

**SEMESTER I**  
**CC I - PROGRAMMING IN C**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKA**

**Exams Hrs : 3**

**OBJECTIVE:**

To learn the problem solving techniques along with the features of C language and to develop programming skills.

**UNIT-I**

Introduction to computer: Introduction- types of computer- Characteristics of computer- What computer can do- what computer can't do-computer architecture: Introduction- First electronic computer- Low level language – high level Language- Peripheral devices.

**UNIT II**

Overview of C: History of C-Importance of C- Basic Structure of C. Constants, Variables and Data Types: Introduction-C Tokens-Keywords and Identifiers-Constants-Variables-Data Types- Declaration of Variables-Declaration of Storage Class-Assigning Values to Variables-Defining Symbolic Constants. Operators and Expressions.

**UNIT III**

Decision Making and Branching: Simple If Statement –If Else-Nested if else-Switch- ?:operator-Goto statement . Decision Making and Looping: While-Do While –For-Jump in loop. Arrays: One dimensional Array-Two dimensional Array-Multi dimensional Array – Dynamic Array. Strings: Declaring and Initializing String Variable – Reading String-Writing String – Putting String Together – Comparison of two string- String Handling Functions-Table of String.

**UNIT IV**

Structures and Unions: Defining a Structure-Declaring Structure Variable – Accessing Structure – Structure Initialization – Array of Structure – Array within Structure – Structure within Structures – Structures and Functions-Unions. Pointers: Understanding pointers- Declaring pointer variables-Initialization of pointer variable-Pointer Expressions-Pointers and Arrays-Pointers and Character Strings – Pointers as Function arguments-Functions returning pointers-Pointers to functions-Pointers and Structures.

## **UNIT V**

File Management: Introduction-Defining and opening a file-closing a file-input/output operation on files – Error handling during I/O operations-Random access to files-Command line arguments.

### **TEXT BOOK:**

1. Alexis Leon. Mathews leon, “Fundamentals of information technology”, Leon Tech World
- 2.E. Balagurusamy, *Programming in ANSI C*, Tata McGraw Hill Publishing Company, Fourth Edition, 2009.

### **REFERENCE BOOK:**

Yeshavanth P. Kanetkar, Let us C, BPB Publications, 13th Edition 2013.

**SEMESTER I**  
**CC II - PROGRAMMING IN C LAB**

**Internal Marks : 40**

**External Marks: 60**

**Total Marks : 100**

**Subject Code : UKBY**

**Exam Hrs : 3**

1. To Find a solution of Quadratic Equation for Various cases.
2. To count the lines, words and characters in a given text.
3. To determine if the given string is a palindrome or not
4. Write a C program that uses functions to perform the following operations:
  - i. Reading a complex number
  - ii. Writing a complex number
  - iii. Addition of two complex numbers
  - iv. Multiplication of two complex numbers

(Note: represent complex number using a structure.)
5. Sum of Series
  - i. Sine Series
  - ii. Cosine Series
  - iii. Exponential Series
6. To arrange a set of 'N' numbers in ascending and descending order using arrays.
7. Sorting of names in alphabetical order.
8. Matrix operations for Addition, Subtraction and Multiplication.
9. Using Recursion, find factorial & Fibonacci series.
10. String manipulation without using string functions.
11. Payroll preparation using sequential file.
12. Mark list preparation using sequential file.

**SEMESTER I**  
**CC III - OFFICE AUTOMATION LAB**

**Internal Marks : 40**

**External Marks: 60**

**Total Marks : 100**

**Subject Code : UKCY**

**Exam Hrs : 3**

**Objective :**

To Impart Practical Training in Word Processing Software

**Use MS-Office or Open Office for the following**

1. Text Manipulation

- Change the font size and type
- Aligning and justification of text
- Underlining the text
- Indenting the text

i. Prepare a Bio-data

ii. Prepare a Letter

2. Usage of Numbering, Bullets, Footer and Headers

Usage of Spell checks and Find and Replace

- i. Prepare a document in newspaper formats
- ii. Prepare a document with bullets and footers and headers

3. Tables and Manipulations

Creation, Insertion, Deletion (Columns & Rows) and usage of Auto Format

- i. Create mark sheet using table and find out the total marks
- ii. Create a calendar and Auto Format it.

