

**Ahmednagar Jilha Maratha Vidya Prasarak Samaj's**  
**New Arts, Commerce and Science College, Ahmednagar**  
**(Autonomous)**

**(Affiliated to Savitribai Phule Pune University, Pune)**



**Choice Based Credit System (CBCS)**  
**Bachelor of Business Administration (Computer Application)**  
**B.B.A.(C.A.)**

**Syllabus of**  
**S.Y.B.B.A.(C.A.)**  
**SEMESTER III AND IV**

**Implemented from**  
**Academic Year 2022 - 23**

**Ahmednagar Jilha Maratha Vidya Prasarak Samaj's**  
**New Arts, Commerce and Science College, Ahmednagar**  
**(Autonomous)**

**Board of Studies in BBA(CA)**

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10.	Mrs. Kulkarni Aparna A.	Member(co-opt)

### 3. Programme Structure and Course Titles: (All academic years)

Sr. No.	Class	Semester	Course Code	Course Title	Credits
1.	FY BBA(CA)	I	BBACA-101 T	FUNDAMENTALS OF INFORMATION TECHNOLOGY	04
2.	FY BBA(CA)	I	BBACA-102 T	‘C’ PROGRAMMING	04
3.	FY BBA(CA)	I	BBACA-103 T	FINANCIAL ACCOUNTING	04
4.	FY BBA(CA)	I	BBACA-104 T	BUSINESS STATISTICS	04
5.	FY BBA(CA)	I	BBACA-105 P	PRACTICAL- (BASED ON BBACA-101 T)	02
6.	FY BBA(CA)	I	BBACA-106 P	PRACTICAL –(BASED ON BBACA-102 T)	02
7	FY BBA(CA)	I	BBACA-107 T(A)	PRINCIPLES OF MANAGEMENT	04
8	FY BBA(CA)	I	BBACA-107 T(B)	PRINCIPLES OF MARKETING	04
9	FY BBA(CA)	II	BBACA-201 T	DATABASE MANAGEMENT SYSTEM	04
10	FY BBA(CA)	II	BBACA-202 T	WEB TECHNOLOGY(HTML,CSS,JS)	04
11	FY BBA(CA)	II	BBACA-203 T	BUSINESS MATHEMATICS	04
12	FY BBA(CA)	II	BBACA-204 T	ORGANIZATIONAL BEHAVIOUR & HUMAN RESOURCE MANAGEMENT	04
13	FY BBA(CA)	II	BBACA-205 P	PRACTICAL (BASED ON - BBACA-201 T)	02
14	FY BBA(CA)	II	BBACA-206 P	PRACTICAL (BASED ON -	02

				BBACA-202 T)	
15	FY BBA(CA)	II	BBACA-207 T(A)	DIGITAL MARKETING CONCEPTS	04
16	FY BBA(CA)	II	BBACA-207 T(B)	E-COMMERCE CONCEPTS	04
17	SY BBA(CA)	III	BBACA-301 T	RELATIONAL DATABASE MANAGEMENT SYSTEM	04
18	SY BBA(CA)	III	BBACA-302 T	DATA STRUCTURE USING C	04
19	SY BBA(CA)	III	BBACA-303 T	WEB DEVELOPMENT WITH PHP	04
20	SY BBA(CA)	III	BBACA-304 P	PRACTICAL (BASED ON - BBACA-301 T)	02
21	SY BBA(CA)	III	BBACA-305 P	PRACTICAL (BASED ON - BBACA-302 T & BBACA-303 T)	02
22	SY BBA(CA)	III	BBACA-306 T	SOFTWARE ENGINEERING	02
23	SY BBA(CA)	III	BBACA-307 T	BUSINESS COMMUNICATION	02
24	SY BBA(CA)	III	BBACA-308 T	KNOWLEDGE MANAGEMENT	02
25	SY BBA(CA)	IV	BBACA-401 T	DATA COMMUNICATION AND COMPUTER NETWORKING	04
26	SY BBA(CA)	IV	BBACA-402 T	OBJECT ORIENTED CONCEPTS THROUGH C++	04
27	SY BBA(CA)	IV	BBACA-403 T	ADVANCED WEB DEVELOPMENT	04
28	SY BBA(CA)	IV	BBACA-404 P	PRACTICAL – BASED ON BBACA-402 T	02
29	SY BBA(CA)	IV	BBACA-405 P	PRACTICAL – BASED ON BBACA-403 T	02

