Write a java program to implement a calculator to perform basic arithmetic operations.
3. Write a java program to find the area of the rectangle using constructors.
4. Write a java program to find the students percentage and grade using "command line arguments".
5. Write a java program to draw the rectangle using polymorphism and inheritance.
6. Create a try block that is likely to generate two types of exception and incorporate necessary Catch blocks.
7. Create a java program using Multithreading concept.
8. Write a java program to implement product details using Multiple Inheritance.
9. Write a java applet program to change the background window with the help of three Buttons Named Red, Green and Blue.
10. Write a java program to draw various shapes using Graphics class

DATABASE MANAGEMENT SYSTEM

OBJECTIVE:

1. To understand the importance of database management system.
2. To understand the concept of entity relationship model.
3. To understand the concept of relational model.
4. To gain the knowledge about structured query language.
5. To gain the knowledge about PL/SQL.

Unit I : Introduction to Database Management Systems

INTRODUCTION: Database Management System –Database System Applications-Database System versus File System-View of Data-Database Languages-Users and Administrators-Database System Structure-Application Architectures.

Unit II : Entity Relationship Model

Basic concepts: Entity Sets – Relationship Sets-Constraints-Keys-Entity Relationship Diagram-Weak Entity Sets-Extended E-R Features: Specialization-Generalization-Attribute Inheritance-Constraints-Aggregation

Unit III : RELATIONAL MODEL

RELATIONAL MODEL: Basic Structure – Relational Algebra: Fundamental Operations–Outer Join. Functional Dependencies : Basic Concepts-Closure-Closure ofAttributeSets-Decomposition-FirstNormalForm-SecondNormalForm-SecondNormal Form-Third Normal Form-Boyce-Code Normal Form.

Unit IV : Structured Query Language

Basic Queries in Sql - Aggregate Functions – Joins – Set Operations – Sub Queries - DML Commands-DDL Commands-Tables-Views.

Unit V : PL/SQL

INTRODUCTION OF PL/SQL: Advantages of PL/SQL – The Generic PL/ SQL Block – PL/SQL : Data types – Variables – Constants – Control Structures – Cursors – Exception Handling –Procedures and Functions - Packages – Triggers – Types of triggers.

TEXT BOOKS

1. H. F. Korth & A. Silverschatz, Database Concepts, Tata McGraw Hill, New Delhi. 5th Edition
   (Unit I Chapter : 1, Unit II Chapter-6, Unit IIIChapter-2,7)
2. Ivan Bayross, SQL,PL/SQL, The programming language of Oracle.
   (Unit 4 section III part-1,2,3, Unit 5 section V-part-15,16).

REFERENCE BOOKS

1.Elmasri & Navathe, Fundamentals of Database systems, Addison & Weisely.

2. C. J. Date, Database Systems, Prentice Hall of India, New Delhi.

DATABASE MANAGEMENT SYSTEM PRACTICAL

1. SQL query for creating Table, and SQL queries for inserting, deleting, updating the records in Table.
2. Queries using AND- OR- NOT operation, Union- Intersection and Minus
3. SQL queries for various Join Operations.
4. SQL query for Sorting and Grouping the records.
5. Nested queries, Sub queries using SQL.
6. Built-in functions of SQL.
7. Use of indexes- creating views and querying in views.
8. PL/SQL Program using explicit cursors and implicit cursors.
9. PL/SQL Program using Triggers.
10. PL/SQL Program using Procedure and Function.
11. PL/SQL Program for Pay -roll system.
12. PL/SQL Program for Inventory Processing System.

PROGRAMMING IN ASP

OBJECTIVE:

1. To understand the object.
2. To understand the components.
3. To understand the concepts of cookies and data sources.
4. To understand the connection object.
5. To understand the command object.

Unit I : UNDERSTANDING OBJECTS

Understanding Objects – Built-in Objects – ASP Objects – Application Objects – Request Objects – Response Objects – Properties Of Response object –Methods Of Response Object-Session Object

Unit II : UNDERSTANDING COMPONENTS

Understanding components – Working with users – working with HTML forms – retrieving form data – using text boxes and text areas.

Unit III : COOKIES AND DATA SOURCES

Cookies – working with cookies – applications of cookies – addressing the drawbacks of using cookies – using cookies in ASP applications. Working with connections and data sources – creating connections with OLE db and ODBC – connecting to Microsoft SQL server – connecting to a Microsoft access database.

Unit IV : CONNECTION OBJECT

About the connection object – executing a SQL statement with the connection object – understanding session and connection pooling – working with record sets – retrieving a record set – record set cursor and locking types – understanding ADO cursors – paging through a record set.

Unit V : WORKING WITH COMMAND OBJECT

Working with the command object – creating stored procedures – executing stored procedures with the connection object – executing stored procedures with the command object – retrieving parameter information.

TEXT BOOKS:

1. Practical ASP – Ivan Bayross, BPB Publications, 2000 2. Special Edition Using Active Server Pages – Scot Johnson, Prentice Hall of India Private Limited 2001.

Unit I - (chapter 2) Unit II - (chapter 3, 4, 5) Unit III - (chapter 6, 8) Unit IV - (chapter 9) Unit V - (chapter 10)

REFERENCE BOOK: Mastering Active Server Pages 3, Russell Jones, Sybex Publishers

PROGRAMMING IN ASP PRACTICAL

1. Create an ASP file to display the message “Have a Good Weekend” if it is a Saturday otherwise “Hang in there, the week will get better”.

2. Write a program to get the name and favorite ice cream flavor. Respond with the price of the corresponding ice cream.

3. Create a login form, to expire, if the user does not type the password within 100 seconds.

4. Create an advertisement for a bookshop using Ad Rotator component.

5. Create a course registration form with name, address and list of available course. Reply with the corresponding course fees on selection of a single course or a collection of courses.

6. Write a program to manipulate cookies with the information between HTTP sessions such as

   i. Last Date visited

   ii. Last Time visited

   iii. Number of visits

7. Create a student database and manipulate the records using the connection object in ASP.

8. Create an employee database and manipulate the records using command object in ASP.

PROGRAMMING IN ASP DOT NET

OBJECTIVE:

1. To understand the basics of .NET.
2. To understand the concepts anatomy of and ASP.NET.
3. To understand the validation.
4. To understand the data management.
5. To understand the concept of grid view.