4. Picture Insertion and Alignment

- i. Prepare a greeting card
- ii. Prepare a handout

5. Mail merge concepts

- i. Prepare a business letter for more than one company using mail merge
- ii. Prepare an invitation to be sent to specific addresses in the data source

6. A Presentation that shows five different Greeting Cards with Pictures.

7. Prepare Slides that helps you to teach about —(General Topic).

8. A Presentation with different Animation Effects.
9. Prepare Slides that gives a Presentation about —Computersll using Macros.
10. Usage of Formula and Built – in – functions
11. Inventory report preparation
12. Invoice report preparation
13. Drawing graphs

**SEMESTER II**  
**CC IV - C++ AND DATA STRUCTURES**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject code : UKD**

**Exam Hrs : 3**

**OBJECTIVE:**

- To learn the systematic way of solving problems .
- To understand the different methods of organizing large amounts of data .
- To learn to program in C++ .
- To efficiently implement the different data structures .
- To efficiently implement solutions for specific problems

**UNIT I**

**PRINCIPLES OF OBJECT ORIENTED PROGRAMMING:** Introduction- Tokens- Expressions-contour Structures –Functions in C++, classes and objects, constructors and destructors ,operators overloading and type conversions .

**UNIT II**

**ADVANCED OBJECT ORIENTED PROGRAMMING:** Inheritance, Extending classes, Pointers, Virtual functions and polymorphism, File Handling Templates, Exception handling, Manipulating strings

**UNIT III**

**DATA STRUCTURES & ALGORITHMS:**Algorithm, Analysis, Lists, Stacks and queues, Priority queues-Binary Heap-Application, Heaps–hashing hash tables without linked lists

**UNIT IV**

**NONLINEAR DATA STRUCTURES:** Trees-Binary trees, search tree ADT, AVL trees, Graph Algorithms-Topological sort, shortest path algorithm network flow problems-minimum spanning tree - Introduction to NP - completeness.

**UNIT V**

**SORTING AND SEARCHING:** Sorting – Insertion sort, Shell sort, Heap sort, Merge sort, Quick sort, Indirect sorting, Bucket sort, Introduction to Algorithm Design Techniques –Greedy algorithm (Minimum Spanning Tree), Divide and Conquer (Merge Sort), Dynamic Programming.

**TEXT BOOKS:**

1. Mark Allen Weiss, —Data Structures and Algorithm Analysis in C, 3rd ed, Pearson Education Asia, 2007.
2. E. Balagurusamy, — Object Oriented Programming with C++, McGraw Hill Company Ltd., 2007.

**REFERENCES BOOK:**

1. Michael T. Goodrich, —Data Structures and Algorithm Analysis in C++, Wiley student edition, 2007.
2. Sahni, —Data Structures Using C++, The McGraw-Hill, 2006.

**SEMESTER II**  
**CC V - DATA STRUCTURES LAB USING C++**

**Internal Marks: 40**

**External Marks: 60**

**Total Marks : 100**

**Subject Code : UKEY**

**Exam Hrs : 3**

1. Bubble Sort.
2. Selection Sort.
3. Insertion Sort
4. Quick Sort.
5. Searching (Linear Search, Binary Search)
6. Multidimensional Arrays (Matrix Operations, Addition and Multiplication)
7. Fibonacci Series using Recursion.
8. Stack Operations using Arrays.
9. Queue Operations using Arrays.
10. Singly Linked List Operations.



## SEMESTER III

### CC VI - JAVA PROGRAMMING

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject code : UKF**

**Exam Hrs : 3**

#### UNIT I

**Data Types and Variables:** Simple Types - Literals - Variables - Type Conversion and Casting - Automatic Type Promotion in Expressions - Arrays -Strings - **Classes and Methods:** Class Fundamentals - Declaring Class Objects -Constructors - Garbage Collection - The finalize () Method - Overloading Methods - Argument Passing - Recursion - Understanding Static - Access Control.

#### UNIT II

**Operators:** Arithmetic Operators - Bit wise Operators - Relational Operators Boolean Logical Operators - The Assignment Operator - The? Operator - Operator Precedence- **Inheritance, Packages, and Interfaces:** Inheritance - Using Super - When Constructors are called- Method Overriding - Abstract Classes - The final Keyword - Packages -Importing Packages - Interfaces.

#### UNIT III

Exception Handling- The Language Classes –Multithreading Programming:Java Thread Model-Main thread-Creating a Thread.

#### UNIT IV

**Applet Class:** Applet Basics - Applet Architecture- The HTML Applet Tag- Passing Parameters in Applets. **Introducing AWT:**AWT classes- window fundamentals- Working with Graphics.**Using AWT controls:**AWT Controls- Handling Events by extending AWT Components.