30	SY BBA(CA)	IV	BBACA-406 T	OPERATING SYSTEM CONCEPTS	02
31	SY BBA(CA)	IV	BBACA-407 T	ENVIRONMENTAL STUDIES	02
32	SY BBA(CA)	IV	BBACA-408 T	BLOGGING TOOLS	02
33	TY BBA(CA)	V	BBACA-501 T	PROGRAMMING IN CORE JAVA	04
34	TY BBA(CA)	V	BBACA-502 P	PRACTICAL (BASED ON - BBACA-501 T)	02
35	TY BBA(CA)	V	BBACA-503 T(A)	BIG DATA	04
36	TY BBA(CA)	V	BBACA-503 T(B)	BLOCK CHAIN	04
37	TY BBA(CA)	V	BBACA-504 T(A)	PYTHON	04
38	TY BBA(CA)	V	BBACA-504 T(B)	NO-SQL	04
39	TY BBA(CA)	V	BBACA-505 P	PRACTICAL (BASED ON - BBACA-503 & BBACA-504)	02
40	TY BBA(CA)	V	BBACA-506 T	OBJECT ORIENTED SOFTWARE ENGINEERING	04
41	TY BBA(CA)	V	BBACA-507 T	CYBER SECURITY	02
42	TY BBA(CA)	V	BBACA-508 PR	SOFTWARE PROJECT	02
43	TY BBA(CA)	VI	BBACA-601 T	ADVANCED JAVA	04
44	TY BBA(CA)	VI	BBACA-602 P	PRACTICAL (BASED ON - BBACA-601 T)	02
45	TY BBA(CA)	VI	BBACA-603 T(A)	SOFTWARE TESTING	04
46	TY BBA(CA)	VI	BBACA-603 T(B)	ARTIFICIAL INTELLIGENCE CONCEPTS	04
47	TY BBA(CA)	VI	BBACA-604 T(A)	DOT NET PROGRAMMING	04
48	TY BBA(CA)	VI	BBACA-604 T(B)	ANDROID PROGRAMMING	04

49	TY BBA(CA)	VI	BBACA-605 P	PRACTICAL (BASED ON - BBACA-603 T & BBACA-604 T)	02
50	TY BBA(CA)	VI	BBACA-606 T	RECENT TRENDS IN INFORMATION TECHNOLOGY	04
51	TY BBA(CA)	VI	BBACA-607 T	INTERPERSONEL SKILLS AND PROFESSIONAL ETHICS	02
52	TY BBA(CA)	VI	BBACA-608 PR	SOFTWARE PROJECT	02

<b>Semester –III</b>	<b>Paper – I</b>
<b>Course Code: BBACA-301 T</b>	<b>RELATIONAL DATABASE MANAGEMENT SYSTEM</b>
<b>Credits:</b>	<b>60 Hours</b>

### Course Outcomes (Cos)

- 1) To know the advanced features of DBMS.
- 2) To Understand the Basic programs in PL/SQL.
- 3) To understand how to use SQL in PL/SQL program.

### Detailed Syllabus:

#### Unit 1. Introduction to RDBMS

(6 Hours)

1. Introduction to RDBMS. Popular RDBMS Products and their Features
2. Difference between DBMS and RDBMS
3. Relationship among Application Programs and RDBMS

#### Unit 2. PL/SQL

(15 Hours)

##### 2.1 Overview of PL/SQL

1. Data Types
2. PL/SQL block
- 2.2.1 %type, %rowtype

##### 2.2.2 Operators, Functions, Comparison, Numeric, Character, Date

##### 2.2.3 Control Statement

2. Exception Handling - Exception types
3. Cursor
  1. Definition
  2. Types of Cursor – Implicit, Explicit (Attribute)
  5. Trigger
6. Package

#### Unit 3. Transaction Management

(14 Hours)

- 3.1 Transaction Concepts
- 3.2 Transaction Properties
- 3.3 Transaction States
- 3.4 Concurrent Execution
- 3.5 Serializability
  - 3.5.1 Conflict Serializability
  - 3.5.2 View Serializability
- 3.6 Recoverability
  - 3.6.1 Recoverable Schedule
  - Cascadless Schedule

#### Unit 4. Concurrency Control

(10 Hours)

- 4.1 Lock Based Protocol
  - 4.1.1 Locks
  - 4.1.2 Granting of Locks
  - 4.1.3 Two Phase Locking Protocol
- 4.2 Timestamp based Protocol
  - 4.2.1 Timestamp
  - 4.2.2 Timestamp ordering protocol
  - 4.2.3 Thomas's Write Rule

## 4.3 Validation Based Protocol

## 4.4 Deadlock Handling

## 4.4.1 Deadlock Prevention

## 4.4.2 Deadlock Detection

## 4.4.3 Deadlock Recovery

**Unit 5. Recovery System****(15 Hours)**

## 5.1 Failure Classification

## 5.1.1. Transaction Failure

## 5.1.2 System Crash

## 5.1.3 Disk Failure

## 5.2 Storage Structure

## 5.2.1 Storage Type

## 5.2.2 Data Access

## 5.3 Recovery and Atomicity

## 5.3.1 Log Based Recovery

## 5.3.2 Deferred Database Modification

## 5.3.3 Immediate Database Modification

## 5.3.4 Checkpoints

## 5.4 Recovery with Concurrent Transaction

## 5.4.1 Transaction Rollback

## 5.4.2 Restart Recovery

## 5.5 Remote Backup System

**Suggested Readings:**

1. Understanding of DBMS by Dr. B. W. Khalkar and Parthsarthy
2. Database System Concepts By Henry korth and A. Silberschatz
3. SQL, PL/SQL The Programming Language Oracle :- Ivan Bayross, BPB Publication.
4. Database Systems Concepts, Designs and Application by Shio Kumar Singh, Pearson
5. Introduction to SQL by Reck F. van der Lans by Pearson
6. Modern Database Management by Jeffery A Hoffer , V.Ramesh, Heikki Topi ,Pearson
7. Database Management Systems by Debabrata Sahoo ,Tata MacgrawHill