UNIT - I

The .NET framework-The Evolution of Web Development -The .NET Framework. The .NET Languages-C# Language Basics- Variables and Data Types.- Variable Operations-Object-Based Manipulation- Conditional Logic- Loops- Methods- The Basics About Classes-Building a Basic Class- Value Types and Reference Types- Understanding Namespaces and Assemblies- Advanced Class Programming

UNIT – II

The Anatomy of an ASP.NET Application.- Introducing Server Controls- Improving the Currency Converter- A Deeper Look at HTML Control Classes- The Page Class-Application Events- Application Events- ASP.NET Configuration. Stepping Up to Web Controls- Web Control Classes- List Controls- Table Controls- Web Control Events and AutoPostBack- A Simple Web Page.

UNIT – III

Understanding Validation- The Validation Controls- The Calendar- The AdRotator-Pages with Multiple Views- User Controls. he Problem of State- View State- Transferring Information Between Pages- Cookies- Session State- Session State Configuration.

UNIT - IV

Understanding Data Management- Configuring Your Database- SQL Basics-ADO.NET Basics- Direct Data Access- Disconnected Data Access. Introducing Data Binding- Single-Value Data Binding- Repeated-Value Data Binding- Data Source Controls

UNIT - V

The GridView- Formatting the GridView.- Selecting a GridView Row- Editing with the GridView- Sorting and Paging the GridView- Using GridView Templates- The DetailsView and FormView. Files and Web Applications - File System Information- Reading and Writing with Streams- Allowing File Uploads

TEXT BOOK:

1. Mathew MacDonald, "**Beginning ASP.NET 3.5 in C# 2008: From Novice to Professional**", Apress Publications,Second edition, 2007

REFERENCE BOOK:

1. Mirudula Parihar ,"**ASP.NET Bible**", DreamTech Publication, 2007.

OPERATING SYSTEM

OBJECTIVE:

1. To understand the importance of operating system.
2. To get the knowledge about memory management.
3. To get the knowledge processor management.
4. To get the knowledge about device management.
5. To gain the knowledge about information management.

Unit I : OVERVIEW

Importance Of Operating Systems - Basic Concepts and Terminology – An Operating System Resource Manager – An Operating System Process Viewpoint (Where these resource Managers Are Activated) – Other Views of an Operating System – I/O Programming- Interrupt Structure and Processing.

Unit II : MEMORY MANAGEMENT

Single Contiguous Allocation – Introduction to Multiprogramming – Partitioned Allocation – Re-locatable Partitioned Memory Management – Paged Memory Management – Demand-Paged Memory Management – Segmented Memory Management – Segmented and Demand-Paged Memory Management.

Unit III : PROCESSOR MANAGEMENT

State Model – Job Scheduling – Functions – Policies – Job Scheduling in Non multi programmed Environment - Process Scheduling – Functions – Policies – Process State Diagrams for Scheduling – Evaluation of Round-Robin Multiprogramming – Performance - Multiprocessor Systems – Process Synchronization.

Unit IV : DEVICE MANAGEMENT

Techniques for Device Management – Device Characteristics – Hardware Considerations – Channels and Control Units – Device Allocation Considerations – I/O Traffic Controller , I/O Scheduler , I/O Device Handlers – Virtual Devices – Design Of A SPOOLING System.

Unit V : INFORMATION MANAGEMENT

Introduction – A Simple File System – General Model Of A File System – Symbolic File System – Basic file System – Access Control Verification - Logical File System – Physical File System – Allocation Strategy Module – Device Strategy Module , I/O Initiator , Device Handler..

TEXTBOOK:

"OPERATING SYSTEMS" -Stuart E.Madnick John J.Donovan 1974 by McGraw-Hill,Inc.

Unit I – (Chapters 1, 2) Unit II - (Chapter 3) Unit - III (Chapter 4)

Unit -IV (Chapter 5) Unit -V (Chapter 6)

REFERENCE BOOK:

"Operating System Principles" Abraham Silberschatz Peter Baer Galvin Greg Gagne .

PROGRAMMING IN ASP DOTNET PRACTICAL

1. Create an ASP.NET web site for job portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the SqlServer database (Connected data access)
2. Create an ASP.NET web site for job portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the MS Access database (Connected data access)
3. Create an ASP.NET web site for job portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the SqlServer database (Disconnected Data Access)
4. Create an ASP.NET web site for college portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the SqlServer database (Connected data access)
5. Create an ASP.NET web site for college portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the MS Access database (Connected data access)
6. Create an ASP.NET web site for college portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the MS Access database (Disconnected Data Access)
7. Create an ASP.NET web site for company portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the SqlServer database (Connected data access)
8. Create an ASP.NET web site for company portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the MS Access database (Connected data access)
9. Create an ASP.NET web site for company portal with web form controls, validation controls, rich controls and ADO.NET and data controls to store and retrieve data from the MS Access database (Disconnected Data Access)

PROGRAMMING IN PHP

OBJECTIVE:

1. To understand the basics of PHP.
2. To get the knowledge about control statements.
3. To get the knowledge about functions.
4. To get the knowledge about object oriented programming.
5. To gain the knowledge about working with databases.

Unit I : Introduction to PHP

Introduction – Creating First PHP page- Running first PHP page – Mixing HTML and PHP – Command –line – working with Variables – Storing data in variable – Interpolating strings – creating variable variables – creating Constant – Understanding PHP internal Data types.

OPERATOR

PHP's Math operators – Assignment operators – Increment and Decrement operators – string operators – bit –wise operators – execution operators - Comparison operator – Ternary operator and Logical Operators.

Unit II : CONTROL STATEMENT

IF statement – the else statement – the elseif statement - switch statement – for loop– while loop - do… while loop – foreach loop

STRING AND ARRAYS

The String functions – converting to and from string – formatting text string – Arrays – modifying data in arrays – deleting array elements – handling arrays with loop – PHP Array functions.