#### UNIT V

**JDBC Objects:**A Brief Overview of the JDBC Process-Database Connection- Statement Object-ResultSet.

### **Text Book**

1. **“Java the complete reference”** Herbert schildt, Tata MCGraw Hill, 7<sup>th</sup> edition,2007
2. . Jim Keogh, **“J2EE: The Complete Reference”**, Tata McGraw Hill Publishing Company, New Delhi 2002

### **Reference Book**

1. E. Balagurusamy, *Programming With Java a Primer*, TMH, Fourth Edition, 2010.

## **SEMESTER III**

### **CC VII - JAVA PROGRAMMING LAB**

**Internal Marks : 40**

**External Marks : 60**

**Total Marks : 100**

**Subject Code : UKGY**

**Exam Hrs : 3**

1. Write a program to find the area of a rectangle using constructor.
2. Write a java program to demonstrate a method overloading.
3. Write a java program to demonstrate the method in the Vector Class.
4. Write a java program to demonstrate the method overloading.
5. Write a java program to implement the concept of importing classes from user defined package and creating packages.
6. Write a program to find the student's percentage and grade using command line arguments.
7. Write a program to draw circle or triangle or square using polymorphism and inheritance.
8. Implement multiple inheritance concepts in java using interface, you can choose your own example of a company or education institution or a general concept which requires the use of interface to solve a particular problems.
9. Write a program to create threads and assign priorities to them.
10. Write a program to develop an applet to play multiple audio clips using multithreading.
11. Write a program to create a window with three check boxes called red, green and blue. The applet should change the colors according to the selection.

**SEMESTER III**  
**NME I - MULTIMEDIA LAB**

**Internal Marks : 40**

**External Marks : 60**

**Total Marks : 100**

**Subject Code : UKE1**

**Exam hours : 3**

**Macromedia Flash**

1. Create an animation to represent the growing Moon.
2. Create an animation to indicate a ball bouncing on steps.
3. To Simulate Movement Of A Cloud
4. Display the background given (filename: Tulip.jpg) through your name.
5. Create an animation with the following features.
  - WELCOME
  - a) Letters should appear one by one
  - b) The fill color of the text should change to a different color after the  
Display of the full word.
6. To simulate a ball hitting another ball.
7. To Change A Circle Into a Square Using Flash.

## SEMESTER IV

### CC VIII - DATABASE SYSTEMS

**Internal Marks : 25**

**External Marks : 75**

**Total Marks : 100**

**Subject Code : UKH**

**Exam Hrs : 3**

#### **Objective :**

To provide the basic concepts of the Database Systems including Data Models, Storage Structure, Normalization and SQL

#### **UNIT I**

**Introduction:** Database System Applications- Purpose of Database Systems - View of Data --Database Languages - Relational Databases - Database Design -Data Storage and Querying -Transaction Management - Database Architecture - Data Mining and Information Retrieval - Database Users and Administrators - History of Database Systems.

#### **UNIT II**

**Relational Model:** Structure of Relational Databases -Database Schema - Keys - Schema Diagrams - Relational Query Languages - Relational Operations. **SQL:** Overview of the SQL Query Language - SQL Data Definition - Basic Structure of SQL Queries - Additional Basic Operations - Set Operations - Null Values Aggregate Functions - Nested Subqueries - Modification of the Database.

#### **UNIT III**

**Intermediate SQL:** Join Expressions - Views - Transactions - Integrity Constraints - SQL Data Types and Schemas – Authorization. **Advanced SQL:** Accessing SQL from a programming language-Function and Procedure-Triggers.

#### **UNIT IV**

**Relational Database Design:** Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory – Algorithm for Decomposition - Decomposition Using Multivalued Dependencies-More Normal Forms - Database-Design Process.

## **UNIT V**

**PL/SQL:**Introduction - Data Types and Variables - Program Control Statements – Program Structure – Triggers – Database Access using Cursors - Records - Tables – Examples.

### **TEXT BOOK**

1. Database System Concepts, Sixth edition, Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill-2010.
2. Rajeshkhar Sunderraman, "Oracle 8 Programming A Primer, Addition", Wesley Publication, New Delhi 2000

**Unit - V : 2.1 – 2.6**

**Unit - V : 4.1 – 4.8**

### **REFERENCE BOOKS**

1. "An introduction to database systems", Bipin C. Desai, Galgotia Publications Pvt Ltd, 1991.
2. "An Introduction to Database Systems", C.J. Date, Third Edition Addison Wesley 1983.

**SEMESTER III**  
**CC IX - RDBMS LAB**

**Internal Marks : 40**

**External Marks : 60**

**Total Marks :100**

**Subject Code : UKIY**

**Exam Hrs : 3**

**Objectives:**

- ❖ To acquire knowledge on DDL,DML, and DCL commands
- ❖ To understand the usage of SQL queries
- ❖ To learn the features on PL/SQL programming and Oracle forms

**SQL:**

1. Table Creation with various data types and constraints.
2. DLL statements (CREATE, ALTER, DROP).
3. DML statements (Retrieval, Update, Delete, Insertion).
4. Arithmetic Functions.
5. Character and String Functions.
6. Group Functions.
7. Conversation Functions.
8. Date Functions.
9. JOINS (Self, Equi and Outer).
10. Sub queries and correlated sub queries.