<b>Semester -III</b>	<b>Paper –II</b>
<b>Course Code: BBACA-302 T</b>	<b>DATA STRUCTURE USING ‘C’</b>
<b>Credits: 04</b>	<b>Total Lectures: 60</b>

### Course Outcomes (Cos)

1. To provide the knowledge of basic data structures and their implementations
2. To understand concepts about searching and sorting techniques.
3. Enhance ability to analyze algorithms and algorithm correctness.
4. To understand various data structures like stack, queue and linked list operation.
5. Ability to have knowledge of tree and graphs concepts.
6. To develop skills to apply appropriate data structures in problem solving.

#### Unit I: BASIC CONCEPTS (06)

1. Pointers and dynamic memory allocation
2. Algorithm-Definition and characteristics
3. Algorithm Analysis -Space Complexity -Time Complexity -Asymptotic Notation
4. Data structures: organizations of data(Contiguous and Non-Contiguous.)
5. Abstract Data Type (ADT)
6. Introduction to Arrays and Structure
7. Types of array and Representation of array
8. Self Referential Structure

#### Unit II: RECURSION (10)

- 2.1 Introduction to Recursion
- 2.2 Differences between recursion and iteration
- 2.3 Programs using Recursion
  - 2.3.1 Factorial of a given number
  - 2.3.2 The Towers of Hanoi
  - 2.3.3 Fibonacci Sequence Problem
  - 2.3.4 To calculate the NCR of a given number

#### Unit III: SEARCHING AND SORTING (10)

- 3.1 Linear Search
  - 3.1.1 A non-recursive program for Linear Search
  - 3.1.2 A Recursive program for linear search
- 3.2 Binary Search
  - 3.2.1 A non-recursive program for binary search
  - 3.2.2 A recursive program for binary search
- 3.3 Bubble Sort
  - 3.3.1 Program for Bubble Sort
- 3.4 Selection Sort
  - 3.4.1 Non-recursive Program for selection sort
  - 3.4.2 Recursive Program for selection sort
- 3.5 Quick Sort
  - 3.5.1 Recursive program for Quick Sort

#### Unit IV: LINKED LISTS (10)

- 4.1.Linked List Concepts
- 4.2.Implementation of Linked List – Static & Dynamic representation
- 4.3.Types of Linked Lists
  - 4.3.1. Single Linked List (All type of operation)

- 4.3.2. Double Linked List (All type of operation)
- 4.3.3. Circular Single Linked List (Create and Display)
- 4.3.4. Circular Double Linked List (Create and Display)
- 4.4. Polynomials
  - 4.4.1. Source code for polynomial creation with help of linked list
  - 4.4.2. Addition of Polynomials

**Unit V: Stack and Queue****(10)**

- 5.1. Representation of Stack
  - 5.1.1. Program to demonstrate a stack, using array
  - 5.1.2. Program to demonstrate a stack, using linked list
- 5.2. Algebraic Expressions
  - 5.2.1. Converting expressions using Stack
  - 5.2.2. Conversion from infix to postfix
  - 5.2.3. Conversion from infix to prefix
  - 5.2.4. Conversion from postfix to infix
  - 5.2.5. Conversion from postfix to prefix
  - 5.2.6. Conversion from prefix to infix
  - 5.2.7. Conversion from prefix to postfix
  - 5.2.8. Evaluation of postfix expression
- 6. Applications of stacks
- 7. Representation of Queue
  - 7.1. Program to demonstrate a Queue (Static and Dynamic Implementation)
  - 7.2. Program to demonstrate a Queue using linked list
  - 7.3. Applications of Queue
  - 7.4. Types of Queue
    - 7.4.1. Circular Queue
    - 7.4.2. Deque
    - 7.4.3. Priority Queue

**Unit VI: TREES****(07)**

- 6.1 Trees - Concept & Terminologies
- 6.2 Types of Tree data structure
  - 6.2.1 General Trees
  - 6.2.2 Binary Tree
- 6.3 Binary Tree Traversal Techniques
- 6.4 Binary Tree Creation and Traversal Using Arrays
- 6.5 Binary Tree Creation and Traversal Using Pointers
- 6.6 Non Recursive Traversal Algorithms
- 6.7 Recursive Traversal Algorithms
- 6.8 Binary Search Tree
  - 6.8.1 Tree Traversals (preorder, inorder, postorder)
  - 6.8.2 Application - Heap sort
  - 6.8.3 Height balanced tree- AVL trees- Rotations, AVL tree examples.