Unit III : FUNCTIONS

Creating functions in PHP – passing functions some data – passing arrays to functions –using default arguments – working with static variables – PHP conditional function – PHP Variable function – Nesting Function.

READING DATA IN WEB PAGES

Handling Text Field, Text Area, Checkboxes, Radio button, List box, Password control, hidden control, image map, file upload, button.

Unit IV :OBJECT ORIENTED PROGRAMMING

Creating class – object – creating object – setting access to properties and methods – Constructor and Destructor – Inheritance – Over loading – Overriding .

ADVANCED OOP

Creating static method – static members and Inheritance – creating abstract classes – creating Interfaces. **File Handling** – file open, close, read, write, copy , delete, append, checking a file, getting file size.

Unit V : WORKING WITH DATABASES

Database introduction – creating a MYSQL database – creating a New Table – putting data into the new database – Accessing , updating , Inserting and deleting a new data into the database.

SESSION AND COOKIES

Setting a Cookie – reading a cookie – setting cookie expiration – deleting a cookie – storing data in session – writing a hit counter using session.

TEXT BOOK:

"THE COMPLETE REFERENCE PHP" – Steven Holzner

Mc Graw Hill Education(India) Private Limited – New Delhi.

Unit I – (Chapter 1, 2), Unit II – (Chapter 2 ,3),Unit III –(Chapter 4,5) Unit IV –(Chapter 7,8,9),Unit V – chapter 10,11

REFERENCE BOOK:

1. Sam Teach Your Self "PHP, MYSQL, APACHE" –Julies C. Metoni.
2. PHP5 and MYSQL BIBLE – Tim Converse, Joyce Park.

SOFTWARE ENGINEERING

OBJECTIVE:

1. To understand the basics of software engineering.
2. To get the knowledge about software cost estimation.
3. To get the knowledge about software design.
4. To get the knowledge about object implementation issues.
5. To gain the knowledge about verification and validation.

UNIT-I : INTRODUCTION TO SOFTWARE ENGINEERING

Introduction - Some Definitions - Some Factors - Quality and Productivity Factors – Managerial Issues - Planning a Software Project - Defining the Problem - Developing a Solution Strategy - Planning the Development Process - Planning an Organizational Structure - Other Planning Activities.

UNIT-II : SOFTWARE COST ESTIMATION

Software Cost Factors - Software Cost Estimation Techniques – Staffing-Level Estimation - Estimating Software Maintenance Costs - The Software Requirements Specification - Formal Specification Techniques - Languages and Processors for Requirements specification.

UNIT-III: SOFTWARE DESIGN

Software Design: Fundamental Design Concepts-Modules and Modularization Criteria-Design Notations-Design Techniques-Detailed Design Considerations-Real Time Distributed System Design-Test Plans-Milestones-Walkthrough-Inspections-Design Guidelines.

UNIT-IV: IMPLEMENTATION ISSUES

Structured Coding Techniques - Coding Style - Standards and Guidelines - Documentation Guidelines - Modern Programming Language Features - Type Checking - Separate Compilation - User Defined Data Types - Data Abstraction - Scoping Rules - Exception Handling - Concurrency Mechanisms.

UNIT-V: VERIFICATION AND VALIDATION TECHNIQUES

Quality Assurance - Walkthroughs and Inspections - Static Analysis - Symbolic Execution - Unit Testing And Debugging - System Testing - Formal Verification - Software Maintenance - Configuration Management - Source Code Metrics - Other Aspects of Software Maintenance - Configuration Management -Source Code Metrics - Other Maintenance Tools and Techniques .

TEXT BOOK:

"Software Engineering Concepts" 1985 , Mc Graw Hill Book Company , Richard E.Fairley

Unit-I (Chapters 1,2) **Unit-II(Chapters 3,4)** **Unit-III(Chapter 5)**

Unit-V(Chapters 6,7) **Unit-V(Chapters 8,9)**

REFERENCE BOOK:

"Software Engineering : A Practitioners Approach" By Roger S.Pressman Mc Graw Hill International Book Company

PROGRAMMING IN PHP PRACTICAL

1. Write a PHP program to create Student Mark Statement.
2. Write a PHP Program to create Employee pay roll preparation.
3. Write a PHP program to use three buttons and change the Background color.
4. Write a PHP program to format the given text.
    i. Bold
    ii. Italic
    iii. Underline
    iv. Increase the font size
    v. Change the font color.
5. To develop a PHP program for multiply 5 sessions variables.
6. Display student Resume using Cookies.
7. Create a student database and manipulate the records in PHP.
8. Create an employee database and manipulate the records in PHP.
9. Create a course registration form with name, address and list of available course. Reply with the corresponding course fees on selection of a single course or a collection of courses.
10. Write a PHP program using list box and create Multiplication table from 1 to 20.

BACHELOR OF COMPUTER APPLICATIONS (B.C.A.)

LIST OF ELECTIVE COURSES

(FROM THE ACADEMIC YEAR 2016-2017 ONWARDS)

MAJOR BASED ELECTIVE - ANY 03 (01 IN SEM V AND 02 IN SEM VI)

1. COMPUTER ARCHITECTURE AND ORGANIZATION
2. E-COMMERCE
3. DATA COMMUNICATION NETWORKS
4. FUNDAMENTALS OF DATA STRUCTURES
5. SOFTWARE APPLICATION PRACTICAL

SKILL BASED ELECTIVE – ANY 03 (01 EACH IN SEM IV, V , VI)

1. INTERNET AND WORLD WIDE WEB
2. WEB DESIGNING USING HTML
3. MULTIMEDIA AND ITS APPLICATIONS
4. COMPUTER GRAPHICS
5. WEB SERVICES

INTER DISCIPLINARY COURSES – OFFERED BY THE DEPARTMENT – ANY 02

1. COMPUTER SKILL DEVELOPMENT COURSE
2. INTERNET SKILL DEVELOPMENT COURSE
3. FUNDAMENTALS OF PHOTOSHOP
4. COMPUTER APPLICATIONS IN CHEMISTRY

COMPUTER ARCHITECURE AND ORGANIZATION – M.B.E.