**PL/SQL:**

1. Control Structures.
2. Simple and multiple loop structures.
3. Exception Handling.
4. Explicit and Implicit Cursors.
5. Triggers

**Forms/Report:**

1. Employee Pay bill preparation.
2. Student mark sheet preparation.
3. Inventory Control Processing.

**SEMESTER IV**  
**NME II - HTML LAB**

**Internal Marks : 40**

**External Marks : 60**

**Total Marks : 100**

**Subject Code : UKE2Y**

**Exam Hrs : 3**

1. Create a web page to illustrate Html Body Tag and Pre Tags.
2. Create a web page to illustrate Text Font Tag.
3. Create a web page to illustrate Text Formatting Tag.
4. Create a web page using Marquee Tag.
5. Create a web page to illustrate the Image Tag
6. Create a web page to illustrate the Hyperlink Tag.
7. Create a web page to illustrate Order List and Unordered List Tag.
8. Create a web page to illustrate the table using Table Tag.
9. Create a web page to illustrate the Frame Tag.
10. Create a web page to illustrate the Form Tag.



**SEMESTER IV**  
**SBE II - HTML5 AND CSS3 LAB**

**Internal Marks : 40**

**External Marks: 60**

**Total Marks : 100**

**Subject Code : UKS1Y**

**Exam Hrs : 3**

**HTML5**

1. Usage of New Semantic Elements
2. Create Page Structure and Navigation
3. Create Form Input and Validation.
4. Create Image onto Canvas.

**CSS3**

5. Selectors and Colors
6. Text and Drop Shadows
7. Transition- Rotating Box
8. Linear Gradient and Radial gradient.
9. 2D and 3D Animations
10. SVG, Drag and Drop.

**SEMESTER – V**  
**CC X - PROGRAMMING IN PHP**

**Internal Marks : 25**

**External Marks : 75**

**Total Marks : 100**

**Subject Code : UKJ**

**Exam Hrs : 3**

**Objective :**

To understand the Concepts of PHP and Ajax.

**UNIT I**

Introduction to PHP : Basic Development Concepts – Creating your First PHP Script – Using Variables and Operators: Storing Data in Variables – Understanding PHP Data types – Using Constants – Manipulating Variables with Operators. Controlling Program Flow: Writing Simple Conditional Statements – Writing more complex Conditional Statements – Repeating Action with Loops Array: Sorting data in Arrays – Processing Array with Loops and Iterators – Using Array with Forms.

**UNIT II**

Using Function and Class: Creating User – Defined Functions – Creating Class – Using Advanced OOP Concepts – Working with Files and Directories: Reading Files – Writing Files – Processing Directories – Performing other File and Director Operation.

**UNIT III**

Working with Databases and SQL: Introducing Database and SQL –Creating and Populating a Database – Using PHP's MySQLi Extension – Adding or Modifying Data – Handling Error – Using PHP's SQLite Extension – Using PHP's PDO Extension – Building a Login Form. Working with Cookies, Session and Headers: Working with Cookies – Working with Sessions – Using HTTP Headers.

**UNIT IV**

Working with XML: Introducing XML – Using PHP's Simple XML Extension – Converting XML to SQL – Using PHP's DOM Extension – Handling Errors: Handling Script Errors-Using Exception-Logging Errors– Debugging Errors – Securing PHP: Sanitizing Input and Output – Securing Data – Validating user Input.

## **UNIT V**

Technologies behind AJAX- Using CSS-Using DOM –Using Xml HTTP Request-  
Introducing order to AJAX- MVC pattern- View in AJAX- Controller in AJAX –Models in  
AJAX- Generating view from model.

## **TEXT BOOK**

1. PHP: A Beginner's Guide, Vikram Vaswani, McGraw Hill Education, 2009
2. Dave Crane and Eric Pascarello, "Ajax in Action" 2006

## **REFERENCE BOOKS**

The PHP Complete Reference, Steven Holzner, McGraw Hill Education, 2007

**SEMESTER - V**  
**CC XI - OPERATING SYSTEMS**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKK**

**Exam Hrs : 3**

**Objective**

To present the fundamental aspects of various managements in an operating system.

**UNIT I**

INTRODUCTION: Meaning - Early Systems - Multiprogrammed Batch Systems - Real-Time Systems. COMPUTER SYSTEM STRUCTURES: Computer-System Operation - Storage Hierarchy - General System Architecture. OPERATING SYSTEM STRUCTURES: System Components - System Calls - Virtual Machines - System Generation.