**Unit VII: GRAPHS****(07)**

- 7.1 Introduction to Graphs (Concept & terminologies)
- 7.2 Representation of Graphs
- 7.3 Graph Representation – Adjacency matrix, adjacency list, inverse Adjacency list, adjacency multilist, orthogonal list
- 7.4 Degree of Graph
- 7.5 Traversals – BFS and DFS
- 7.6 Breadth first search and traversal

7.7 Depth first search and traversal

7.8 Applications – AOV network – topological sort, AOE network – critical Path

**Suggested Readings:**

1. Fundamentals of Data Structures ---- By Horowitz Sahani (Galgotia)
2. Data Structures using C and C++ --- By YedidyahLangsam, Aaron M. Tenenbaum, Moshe J. Augenstein
3. Introduction to Data Structures using C---By Ashok Kamthane
4. Data Structures using C --- Bandopadhyay&Dey (Pearson)
5. Data Structures using C ---By Srivastava BPB Publication.

<b>Semester -III</b>	<b>Paper –III</b>
<b>Course Code: BBACA-303 T</b>	<b>WEB DEVELOPMENT WITH PHP</b>
<b>Credits: 04</b>	<b>Total Lectures: 60 Hrs.</b>

### Course Outcomes (Cos)

On completion of this course, students will be able to:

1. Understand how server-side programming works on the web.
2. Using PHP built-in functions and creating custom functions
3. Understanding POST and GET in form submission.
4. How to receive and process form submission data.
5. Read and process data in a MySQL database.

#### Unit I            PHP Basics (10)

- 1.1 Setting up a development environment
- 1.2 Variables, numbers and strings
- 1.3 Calculations with PHP
- 1.4 Using Arrays

#### Unit I I            Control Structures and Loops (10)

- 2.1 Conditional Statements
- 2.2 Using Loops for Repetitive tasks
- 2.3 Combining Loops and Arrays

#### Unit I II            Functions, Objects and Errors (10)

- 3.1 PHP's Built-in functions
- 3.2 Creating Custom functions
- 3.3 Passing Values by Reference
- 3.4 Understanding Objects

#### Unit I V            Working with Forms (10)

- 4.1 Building a Form
- 4.2 Processing a Form's Data
- 4.3 Differences between POST and GET
- 4.4 Preserving User Input

#### Unit V            More with Forms (10)

- 5.1 Dealing with checkboxes and radiobuttons
- 5.2 Retrieving values from lists
- 5.3 Validating and restricting data
- 5.4 Sending Email

#### Unit VI            MySQL Database Overview (10)

- 7.1 phpMyAdmin Overview
- 7.2 Using a MySQL Database
- 7.3 Reading and Writing Data

#### Suggested Readings:

1. Php: A Beginner's Guide 1st Edition McGraw-Hill Osborne Media; 1 edition by Vikram Vaswani
2. Murach's PHP and MySQL (2nd Edition) by Joel Murach and Ray Harris
3. PHP: The Complete Reference Paperback – 1 Jul 2017 by Steven Holzner (Author)

<b>Semester -III</b>	<b>Paper –IV</b>
<b>Course Code: BBACA-304 P</b>	<b>PRACTICAL BASED ON ( BBACA-301 T)</b>
<b>Credits: 02</b>	<b>Total Lectures: 30</b>

Assn No	WEEK	ASSIGNMENT
1.	First	Simple program in PL/SQL
2.	Second	Loops in PL/SQL with an example
3.	Third	Exception Handling – Predefined and User defined Exception programs
4.	Fourth	Cursor – Basic programs
5.	Fifth	Cursor – Implicit Cursor with an example
6.	Sixth	Cursor – Explicit Cursor with an example
7.	Seventh	Cursor – To solve the case study on cursor
8.	Eight	Trigger – Types with and example
9.	Ninth	Trigger – Types with an example
10.	Tenth	Trigger – To solve the case study on trigger
11.	Eleventh	Procedure – Programs with an example
12.	Twelfth	Procedure – To solve the case study of procedure
13.	Thirteenth	Function – programs with an example
14.	Fourteenth	Function – To solve the case study of function
15.	Fifteenth	Package – with an example
16.	Sixteenth	Package – To solve the case study of package

<b>Semester -III</b>	<b>Paper –V</b>
<b>Course Code: BBACA-305 P</b>	<b>PRACTICAL (BASED ON - BBACA-302 T &amp; BBACA-303 T)</b>
<b>Credits: 02</b>	<b>Total Lectures: 30 Hrs.</b>

## Assignments: PHP Assignments

### Assignment 1

- 1) Write a program for Currency notes cashier have to return
- 2) Tax on income (take input from user)
- 3) Profit and loss (take c.p. and s.p. from user)
- 4) find a entered year is leap year or not
- 5) find a number is palindrome or not
- 6) find a power of a number

### Assignment 2

- 1) Find a entered number is armstrong or not
- 2) check whether entered number is prime or not
- 3) check whether entered number is perfect or not
- 4) find out the factorials of a given number
- 5) find sum of digits of a given number
- 6) count even and odd digits from given number
- 7) write a program to find fibonacci series upto n

### Assignment 3

- 1) Write a program to count string length
- 2) write a program to count words from given string
- 3) Write a program to reverse a entered string
- 4) write a program to find largest between 5 given numbers
- 5) write a program to connect two strings entered by a user.