OBJECTIVES:

1. To understand the basics of computer architecture and organization.
2. To get the knowledge about CPU
3. To gain the knowledge about computer arithmetic.
4. To understand the concept of input-output organization.
5. To get the knowledge about memory.

Unit I: Basic Computer and Design

Instructions codes – Stored program organization – Indirect address – Computer register – Common bus system – Computer instructions – Timing and control – Instruction cycle – Memory reference instructions – Input Output and Interrupt

Unit II: Central Processing Unit

Introduction – General register organization – Control word – Stack organization – Instruction formats – Addressing modes – Data transfer and manipulation – Program control – Reduced Instruction Set Computer(RISC).

Unit III : Computer Arithmetic Operations

Introduction – Addition and Subtraction – Add and Sub with signed magnitude – Hardware implementation, Algorithm, with signed-2's- Multiplication algorithm – Division algorithm – Floating point arithmetic operation – Decimal arithmetic unit – Decimal arithmetic operation.

Unit IV : Input – Output organization

Peripheral devices – ASCII character – Input – Output interface – Asynchronous data transfer – Modes of transfer – Priority interrupt – Direct Memory Access(DMA) – Input Output Processors(IOP) – Serial communication.

Unit V : Memory Unit

Memory hierarchy – Main memory – RAM and ROM, Memory address map, Auxiliary memory – Cache memory – Virtual memory – Memory management hardware.

TEXT BOOK:

1. "Computer System Architecture" – by M.Moris Mano

Unit I Chapter 5 Unit II Chapter 8 Unit III Chapter 10 Unit IV Chapter 11

Unit V Chapter 12

REFERENCE BOOK:

1."Computer Organization and Programming" by C.W.Gean

E-COMMERCE – M.B.E.

OBJECTIVES:

1. To understand the basics of Electronic Business and marketing.
2. To get the knowledge about transmission modes.
3. To gain the knowledge about Internet and its types.
4. To understand the concept of Electronic Data Interchange.
5. To get the knowledge about security based protocols.

UNIT-I: WELCOME TO E-COMMERCE

Electronic Commerce - Types of Electronic Commerce Solutions - Major Projects In Electronic Communication - Application Of Electronic Commerce -Direct Marketing And Selling – Examples Of Today's E-Commerce-Transaction Processing Systems-Value Added Networks - Information Services - Educational And Medical.

UNIT-II: ESSENTIAL TOOLS FOR E-COMMERCE

Data Communication – Forms Of Data Transmission – Data Transmission Techniques - Communication Channel Bandwidths – Types Of Communication Channels – Methods Of Data Transmission – Transmission Modes – Multiplexing – Integrated Services Digital Network (ISDN) – Asynchronous Transfer Mode (ATM).

UNIT-III: INTERNET,INTRANET AND EXTRANET

The Internet – Information Superhighway – Internet and E-commerce – Linking to the Internet – Internet Address – Internet Tools – Domain Name System(DNS) - Intranet – Communication Systems – Software used in Electronic Mail – Electronic Meeting Systems – Extranets – X.400 Message Handling System – X.500 Directory Service.

UNIT-IV: TECHNOLGIES IN E-COMMERCE SYSTEMS

Introduction – Electronic Data Interchange(EDI) – Use Of EDI – The Evolution Of EDI – Benefits Of EDI Process – How EDI Works – EDI Standards – Cost Benefit Analysis Of EDI - EDI Components – File Types – EDI Services – Choosing EDI Value Added Network(VAN) – Business Approach to EDI- EDIFACT – Structure Of EDIFACT – EDI Security and Legal Aspects.

UNIT-V : SECURITY ISSUES AND ELECTRONIC PAYMENT SYSTEMS

Introduction To Security – Authentication : Passwords – Viruses – Firewalls – Types Of Firewalls –Encryption - Pretty Good Privacy(PGP) – Secured Hypertext Transfer Protocol(SHTTP) – Secured Socket Layer(SSL) – RSA – Electronic Payment Systems – Digicash – Cybercash – Smart Card.

TEXT BOOK:

1. "Doing Business Through Internet" By S.Jaiswal

Unit-I (Chapters 1,2) Unit-II(Chapter 3) Unit-III(Chapter 9)

Unit-IV(Chapters 10 ,11) Unit-V(Chapter 13)

REFERENCE BOOK:

1."E-Commerce –The Cutting Edge Of business" Kamlesh K.Bajaj And Debjani Nag.forth

DATA COMMUNICATION NETWORKS – M.B.E.

OBJECTIVES:

1. To understand the basics of computer network.
2. To understand the concept of physical layer and media.
3. To understand the concept of data link layer.
4. To get the knowledge about network layer.
5. To understand the concepts of transport layer and application layer.

Unit I: INTRODUCTION TO COMPUTER NETWORKS

Data communication – components – Data Representation – Network – Network Models – The Internet - Protocols and Standards – Layered Tasks - The OSI Model - Layers In The OSI Model : Physical Layer , Data link Layer , Network Layer , Transport Layer , Presentation Layer , Session Layer , Application Layer - TCP/IP Protocol Suite - Addressing.

Unit II : PHYSICAL LAYER AND MEDIA

Data And Signals - Analog And Digital – Periodic Analog Signals - Bandwidth – Digital Signals – Transmission Impairment - Data Rate Limits –Performance – Digital Transmission –Digital To Digital Conversion: Signal Element Versus Data Element, Data Rate Versus Signal Rate – Analog to Digital Conversion – Transmission modes.

Unit III: DATA LINK LAYER

Error Detection and Error Correction – Detection versus Correction – Forward Error Correction versus Retransmission – Blocks Coding – Linear Block Codes – Cyclic Codes – Advantage of Cyclic Codes – Checksum - Data Link Control – Framing – Flow And Error Control – Protocols – Noiseless Channels - Go Back N Automatic Repeat Request – Piggybacking – Point – To – Point protocol.