**UNIT II**

PROCESS MANAGEMENT: Processes - Process Concept - Operation on Processes - Inter-Process Communication. CPU SCHEDULING: Basic Concepts - Scheduling Algorithms - Real Time Scheduling. PROCESS SYNCHRONIZATION: Background - Critical-Section Problem - Semaphores. DEADLOCKS: System Model - Methods for Handling Deadlocks – Deadlock Avoidance - Recovery from Deadlock.

**UNIT III**

MEMORY MANAGEMENT: Background - Swapping - Paging - Segmentation with Paging. VIRTUAL MEMORY: Demand Paging - Page Replacement - Allocation of Frames - Thrashing.

**UNIT IV**

FILE - SYSTEM INTERFACE: File Concept - Access Methods – Directory Structures File-System Implementation: File-system Structure – Allocation Methods - Directory Implementation - Efficiency and Performance - Recovery. MASS STORAGE STRUCTURE: Disk Structure - Disk Scheduling - Swap- Space Management - Stable-Storage Implementation.

## **UNIT V**

PROTECTION: Goals of Protection - Access Matrix - Capability Based Systems - Language-based Protection. SECURITY: The Security Problem - Authentication - Security Systems and Facilities - Encryption. WINDOWS XP: Design Principles, System Components, Environmental Subsystems, File Systems, Networking, Programmer Interface.

### **TEXT BOOK**

1. Abraham Silberschatz, Peter Baer Galvin "Operating System Concepts", 6th Ed., John Wiley & Sons Inc., New Delhi 2003.

### **BOOKS FOR REFERENCE**

1. Harvey M. Deitel, "An Introduction to Operating System", Addison Wesley, New York, 1999.
2. Andrew S. Tanenbaum, "Modern Operating Systems", Prentice Hall, New Delhi, 1997

**SEMESTER - V**  
**CC XII - SOFTWARE ENGINEERING**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKL**

**Exam Hrs : 3**

**Objective:**

To provide knowledge of the various phases of Software Engineering Process

**UNIT I**

Introduction : Introduction to Software Engineering - Software Process - Software Process Models - Software Model - Requirements Engineering Principles : Requirements Engineering - Importance of Requirements - Types of Requirements - Steps involved in Requirements Engineering

**UNIT II**

Requirements Analysis Modeling : Analysis Modeling Approaches - Structured Analysis - Object Oriented Analysis - Design and Architectural Engineering : Design Process and Concepts - Basic Issues in Software Design - Characteristics of Good Design - Software Design and Software Engineering - Function Oriented System vs Object Oriented System - Modularity, Cohesion, Coupling, Layering - Real Time Software Design - Design Models - Design Documentation

**UNIT III**

Object Oriented Concepts : Fundamental Parts of Object Oriented Approach - Data Hiding and Class Hierarchy Creation - Relationships - Role of UML in OO Design - Design Patterns - Frameworks - Object Oriented Analysis - Object Oriented Design - User Interface Design : Concepts of User Interface - Elements of User Interface - Designing the User Interface - User Interface Evaluation - Golden Rules of User Interface Design - User Interface Models - Usability

**UNIT IV**

Software Coding - Introduction to Software Measurement and Metrics - Software Configuration - Project Management Introduction - Introduction to Software Testing - Software Maintenance

**UNIT V**

Web Engineering : Introduction to Web - General Web Characteristics - Web Application Categories - Working of Web Application - Advantages and Drawbacks of Web Applications - Web Engineering - Emerging Trends in Software Engineering - Web 2.0 - Rapid Delivery - Open Source Software Development - Security Engineering -

Service Oriented Software Engineering - Web Service - Software as a Service - Service Oriented Architecture - Cloud Computing - Aspect Oriented Software Development - Test Driven Development - Social Computing

### **TEXTBOOK**

Software Engineering, Chandramouli Subramanian, Saikat Dutt, Chandramouli Seetharaman, B.G. Geetha, Pearson Publications, 2015

### **REFERENCE BOOK**

Software Engineering, Jibitesh Mishra, Pearson E

**SEMESTER - V**  
**MBE I - COMPUTER GRAPHICS**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKE3**

**Exam Hrs : 3**

**Objective:**

To understand the concepts on basic Graphical Techniques, Raster Graphics, Two Dimensional and Three Dimensional Graphics

**UNIT I**

Overview of Computer Graphics System: Video Display Devices – Raster Scan Systems – Random – Scan Systems - Graphics Monitors and Workstations – Input Devices – Hardcopy Devices – Graphics Software.

**UNIT II**

Output Primitives: Line Drawing Algorithms – Loading the Frame Buffer – Line Function – Circle – Generating Algorithms. Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale levels – Area fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions.