### Assignment 4

- 1) Write a program to display a multiplication table of entered number.
- 2) Write a PHP program to display elements of an array along with the keys.
- 3) Write a PHP program to delete an element from an array from the given index
- 4) write a PHP program to perform addition of two matrix
- 5) write a PHP program to perform Multiplication of two matrix

### Assignment 5

- 1) Write a program to find transpose of a given matrix
- 2) Write a program to convert a number from Binary to decimal
- 3) write a program to convert a number from decimal to binary
- 4) write a program to convert a number from decimal to octal
- 5) Write a program to convert a given string to uppercase.

### Assignment 6

Q. print the following patterns

- 1)

\*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*

2)  
1  
2 2  
3 3 3  
4 4 4 4  
5 5 5 5 5

3)  
1  
2 3  
4 5 6  
7 8 9 10

4)  
A  
B B  
C C C  
D D D D  
E E E E E

5)  
A  
B C  
D E F  
G H I J

### Assignment 7

1)  
1  
1 1  
1 1 1  
1 1 1 1  
1 1 1 1  
1 1 1  
1 1  
1

2)  
1  
1 2  
1 2 3  
1 2 3 4

1 2 3 4 5

3)

5  
5 4  
5 4 3  
5 4 3 2  
5 4 3 2 1

5)

\*  
\* \* \*  
\* \* \* \* \*  
\* \* \*  
\*

### Assignment 8

1)

\* \* \* \* \*  
\* \* \* \*  
\* \* \*  
\* \*  
\*

2)

\*  
\* \*  
\* \* \*  
\* \* \* \*  
\* \* \* \* \*

3)

0  
0 1  
0 1 0  
0 1 0 1  
0 1 0 1 0  
0 1 0 1 0 1

4)

5 4 3 2 1  
5 4 3 2  
5 4 3  
5 4  
5

### Assignment 9

1) Write a PHP script for the following: Design a form to accept a string. Write a function to count the total number of vowels (a,e,i,o,u) from the string. Show the occurrences of each vowel from the string. Check whether the given string is a



palindrome or not, without using built-in function. (Use radio buttons and the concept of function.

2) Write a PHP script for the following: Design a form to accept two strings from the user. Find the first occurrence and the last occurrence of the small string in the large string. Also count the total number of occurrences of small string in the large string. Provide a text box to accept a string, which will replace the small string in the large string.

3) Write a PHP script for the following: Design a form to accept two numbers from the user. Give options to choose the arithmetic operation (use radio buttons). Display the result on the next form.

4) Write a PHP script for the following: Design a form to accept two strings from the user. Find whether the small string appears at the start of the large string. Provide a text box to accept the string that will replace all occurrences of small string present in the large string. Also split the large string into separate words. (Use regular expressions).

5) Write a PHP script for the following: Design a form to accept the details of 5 different items, such as item code, item name, units sold, rate. Display the bill in the tabular format. Use only 4 text boxes. (Hint : Use of explode function.)

#### Assignment 10

1) Write a PHP script for the following: Design a form to accept two strings. Compare the two strings using both methods (== operator & strcmp function). Append the second string to the first string. Accept the position from the user; from where the characters from the first string are reversed. (Use radio buttons).

2) Write a menu driven PHP program to perform the following operations on an associative array: i. Display the elements of an array along with the keys. ii. Display the size of an array iii. Delete an element from an array from the given index. iv. Reverse the order of each element's key-value pair.[Hint: use array\_flip()] v. Traverse the elements in an array in random order [[Hint: use shuffle()].

3) Write a menu driven PHP program to perform the following operations on associative arrays: a) Sort the array by values (changing the keys) in ascending, descending order. b) Also sort the array by values without changing the keys. c) Filter the odd elements from an array. d) Sort the different arrays at a glance using single function. e) Merge the given arrays. f) Find the Union, intersection& set difference of two arrays.

4) Write a PHP script to define an interface which has methods area(), volume(). Define constant PI. Create a class cylinder which implements this interface and calculate area and volume.

5) Write class declarations and member function definitions for an employee(code, name, designation). Design derived classes as emp\_account (account\_no, joining\_date) from employee and emp\_sal(basic\_pay, earnings, deduction) from emp\_account. Write a menu driven PHP program a) to build a

master table b) to sort all entries c) to search an entry d) Display salary.