Unit IV: NETWORK LAYER

Network Layer : Logical Addressing – Ipv4 Addresses – Address Spacel - Classful-Addressing – Classless Addressing – Network Addresses – Network Address Translation – Ipv6 Addresses – Internetworking – Internet As Datagram Network – Internet As connectionless Network – Fragmentation – Fields Related To Fragmentation – Fragmentation Offset –Ipv6-Advantages.

Unit V: TRANSPORT LAYER AND APPLICATION LAYER

Process To Process Delivery - User Datagram Protocol(UDP) – Transmission Control Protocol(TCP) – Stream Control Transmission Protocol(SCTP) – Congestion Control And Quality Of Service –Domain Name System – Remote Logging – Electronic Mail – File Transfer – WWW And HTTP – Security In The Internet And Firewalls.

TEXT BOOK:

1.**"Data Communication and Networking"** – Behrouz Forouzan 4th Edition.

Unit I - Chapter 1, 2; Unit II - Chapter 3,4; Unit III - Chapter 10,11;

Unit IV - Chapter 19, 20; Unit V - Chapter 23,24,25,26,27,31.

REFERENCE BOOK:

1. Andrew.S. Tenenbaum "Computer Networks" 4th Ed., Prentice-Hall Of India Pvt.Ltd. New Delhi -110 001.

FUNDAMENTALS OF DATA STRUCTURES– M.B.E.

OBJECTIVE:

1. To understand the basics of data structures.
2. To understand the concepts of stack and queue.
3. To understand the concepts of tree and tree traversal.
4. To understand the concept of graphs.
5. To understand the concept of sorting and types.

Unit I: **Arrays, Stacks and Queues**

Arrays, Stacks and Queues: Introduction- Overview – SPARKS- Create Programs- Analyze programs-**Arrays:** Axiomatization- Ordered Lists-Representation of Arrays. **Stacks and Queues :** Fundamentals- Circular Queues-Evaluation of Expressions- Multiple Stacks and Queues

Unit II: **Linked List**

Linked List: Singly Linked List- Linked Stacks and Queues- Storage Pool- Polynomial Addition- Doubly Linked List and Dynamic Storage Management- Garbage Collection

Unit III: Trees

Trees: Basic Terminology – Binary Trees-Binary Tree representation- Binary Tree Traversal - Threaded Binary Trees – Binary Tree Representation of Trees- Applications of Trees- Set Representation – Decision Trees- Game Trees.

Unit IV: Graphs

Graphs: Graph Terminology- Graph Representation- Graph Traversals- BFS and DFS- Connected Components and Spanning Tree- Kruskal's Minimum cost Spanning Tree Algorithm.

Unit V: Shortest path and Sorting

Shortest path and Sorting: Shortest path and Transitive Closure- Activity Networks- Topological Sort- **Sorting:** Insertion sort- Quick Sort - Merge Sort - Heap Sort.

TEXT BOOK :

1."Fundamentals of Data Structures"-Ellis Horowitz, Sartaj Sahni, Galgotia Publishers.

Unit I-Chapter 1, 2, 3; Unit II - Chapter 4; Unit III - Chapter 5; Unit IV: Chapter 6; Unit V: Chapter 6,7.

REFERENCE BOOK :

1."Data Structures"-Lipschuta, Tata McGraw Hill-schaum's Outline Series.

INTERNET AND WORLD WIDE WEB – S.B.E.

OBJECTIVES:

1. To understand the basics of internet.
2. To understand the concept of XHTML.
3. To understand the concept of Java script.
4. To understand the VB script and XML.
5. To understand the web services.

Unit I : Basics of Internet

Introduction to Internet: History of the Internet –History of the WWW-Explorer 6-Web Browser-Internet Explorer 6 feature –Searching the Internet –File Transfer Protocol(FTP)-Electronic Mail(E-Mail)-Instant messaging –Other Web Browsers.

Unit-II: Introduction to XHTML

Introduction –Editing XHTML-Headers-Linking-Special character and more line breaks-Unordered list-Nested and Ordered List – Basic XHTML Tables – Intermediate XHTML Tables and Formatting – Basic XHTML Forms – Internal Linking – Meta Element – Frame set Element – Nested Frame Sets.

Unit III: Introduction to Java Script

Introduction to Scripting – Obtaining User Input with Prompt Dialog – Memory Concept – Arithmetic – Decision Making Equality and Relational Operators – Control Statement – Control Structures – If Selection statement – IF Else Selection Statement – While Repetition Statement – For Repetition Statement – Switch Multiple Selection Statement – Do While Repetition Statement – Break and Continuous Statement – Definition – User Programmer Defined Functions – Global Functions – Recursion – Declaring Allocation Array – Multi Dimensional Array – Examples.

Unit IV: Introduction to VB Script and XML

Introduction – Operators – Data Type – Control Structures – VB Script Functions – Arrays – String Manipulation – Classes and Objects – XML Introduction – Structuring Data – XML Namespaces – Document Type Definition – Schemas – Document Object Model(DOM) – DOM Methods – Web Service – XSL – SAX – SOAP – Web Service.

Unit V – Introduction to Web Services (IIS and Apache)

Introduction – HTTP Request Type – System Architecture – Client Side Scripting Vs Server Side Scripting – Accessing Web servers – Microsoft Internet Information Services (IIS) – Microsoft Internet Information Service 5.0 – IIS 6.0 – Apache Web Server.

TEXT BOOK:

1. H.M. Deital, P.J.Deital, A.B.Goldberg “Internet and World Wide Web” 3rd edition

Unit I-(Chapter 1,2), Unit II-(Chapter -4,5) Unit III-(Chapter-7,8,9,10,11) Unit IV (Chapter – 32,20)Unit V-(Chapter 21)

REFERENCE BOOK:

1. HOROLD “XML Bible” 2nd edition.

2. Ivan Bayross “Web Enabled Applications Development using HTML, DHTML, JAVASCRIPT, PERL, CGI” BPB 2000.

WEB DESIGNING USING HTML – S.B.E.

OBJECTIVES:

1. To understand the basics of HTML.
2. To understand the concept of HTML list and graphics.
3. To get the knowledge about tables, linking and frames.
4. To get the knowledge about Java script.
5. To get the knowledge about forms used by a website.