**UNIT III**

2D Geometric Transformations: Basic Transformation – Matrix Representations – Composite Transformations – Window to View port Co-Ordinate Transformations. Clipping: Point Clipping – Line Clipping – Cohen-Sutherland Line Clipping – Liang Barsky Line Clipping – Polygon Clipping – Sutherland – Hodgman Polygon Clipping – Curve Clipping – Text Clipping.

**UNIT IV**

Graphical User Interfaces and Interactive Input Methods: The User Dialogue – Input of Graphical Data – Input Functions – Interactive Picture Construction Techniques.

**UNIT V**

Three Dimensional Concepts: 3D-Display Methods – Three Dimensional Graphics Packages -3D Geometric and Modeling Transformations: Translation – Scaling – Rotation – Other Transformations.



**TEXT BOOK**

Donald Hearn M. Pauline Baker, Computer Graphics C Version, Second Edition, Pearson Education, 2014.

**REFERENCE BOOK**

Computer Graphics, Sunil Kumar Sharma, Manoj Singhal, Pearson Education, 2014

**SEMESTER - V**  
**MBE I - OBJECT ORIENTED SYSTEM DESIGN**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject code :**

**Exam Hrs : 3**

**Objective**

To introduce various phases of a Object Oriented System Design and also to develop skills in designing a UML diagram.

**UNIT I**

Overview of Object-oriented systems development Need for object orientation - Overview of the unified approach -Object Basics -Object-Oriented Systems Development Life Cycle The software development process- building high-quality software- object-oriented systems development- reusability.

**UNIT II**

Object-Oriented Methodologies Unified Modeling Language Static and dynamic models- why modeling- introduction to the unified modeling language- UML diagrams- UML class diagram- Use-case diagram- UML dynamic modeling- model management- UML extensibility- UML meta-model.

**UNIT III**

Object-Oriented Analysis Process- identifying Use Cases Use-case driven object-oriented analysis- business process modeling- Use-case model- Object Analysis- Classification classifications theory- approaches for identifying classes-Identifying object relationships - identifying attributes and methods- defining attributes by analyzing use cases and other UML diagrams.

**UNIT IV**

The Object-Oriented Design Process and Design Axioms the object-oriented design process- object-oriented design axioms- corollaries- Design patterns and frameworks Describing Design patterns Façade Design pattern. Designing Classes - the object-oriented design philosophy- UML object constraint language- designing classes- the process- class visibility- designing classes- refining attributes - designing methods and procedures.

## **UNIT V**

Access Layer - designing access layer classes- case study -View Layer- Designing interface objects user interface design as a creative process- designing view layer classes User satisfaction and usability testing Case Study - Analyzing the Bank ATM - Use-case model- developing effective documentation- Relationship analysis - defining attributes - object responsibility - defining methods for - refining attributes - designing methods - Designing the access layer - designing user interface

## **TEXT BOOKS**

1. Ali Bahrami, Object Oriented System Development, McGraw Hill International Edition, 1999.
2. Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides, DESIGN PATTERNS Elements of reusable Object Oriented Software , Addison Wesley Professional Computing Series - Pearson Education -2003

## **SEMESTER - V**

### **SBE II - COMPUTER GRAPHICS AND ANIMATION LAB**

**Internal Marks : 40**

**External Marks: 60**

**Total Marks : 100**

**Subject Code : UKS2Y**

**Exam Hrs : 3**

#### **Objective :**

To Impart Practical Training in Computer Graphics and Animation related problems

#### **Photoshop :**

1. (i) Handling different file formats and interchanging them, changing the resolution, color, grayscales and size of the images  
(ii) Using brushes and creating multicolor real life images
2. Cropping, rotating, overlapping, superimposing, pasting photos on a page
3. Creation of a single image from selected portions of many
4. Developing a commercial brochure with background tints
5. Creating an image with multi-layers of images and texts.
6. Applying masks and filtering on images

#### **Flash :**

Develop an image(s) and do the following.

1. Basic Drawing and Painting
2. Working with Strokes and Fills
3. Creating Custom Colors, Gradients, and Line Styles Transforming and Grouping Objects
4. Creating and Managing Multiple Layers
5. Converting Text into Shapes
6. Animate using motion, shape, Tweening, and actions

## SEMESTER – V

### SBE III - PROGRAMMING IN PHP LAB

**Internal Marks : 40**

**External Marks : 60**

**Total Marks : 100**

**Subject Code : UKS3Y**

**Exam Hrs : 3**

#### **Objective :**

To Impart Practical Training in PHP Programming Language

1. Write a program to find the factorial of a number.
2. Write a program using Conditional Statements.
3. Write a program to find the maximum value in a given multi dimensional array.
4. Write a program to find the GCD of two numbers using user-defined functions.
5. Design a simple web page to generate multiplication table for a given number.
6. Design a web page that should compute one's age on a given date.
7. Write a program to download a file from the server.
8. Write a program to store the current date and time in a COOKIE and display the 'Last Visited' date and time on the web page.
9. Write a program to store page views count in SESSION, to increment the count on each refresh and to show the count on web page.
10. Write a program to draw the human face.
11. Write a program to design a simple calculator.
12. Design an authentication web page in PHP with MySQL to check username and password.