### Assignment 11

- 1) Derive a class square from class Rectangle. Create one more class circle. Create an interface with only one method called area(). Implement this interface in all the classes. Include appropriate data members and constructors in all classes. Write a PHP program to accept details of a square, circle and rectangle and display the area.
- 2) Write PHP Script to create a class account (accno,cust\_name). Derive two classes from account as saving\_acc(balance, min\_amount) and current\_acc(balance, min\_amount). Display a menu a) Saving Account b) Current Account For each of this displays a menu with the following options. 1. Create account 2. Deposit 3. Withdrawal.
- 3) Implement calculator to convert distances between (both ways) miles and kilometres. One mile is about 1.609 kilometres. User interface (distance.html) has one text-input, two radio-buttons, submit and reset -buttons. Values are posted to PHP-script (distance.php) which calculates the conversions according the user Input.
- 4) Using regular expressions check for the validity of the entered email-id. The @ symbol should not appear more than once. The dot (.) can appear at the most once before @ and at the most twice or at least once after @ symbol. The substring before @ should not begin with a digit or underscore or dot or @ or any another special character.
- 5) Write PHP program to create input form for Grocery that displays List of grocery items with checkboxes and create a bill according to list of items selected after clicking the submit button.

### Assignment 12

- 1) Write a PHP program that accept customer name, consumer number and number of electricity units consumed from an input form and print electricity bill from following data · For first 50 units – Rs. 3.50/unit · For next 100 units – Rs. 4.00/unit · For next 100 units – Rs. 5.20/unit · For units above 250 – Rs. 6.50/unit · Fixed meter and service charge- Rs. 150/-.
- 2) Write a PHP program for course registration of Learner in an institute that accept Name, Course to be admitted, Mobile number using input form validation such as Name should be only string of character, mobile number should contain digits with valid length and so on. and give feedback to Learner with registration details including registration number.
- 3) Write a PHP script to create a login form with a username and password. Once the user logs in, the second form should be displayed to accept user details (name, city, phone no). If the user doesn't enter information within a specified time limit, expire his session and give a warning.

- 4) Write a PHP script to keep track of number of times the web page has been Accessed.
- 5) Write a PHP script to change the preferences of your web page like font style, font size, font color, background color using cookies. Display selected settings on next web page and actual implementation (with new settings) on the third web page.

### Assignment 13

- 1) Write a PHP script to create a form to accept student information (name, class, address). Once the student information is accepted, accept marks in next form (Phy, Bio, Chem, Maths, Marathi, English). Display the mark sheet for the student in the next form containing name, class, marks of the subject, total and Percentage.
- 2) Write a PHP program to create a shopping mall UI. User must be allowed to do purchase from two pages. Each page should have a page total. The third page should display a bill, which consists of a page total of whatever the purchase has been done and printed the total. (Use http session tracking).
- 3) Write a PHP script to create a form to accept customer information (name, address, ph no). Once the customer information is accepted, accept product information in the next form (Product name, qty, rate). Display the bill for the customer in the next form. Bill should contain the customer information and the information of the products entered.
- 4) Write a PHP script to accept username and password. If in the first three chances, username and password entered is correct, then display second form, otherwise display an error message.
- 5) Consider the following entities and their relationships Emp (emp\_no, emp\_name, address, phone, salary) Salary (emp\_no, Basic, HR, TA, DA) Dept (dept\_no, dept\_name, location) Emp-Dept are related with one-many relationship Create a RDB for the above and solve the following Using the above database. write a PHP script which will print a salary statement for specified emp\_no with his details.

### Assignment 14

- 1) Consider the following entities and their relationships Doctor (doc\_no, doc\_name, address, city, area) Hospital (hosp\_no, hosp\_name, hosp\_city) Doctor and hospitals are related with many-many relationships. Create a RDB in 3 NF for the above and solve following Using above database, write a PHP script which accepts hospital name and print information about doctors visiting / working in that hospital in tabular format.
- 2) Consider the following entities and their relationships project (pno integer, p\_name char(30), p\_type char(20), duration integer), employee (eno integer, e\_name char(20), qualification char(15), join\_date date). The relationship between project - employee: M-M, with descriptive attributes as start\_date (date), no\_of\_hours\_worked (integer). Using above database write a script in PHP to accept a project name from user and display information of employees working on

the project.

3) Consider the following entities and their relationships student (sno integer, s\_name char(30), s\_class char(10), s\_addr char(50)), teacher (tno integer, t\_name char (20), qualification char (15), experience integer). The relationship between student-teacher: m-m with descriptive attribute subject. Using above database write a script in PHP to accept a teacher name from user and display the names of students along with subjects to whom the teacher is teaching.

4) Consider the following entities and their relationships Movie (movie\_no, movie\_name, release\_year) Actor (actor\_no, name) Relationship between movie and actors are many – many with attribute rate in Rs. Create a RDB in 3NF for the above and solve following Using above database, write PHP scripts for the following:(Hint: Create HTML form having three radio buttons) a) Accept actor name and display the names of the movies in which he has acted. b) Insert new movie information. c) Update the release year of a movie. (Accept the movie name from user).