Unit I: Introduction to HTML

Introduction to HTML – Information files creation – Web server Web Client/Browser – HTML Tags – Paired Tags – Singular Tags – Common Html Commands – Document Head – Document Body – Titles and Footers – Text Formatting – Emphasizing Material in a WEB PAGE – Text Styles – Other Text Effects.

Unit II: HTML List & Graphics

Types of List : Unordered List(Bullets), Ordered List(Numbering), Definition List – Adding Graphics to HTML documents: Image alignments(IMG SRC) – Using the Border attribute, Using the Width attribute – Using the Height attribute - Using the Align attribute - Using the Alt attribute

Unit III: Tables, Linking & Frames

Introduction – Using the Width & Border attribute - Using the Cell padding attribute – Using the Cell spacing attribute – Using the Bgcolor attribute – Using the Col span and Row span attribute – Links: External Document References – Internal Document References – Hyper linking to HTML File – Linking to a particular Location in a separate document – Images as Hyperlinks. Frames: Introduction to Frames.

Unit IV: Java Script

Java script in web pages – Java script : The Advantage of java script – Writing java script into HTML – Basic programming techniques – Operators and Expressions in java script – java script programming constructs : Conditional checking – Super Controlled – Endless Loops – Function in java script – User defined functions – Placing text in a Browser – Dialog Boxes.

Unit V: Forms Used By A Website

The form objects : The form object's methods – The text element – The password element – Button – Submit element – Reset element – The Checkbox element – The radio element – The Text area element – The Select and Option elements – Other Built in objects in java script – The String object – The Math object – The date object – User defined objects: Creating user defined objects – Instances – Objects Within objects.

TEXT BOOK:

1.Ivan Bayross "Web enabled Applications Development using HTML, DHTML, JAVASCRIPT, PERL, CGI"BPB 2000.

Unit I (Chapter-2), Unit II (Chapter-3,4), Unit III (Chapter-5,6,7), Unit IV (Chapter-8),Unit V (Chapter-10),

REFERENCE BOOK:

1. Thomas A.Powell, "The Complete Reference HTML and DHTML" Fourth Edition TMH Pub.Company Ltd,2003. 2.HTML and XHTML and CSS4th Edition Bible.

MULTIMEDIA AND ITS APPLICATIONS – S.B.E.

OBJECTIVES:

1. To understand the basics of multimedia.
2. To understand the multimedia software and hardware.
3. To understand the audio and video file format.
4. To understand the multimedia and internet.
5. To get the knowledge about delivering a multimedia project.

Unit I: Introduction to Multimedia

Introduction to Multimedia – CD ROM and the Multimedia Highway – Uses of Multimedia – Multimedia in Business – Multimedia in School – Multimedia at Home – Multimedia in Public Places – Multimedia Skill and Training – The Team – Project Manager – Multimedia Designer – Interface Designer – Writer – Video Specialist – Audio Specialist – Multimedia Programmer.

Unit II: Multimedia Software and Hardware

Multimedia Hardware and Software – Machine Tools and Windows Protection Platform – Connections – Memory and Storage Device – Input Device – Output Device – Communication Device – Basic Software Tool – Text Editing and Word Processing Tools – Painting and Drawing Tools – 3D Modeling and Animation Tool – Image Editing Tool – Sound Editing Tool – Animation, Video and Digital Movie Tool – Making Instant Multimedia – Multimedia Authoring Tool.

Unit III: Audio and Video File Format

Multimedia Building Blocks – Text – Font and Faces – Using Text in Multimedia – Computers and Text – Font Editing and Design Tool – Hyper Media and Hyper text – Sound Multimedia system Sound – MIDI (Musical Instrument Digital Interface) VS Digital Audio – Making MIDI audio – Audio File Format – Images – Making Still image – Coral – Image File Format – Animation – Principle of Animation – Making Animation that Work – Video – How Video works – Integrating Video Tips – Recording Format – Digital Video.

Unit IV: Multimedia and Internet

Multimedia and Internet – The Internet and How it Works – Internetworking – Connections - Internet Services – World Wide Web and HTML – Multimedia on the Web – Tool for the World Wide Web – Working on the Web – Text for the Web – Image for the Web – Sound for the Web – Animation for the Web.

Unit V: Delivering a Multimedia Project

Assembling and Delivering a Project – Planning and Costing – Project Planning – Estimating – Designing and Producing – Content and Talent – Using Content created by the Others – Using Content Created for A project – Delivering – Testing – Preparing for Delivering – Delivering on CD ROM – Delivering on WWW.

TEXT BOOK:

1. Multimedia making it work – Fourth Edition – Tay Vaughan – Tata Mcgraw Hill Edition 2001

Unit I: Chapter 1,2 & 3; **Unit II:** Chapter 4,5,6 & 8**; Unit III:** Chapter 9,10 & 11**; Unit IV: Chapter 14,15 &18; Unit V:** Chapter 19 & 20.

REFERENCE BOOK:

1. Multimedia in Action – James E.Shuman – Vikas Publishing House
2. Multimedia an Introduction – John Villamil – Casanova, Louis Moliva, PHI

COMPUTER GRAPHICS – S.B.E.

OBJECTIVES:

1. To understand the basics of computer graphics.
2. To understand the graphics primitives.
3. To understand the concept of two dimensional transformation.
4. To understand the three dimensional transformation.
5. To understand the computer animation.

Unit I: Overview of Interactive Computer Graphics

Positioning of points - Database Structure for Graphics Modeling - Graphics Standards - Applications of Interactive Computer Graphics - Graphics Hardware – Introduction - Basic Computer Architecture – Microcomputer – Workstation – Memory Storage Devices - Input Devices - Graphics Displays - Graphics Monitors - Hardcopy Output Devices - Graphics Systems.

Unit II: Computer Graphics Primitives

Introduction - Raster Scan Graphics - Line Drawing Algorithms – Mid - point Circle Algorithm - Mid-point Ellipse Algorithm - Scan Conversion - Ant aliasing - Drawing Text - Properties of Graphics Primitives.