**SEMESTER – VI**  
**CC XIII - COMPUTER NETWORKS**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKM**

**Exam Hrs : 3**

**Objective**

To offer the basic concepts of Data Communication, different layers and Network Security.

**UNIT I**

DATA COMMUNICATIONS: Networks - Protocols and Standards.NETWORK MODELS: The OSI Model - Layers in the OSI Model - TCP / IPProtocol Suite - Addressing. PHYSICAL LAYER AND MEDIA: Analog and Digital – Transmission Impairment - Performance - Guided Media -Unguided Media.

**UNIT II**

DATA LINK LAYER: Error Detection and Correction - Flow and Error Control-Protocols. WIRELESS LANS: IEEE 802.11 - Bluetooth. WIRELESS WANS: Cellular Telephony – Satellite Networks.

**UNIT III**

NETWORK LAYER: IPv4 Addresses - IPv6 Addresses - Address Mapping- ICMP -IGMP - Delivery - Forwarding - Unicast and Multicast Routing Protocols. TRANSPORT LAYER: Process-to-Process Delivery - User Datagram Protocol - TCP - Congestion - Congestion Control - Quality of Service.

**UNIT IV**

APPLICATION LAYER: Name Space - Domain Name Space - RemoteLogging - Electronic Mail - File Transfer. NETWORK MANAGEMENT: Network Management System – Simple Network Management Protocol (SNMP).

**UNIT V**

SECURITY: Introduction - Symmetric Key Cryptography - Asymmetric Key Cryptography.NETWORK SECURITY: Security Services - Message Confidentiality - Message Integrity - Message Authentication. 40 41

**TEXT BOOK**

1. Behrouz A. Forouzan, "Data Communications and Networking", Tata McGraw Hill Publications, 4th Ed., New Delhi, 2007.

**BOOKS FOR REFERENCE**

1. Andrew S. Tanenbaum, "Computer Networks", Pearson Education, 5<sup>th</sup> Ed., 2011.
2. William Stallings, "Data and Computer Communications", Pearson Education, 9th Ed., 2011.

**SEMESTER – VI**  
**CC XIV - CLOUD COMPUTING**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKN**

**Exam Hrs : 3**

**Objective :**

To understand the concepts in Cloud Computing and its Security

**UNIT I**

Cloud Computing Foundation : Introduction to Cloud Computing – Move to Cloud Computing – Types of Cloud – Working of Cloud Computing

**UNIT II**

Cloud Computing Architecture : Cloud Computing Technology – Cloud Architecture – Cloud Modeling and Design - Virtualization : Foundation – Grid, Cloud and Virtualization – Virtualization and Cloud Computing

**UNIT III**

Data Storage and Cloud Computing : Data Storage – Cloud Storage – Cloud Storage from LANs to WANs – Cloud Computing Services : Cloud Services – Cloud Computing at Work

**UNIT IV**

Cloud Computing and Security : Risks in Cloud Computing – Data Security in Cloud – Cloud Security Services – Cloud Computing Tools : Tools and Technologies for Cloud – Cloud Mashups – Apache Hadoop – Cloud Tools

**UNIT V**

Cloud Applications – Moving Applications to the Cloud – Microsoft Cloud Services – Google Cloud Applications – Amazon Cloud Services – Cloud Applications

**TEXT BOOK**

1. Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014

**REFERENCE BOOK**

1. Cloud Computing: Principles and Paradigms, edited by Rajkumar Buyya, James Broberg, Andrzej, Wiley India Publications, 2011



**SEMESTER – VI**  
**CC XV - MOBILE COMPUTING**

**Internal Marks : 25**

**External Marks: 75**

**Total Marks : 100**

**Subject Code : UKO**

**Exam Hrs : 3**

**Objective**

To understand the basic concepts and methods of mobile communication systems.

**UNIT I**

MOBILE COMMUNICATIONS OVERVIEW: Mobile Communication- Mobile Computing – Mobile Computing Architecture -Mobile System Networks - Data Dissemination - Mobility management -Security. MOBILE SYSTEMS: Mobile Phones - Smart Systems - Limitations of Mobile Devices

**UNIT II**

GSM AND SIMILAR ARCHITECTURES: GSM - Services and System Architecture - Radio Interfaces - Protocols - Localization - Calling – Handover - Security - GPRS. 44  
45 WIRELESS MEDIUM ACCESS CONTROL AND CDMA-BASED COMMUNICATION: Medium Access Control - Introduction to CDMA Based Systems.