5) Considerer the following entities and their relationships Student (Stud\_id,name,class) Competition (c\_no,c\_name,type) Relationship between student and competition is many-many with attribute rank and year. Create a RDB in 3NF for the above and solve the following. Using above database write a script in PHP to accept a competition name from user and display information of student who has secured 1st rank in that competition.

## **Subject : Data Structure**

### **Practical 1:**

1. Write a program in C to find the sum of all elements of the array using fuction.
2. Write a program in C to find the maximum and minimum element in an array using function.
3. Write a program in C to sort elements of array in ascending and descending order using function.
4. Write a program in C to swap two numbers using function.(Call by value)
5. Write a program in C to demonstrate the use of &(address of) and \*(value at address) operator.
6. Write a program in C to swap elements using call by reference.
7. Write a program in C to sort an array using Pointer.
8. Write a program in C to show the usage of pointer to structure.

### **Practical 2:**

1. Write a program in C to show the usage of pointer to structure.
2. Write a program in C to calculate the sum of numbers from 1 to n using recursion.
3. Write a program in C to Print Fibonacci Series using recursion.
4. Write a program in C to find the sum of digits of a number using recursion
5. Write a program in C to find the Factorial of a number using recursion.

### **Practical 3:**

1. Write a C program to sort a list of elements using the selection sort algorithm.
2. Write a C program to sort a list of elements using the bubble sort algorithm
3. Write a C program to sort a list of elements using the insertion sort algorithm.
4. Write a C program to sort a list of elements using the merge sort algorithm.
5. Write a C program to sort a list of elements using the quick sort algorithm.

**Practical 4:**

6. Write a non-recursive program for Linear Search
7. Write a Recursive program for linear search
8. Write a non-recursive program for binary search
9. Write a recursive program for binary search

**Practical 5:**

1. Write a program in C to create and display Singly Linked List.
2. Write a program in C to insert a new node at the beginning of a Singly Linked List.
3. Write a program in C to insert a new node at the end of a Singly Linked List.
4. Write a program in C to insert a new node at the middle of Singly Linked List.
5. Write a program in C to delete first node of Singly Linked List.

**Practical 6:**

6. Write a program in C to delete a node from the middle of Singly Linked List.
7. Write a program in C to search an existing element in a singly linked list
8. Write a program in C to create a doubly linked list and display in reverse order.
9. Write a program in C to insert a new node at any position in a doubly linked list.
10. Write a program in C to delete a node from the beginning of a doubly linked list.

**Practical 7:**

11. Write a program in C to delete a node from any position of a doubly linked list
12. Write a program in C to create and display a circular linked list.
13. Write a program in C to insert a node at the end of a circular linked list.
14. Write a program in C to delete the node at the end of a circular linked list
15. Write a program in C to search an element in a circular linked list.

**Practical 8:**

1. Write a program for representation of Stack( PUSH,POP)
2. Write a program to demonstrate a stack, using array
3. Write a program to demonstrate a stack, using linked list
4. Write a program to Conversion from infix to postfix
5. Write a program to Conversion from infix to prefix

**Practical 9:**

1. Write a program to Conversion from postfix to infix
2. Write a program to Conversion from postfix to prefix
3. Write a program to Conversion from prefix to infix
4. Write a program to Conversion from prefix to postfix
5. Write a program to Evaluation of postfix expression
6. Write a program to Representation of Queue
7. Write a program to Program to demonstrate a Queue (Static and Dynamic Implementation)
8. Write a program to Program to demonstrate a Queue using linked list
9. Write a program to implementation of Circular Queue

**Practical 10:**

1. Write a 'C' program to create a Binary tree, traverse it using recursive operations like inorder, preorder and postorder and display the result of each one separately.

2. Write a 'C' program to read 'n' integers and store them in a binary tree structure and count the following and display it.
    - Number of nodes
    - Degree of tree
    - Leaf nodes
  3. Write menu driven program using 'C' for Binary Search Tree. The menu includes  
Create a BST  
Insert element in a BST  
Display
  4. Write a 'C' program to count indegree and outdegree of each node in graph.
- Practical 11:
5. Write a 'C' program to read the adjacency matrix of directed graph and convert it into adjacency list.
  6. Write a 'C' program to read an adjacency matrix of a directed graph and traverse it using DFS.
  7. Write menu driven program using 'C' for Binary Search Tree. The menu includes -  
Create a BST  
Traverse it by using Inorder traversing technique  
Search a given value in BST
  8. Write a 'C' program to read 'n' integers and store them in a Binary search tree and display the nodes level wise.

<b>Semester -III</b>	<b>Paper – VI</b>
<b>Course Code: BBACA-306 T</b>	<b>SOFTWARE ENGINEERING</b>
<b>Credits: 02</b>	<b>Total Hours :30 Hrs.</b>

**Course Outcomes:**

1. To understand System concepts.
2. To understand Software Engineering concepts.
3. To understand the applications of Software Engineering concepts and Design in Software development.