Unit III: Two-dimensional Geometric transformations

Introduction – Translation – Scaling – Rotation – Reflection – Shearing - Homogeneous Coordinates - Composite Transformations - Rotation about an Arbitrary Point - Transformation between Coordinate Systems.

Unit IV: Three-Dimensional Transformations

Introduction - Translation - Scaling - Rotation - Rotation of a 3D Object about an Arbitrary Axis – Reflection – Shearing - Composite Transformations.

Unit V: Computer Animations

Introduction - Design of Animation Sequences - Primary Computer Animation Functions - Computer Animation Languages - Types of Raster Animations – Key - frame Systems - Key - frame Algorithms - Motion Specifications - Human Walking Model.

TEXT BOOK:

1. “Computer Graphics” by Chennakesava R.Alavala,

Unit - I chapter (1, 2); Unit - II chapter (3); Unit - III chapter (5); Unit - IV chapter (10);Unit -V chapter (14).

REFERENCE BOOKS:

1.”Computer Graphics- C Version” Second Edition, Donald Hearn and Pauline Baker, Pearson Education, 2006.

2. “Multimedia in Practice -Technology and Practice”. Judith Jeffcott, Pearson Education, 2007.

WEB SERVICES

OBJECTIVES:

1. To understand the basics of XML.
2. To understand the concept of XML technology family.
3. To gain the knowledge about SOAP.
4. To get the knowledge about web services.
5. To understand the concept of XML security.

Unit I: XML: EXTENDING THE ENTERPRISE

Extending the enterprise-XML: Role-Just tags-Advantages-Design by omission- XML and The Web - SOAP - Web Services -.Net and J2EE- Revolutions of XML –The Data Revolution-The Architectural Revolution- The Software Revolution.

Unit II: XML TECHNOLOGY FAMILY

XML Technologies- Name Spaces - Structuring with Schemas -DTD –XML Schema-XML processing-DOM-SAX- Presentation Techniques: CSS-XSL-XFORMS-XHTML-Voice XML- Transformation: XSLT - XLINK - XPATH – X-Query - XML Infrastructure-RDF.

Unit III: SOAP

Overview Of SOAP - HTTP - XML-RPC: Data Typing – Zwift Books - Response - SOAP: Protocol – Overview-Message Structure – Example-Paths-Intermediaries - Actors - Design Patterns - Faults - SOAP With Attachments.

Unit IV: WEB SERVICES

Web Services :Overview – Opportunity and Risk-Technologies-Architecture - Key Technologies – UDDI - WSDL – XML and its Technologies - SOAP , Web Services and E-Commerce- Enterprise's Web Services: .NET- J2EE-IBM-ORACLE.

Unit V: XML SECURITY

Security Overview: Single key and Public key cryptography-Digital Signature-Managing certificates and Private key - Canonicalization - XML Security Framework - XML Encryption - XML Digital Signature - XKMS Structure - Guidelines for Signing XML Documents.

TEXT BOOK:

1. Frank. P. Coyle, “XML, Web Services and The Data Revolution”, Pearson Education, 2002

Unit I (Chapter-1), Unit II (Chapter-2), Unit III (Chapter-4), Unit IV (Chapter-5),Unit V (Chapter - 7),

REFERENCE BOOKS:

1. Ramesh Nagappan , Robert Skoczylas and Rima Patel Sriganesh, " Developing Java Web Services", Wiley Publishing Inc., 2004.

2. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services", Pearson Education, 2004.

COMPUTER SKILL DEVELOPMENT COURSE – I.D.C.

OBJECTIVES:

1. To understand the basics of computer.
2. To understand the concept of computer component.
3. To get the knowledge about programming languages.
4. To understand the concept of computer networks.
5. To get the knowledge about applications of computer.

Unit I:

Introduction to computer : Generations of computer- Types of Computers-Characteristics of Computers -What computers can do-What computers can't do-Classification of digital computer systems-Functions and Components of a computer.

Unit II:

Computer Components: Memory units-Main and Auxiliary Storage devices-Input devices-Output devices - Classification and Characteristics of output devices-**Introduction to computer software:** System software and Application software.

Unit III:

Programming languages: Types of Programming Languages-General software features and trends-Data processing-Introduction to database management systems-Introduction to telecommunications.

Unit IV:

Computer networks: Types of networks-Network Topologies-Network Protocols-Network Architecture-Communication systems-**Internet and World Wide Web:** Internet Access and Basics-Internet Protocols-Internet Addressing –www-Html-E-mail-Introduction to multimedia

Unit V:

Applications of Computers: Computers in business and industry- Computers in home- Computers in education and training- Computers in entertainment, science, medicine and engineering.

TEXTBOOK:

1. "Fundamentals of Information Technology" – Alexis Leon, Mathews Leon.

Unit I - Chapters 1, 2 & 3; **Unit II** - Chapters 6, 7, 8, 9 & 10 ;**Unit III** - Chapters 12, 13, 14, 15 &17; **Unit IV** - Chapters18, 19, 21, 22 &24 ; **Unit V** - Chapters 33, 34, 35 & 36

REFERENCE BOOKS:

1. "Information Technology the breaking wave"-Dennis P.Curtin ,Kim Foley ,Kunal Sen,Cathleen Morin. TATA-McGRAW-HILL.

INTERNET SKILL DEVELOPMENT COURSE – I.D.C.

OBJECTIVES:

1. To understand the basics of Internet concepts.
2. To understand the web servers, browsers, security.
3. To get the knowledge about creating websites and markup languages.
4. To get the knowledge about searching and web casting techniques.
5. To get the knowledge about network and security programming.

Unit I:

Introduction to Network and Internet: Basics of Networks – Topologies of Networks - Layering in Networks – Switching in the Network – Bridges, Routers and Gateways – Types of Networks. Internet: Basics of Internet – Addresses and Names for the Internet, Web Objects and Sites – E Mail- WWW – FTP - Telnet.