**UNIT III**

MOBILE IP NETWORK LAYER: IP and Mobile IP Network Layers – Packet Delivery and Handover Management - Location Management – Registration - Tunnelling and Encapsulation - Route Optimization. MOBILE TRANSPORT LAYER:Conventional TCP/IP Transport Layer Protocols - Indirect TCP - Snooping TCP - Mobile TCP.

**UNIT IV**

MOBILE DEVICES: Device Management - Mobile File Systems - Security. MOBILE AD-HOC AND SENSOR NETWORKS: Introduction to Mobile Ad-Hoc Network - MANET - Wireless Sensor Network - Applications.

## **UNIT V**

MOBILE APPLICATION LANGUAGES: XML - JAVA -J2ME - JAVA Card. MOBILE OPEARTING SYSTEMS: Operating System -Windows CE - Symbian OS - Linux for Mobile Devices - Android.

## **TEXT BOOK**

Raj Kamal, "Mobile Computing", Oxford University Press, New Delhi, 2010.

## **REFERENCE BOOK**

Jochen Schiller, "Mobile Communication", Pearson Education, New Delhi, 2008.

**SEMESTER – VI**  
**MBE II - .NET LAB**

**Internal Marks : 40**

**External Marks : 60**

**Total Marks : 100**

**Subject Code : UKE4Y**

**Exam Hrs : 3**

**Objective :**

To Impart Practical Training in Dot Net Programming Language

1. Design ASP.Net web form using Html Server Controls to enter job seeker's details.
  2. Create an ASP.Net web form using Web control to enter E-Mail registration form.
  3. Apply appropriate validation techniques in E-Mail registration form using validation controls.
  4. Write an ASP.Net application to retrieve form data and display it the client browser in a table format.
  5. Create a web application using ADO.Net that uses which performs basic data manipulations:
    - (i). Insertion (ii) Updating (iii) Deletion (iv) Selection
- Hint: Do operations using Ms-Access and SQL-Server
6. Create an application using Data grid control to access information's from table in SQL server.
  7. Create an application using Data list control to access information's from table in SQL server and display the result in neat format.
  8. Job Search Portal.
  9. College Portal.
  10. Company Portal.

**SEMESTER – VI**  
**MBE II - ANDROID LAB**

**Internal Marks : 40**

**External Marks : 60**

**Total Marks : 100**

**Subject Code :**

**Exam Hrs : 3**

1. Different Layout design including nested layout for a single biodata.
2. Arithmetic Operation for two numbers
3. Business Calculator
4. Animation: Bouncing of a ball
5. Intent
6. Database SQLite: Student Biodata
7. Fragments - Tablet Programming
8. Media Player

**SEMESTER – VI**  
**MBE III - LINUX PROGRAMMING LAB**

**Internal Marks : 40**

**External Marks : 60**

**Total Marks : 100**

**Subject Code : UKE5Y**

**Exam Hrs : 3**

1. Check whether the given number is prime or not.
2. Find the biggest of given two numbers
3. Write a program to check the given number is odd or even
4. Write a program to generate Fibonacci Series
5. Write a program to prepare electric bill for domestic consumers.
  - For first 100 units - Rs.0.75/ unit
  - For next 100 units - Rs.1.50/unit
  - Above 200 units - Rs.3.00/unit.Prepare the bill for the following format:
  - Customer No. -----
  - Customer Name -----
  - Pre.Reading -----
  - Cur.Reading -----
  - Units Consumed -----
  - Charge -----
  - Signature
6. Write a program to display the result PASS or FAIL using the information given below:  
Student Name, Student Reg. No., Mark1, Mark2, Mark3, Mark4. The minimum pass for each subject is 50.
7. Write a program to prepare a Payroll with Basic Pay, DA, Allowances ,PF and Gross Pay.
8. Using Case Statement, write a program to check the files ending with vowels.
9. Write a single program to sort the names and numbers in alphabetical, ascending and descending order.
10. Write a menu driven program to print Bio-data for five persons.

**SEMESTER VI**  
**MBE III - SOFTWARE DEVELOPMENT LAB**

**Internal Marks :40**

**External Marks :60**

**Total Marks :100**

**Subject Code :**

**Exam Hrs :3**

**Objectives**

To provide basic knowledge of the real time projects of the IT industry. To develop mini real time software's using any platforms such as C, C++, Java, VB, etc.