Unit II:

Web Servers, Browsers and Security :The Web Server – Proxy Server – The Fast Ready Connection on the Web – Web Browsers – Netscape Communication Suite – Microsoft Internet Explorer – The Virus Menace in the Internet – Firewalls – Data Security.

Unit III:

Creating Websites and Markup Language: The Art of Creating a Web Site – Hypertext and HTML – HTML Document Features – Document Structuring Tags in HTML – Special Tags in HTML – Dynamic HTML – XML for Universal Format for the Data on the web – Microsoft Front Page

Unit IV:

Searching and Web Casting Techniques: Introduction – Search – Subscription – Web Casting – Web Casting Channel Push Technology Mode – Search Alerts – Searching Citation –Search Engines – Search Tools – Using Navigator, Using Internet Explorer, Saving Search Results – Subscribing – Channels.

Unit V:

Network and Security Programming: Network Programming – URL Classes – Socket Classes – Programming for Security – CGI – Four Steps for CGI Script – CGI Script Language – Scripting Language ‘ Java Script’ – Dynamic Page Functionality using Servlets and JSPs – Using ASP, COMs, DCOMs.

TEXTBOOK:

1.“Internet and Web Technologies” – Raj Kamal, Tata McGraw- Hill Publishing company limited, New Delhi

Unit I : Chapters 1 & 2, Unit II : Chapter 3,Unit III: Chapter 4,Unit IV: Chapter 5, Unit V : Chapter 9 & 10.

REFERENCE BOOKS:

1. “Internet programming”-Chitra, Sams publishers

FUNDAMENTALS OF PHOTOSHOP – I.D.C.

OBJECTIVE:

1. To understand the basics of principles of Photoshop.
2. To understand the tools and tricks.
3. To get the knowledge about filters.
4. To understand the text, effects.
5. To gain the knowledge about plug-ins.

Unit I: Getting Started

The Basics - Opening and Saving – Working with Files – Saving your work – Undoing and Redoing - Selection Modes – Transformations – Resizing – Rotating – Flipping – Selection Transformations - Paintbrushes and Art Tools – The brushes Palette – Brushes - Moving Paint - Smudges – Focus Tools – The Toning Tools.

Unit II: More Tools and Tricks

Advanced Painting Techniques – Simulating Different Media - Layers –Using The Layers Palette – Working With Multiple Layers - Using Masks – Applying Masks – Using Quick Mask – Layer Masks - Paths – Creating Paths - Editing Paths – Using Paths .

Unit III: Fun with Filters

Filters That Improve Your Picture –Sharpen Filters – Blur Filters – Fading Filters - Filters To Make Your Picture Artistic – Artistic Filters – Brush Strokes – sketch Filters - Filters To Distort and Other Funky Effects – Distort Filters – Pixelate Filters – Stylize – Combining Filters .

Unit IV: Text, Effects

Adding Type to pictures – The Type Tools – Setting Type – Creating Drop Shadows – Cutting and Filling Type – Adding Glows – Creating Bevel and Emboss Effects.

Unit V: Getting Plugged In

Wrapping Text – Checking your Spelling - Special Effects and Useful Tricks – Compositing – Photo Repair –Black and White.

TEXTBOOK:

1. Sams" Teach Yourself Adobe Photoshop 7 in 24 hours"–Edition 2002 –Carla Rose

Unit I : Chapters 1,2,3,4,7,9; Unit II: Chapters 10,11,12,13,Unit III: Chapters 14,15,16 Unit IV: Chapters 17,18, Unit V : 20 , 21.

REFERENCE BOOKS:

1.Sams "Teach Yourself Adobe Photoshop CS2 in 24 hours " –Carla Rose

COMPUTER APPLICATIONS IN CHEMISTRY

OBJECTIVES:

1. To enable the students to learn the basics of computer
2. To understand the concept of operating systems and its types
3. To define a computer network and the other types of networks
4. To introduce the concept of C programming to the learners
5. To enable the students to apply the concept of C Programming in applications of Chemistry

Unit-I: Introduction to computer

Characteristics of computers – organization of a computer – secondary storage devices – computer languages – low level, assembly and high level languages – software – system and application software – applications of computer – algorithms and flow charts.

Unit-II: Operating system

MS-DOS, simple DOS commands – MS-Windows - Components of Windows – desktop, My Computer, Recycle Bin, Taskbar, My briefcase and Network Neighborhood – Windows Accessories – Calculator, games, Windows media player, Notepad and Imaging – Windows Explorer. Power point – creating a presentation – slide preparation.

Unit-III: Fundamentals of Computer Networks

Importance – Mode of Connections – Protocol – Network Topologies – Bus, Ring and Star topologies – Network Architecture – Network components – Hubs , cables, repeaters, routers and bridges, **Internet and its application:** Internet – meaning – importance –WWW– Browsing the internet – Browsing software – URL addresses, search engines, exploring websites and downloading materials from websites, E-mail – sending, receiving and storing mail and chatting.

Unit-IV: Fundamentals of C

Character set – identifiers – keywords – data types – Constants – Variables – symbolic constants – operators – expressions – evaluation of expressions. Input and Output functions - getchar – put char – scanf – Printf – gets and puts functions.

Unit – V

Applications of C-Programming:

- Basic Structure of C-Programming
- Conversion of temperature from Kelvin to Celsius
- Calculation of rate constant using first order rate equation
- Calculation of root mean square, average and most probable velocities of molecules
- Calculation of Bohr radius
- pH determination using Henderson equation
- Determination of vander Waals constants

TEXT BOOKS:

1. E. Balagurusamy "Programming in ANSI C" 6th Ed.,Tata McGraw-Hill – New-Delhi.
2. Pundir Ansu Bansal "Computers for Chemists" 9th Ed., Pragati Prakashan Publication, 2011.
3. Andrews Tenenbaum "Computer Networks" 4th Ed., Prentice-Hall Of India Pvt.Ltd. New Delhi -110 001.

REFERENCE BOOKS:

1. Kishor Arora "Computer Application In Chemistry" 1st Ed., Anmol Publications Pvt. Ltd.
2. Ramesh Kumari, "Computer and Their Applications to Chemistry"-Narosa Publishing House, New Delhi.