**Unit I: Introduction to System Concepts (03)**

1. Definition & Characteristic of System
2. Basic Components of the System
3. Types of System

**Unit II: Introduction to Software Engineering (05)**

1. Definition & Characteristics of Software
2. Definition of Software Engineering
3. Need for Software Engineering
4. Mc Call's Quality factors
5. The Software Process
6. Software Product and Process
7. V& V Model

**Unit III: Software Development Life Cycle (06)**

1. Introduction
2. Activities of SDLC
3. SDLC
4. Waterfall Model
5. Incremental Process Models
6. Prototyping Model
7. Spiral Model

**Unit IV: Requirement Engineering (06)**

1. Introduction
2. Requirement Elicitation
3. Requirement Elaboration
4. Requirement Gathering
5. Feasibility study
6. Fact Finding Techniques
7. SRS Format

**Unit V: Analysis And Design Tools (08)**

1. Decision Tree and Decision Table

2. Data Flow Diagrams (DFD) (Up to 2nd level)
3. Data Dictionary
4. Input and Output Design
5. Structured Design Concepts
6. Structure Chart
7. Coupling and Cohesion
8. Three Case Studies on above topics

**Unit VI: Software Maintenance and Software Re-Engineering****(02)**

1. Maintenance definition and types
1. Software reengineering
2. Reverse Engineering
3. Restructuring and forward Engineering.

**Suggested Readings:**

1. Software Engineering: A Practitioner's Approach- Roger S. Pressman, McGraw hill International Editions 2010(Seventh Edition)
2. System Analysis, Design and Introduction to Software Engineering (SADSE) - S. Parthsarthy, B.W. Khalkar
3. Analysis and Design of Information Systems(Second Edition) - James A. Senn, McGraw Hill
4. System Analysis and Design- Elias Awad, Galgotia Publication, Second Edition



<b>Semester -III</b>	<b>Paper – VII</b>
<b>Course Code: BBACA-307 T</b>	<b>BUSINESS COMMUNICATION</b>
<b>Credits: 02</b>	<b>Total Hours :30 Hrs.</b>

**Course Outcomes:**

1. To understand what is the role of communication in personal and business world
2. To understand system and communication and their utility
3. To develop proficiency in how to write business letters and other communications required in business.

**Unit I: Concept of Communication****(08)**

- 1.1 Introduction to Communication, Role of Communication in social and economic system
- 1.2 Need for effective communication
- 1.3 Meaning and definition
- 1.4 Principles of effective communication
- 1.5 Barriers to communication and over coming Barriers

**Unit II: Methods and types of Communication****(12)**

- 2.1 Verbal Communication
  - 2.1.1 Written communication - Advantages and Limitations, Forms of written Communication, Constraints in developing effective written communication
  - 2.1.2 Oral Communication - Advantages and Limitation, Principles of Effective Oral Communication, Techniques of Effective Speaking, Arts of Listening, Principles of Good Listening, Barriers to Listening
- 2.2 Non Verbal Communication
  - 2.2.1 Silence
  - 2.2.2 Body Language
  - 2.2.3 Signs and Symbols
- 2.3 Grapevine Communication
- 2.4 Assignments- Presentations

**Unit III: Business Correspondence****(10)**

- 3.1 Introduction, Need and functions of Business Correspondence
- 3.2 Types of Business letters
- 3.3 Drafting of Business Letter
- 3.5 Sales Letter, Order, sales circulars, Circular, Enquiry, Complaints, Follow up and business promotion letters , Email, Job Application Letter, Resume/Curriculum Vitae
- 3.6. Assignment- Business Letters

**Suggested Readings:**

1. Business Communication HomaiPradhan , N.S. Pradhan Himalaya Publishing House
2. Business Communication R.K. Madhukar Vikas Publishing House
3. Business Communication – Concepts , Cases and applications P.D Chaturvedi , Mukesh Chaturvedi Dorling Kindersley
4. Business Communication – Connecting at work Hory Sankar Mukerjee Oxford

<b>Semester -III</b>	<b>Paper –VIII</b>
<b>Course Code: BBACA-308 T</b>	<b>KNOWLEDGE MANAGEMENT</b>
<b>Credits: 02</b>	<b>Total Lectures: 30</b>

### Course Outcomes (Cos)

1. Analyze the role of knowledge management in attainment of financial objectives, quality and process improvement, and innovation.
2. Apply knowledge management models and technologies to business situations.
3. Use a knowledge management system for an organization.
4. Create a knowledge management plan to leverage opportunities to create, capture, represent and share knowledge within an organization

#### **Unit I: Introduction to KM (05)**

History of KM, Importance of KM, Information Management to Knowledge Management, K M Cycle, Industrial Economy to Knowledge Economy

#### **Unit II: KM Cycle (05)**

Knowledge creation, capturing tacit knowledge, Types of knowledge and its implications for KM, Knowledge codification and system development : codification, system testing and deployment,

#### **Unit III: Mechanics of Knowledge Management (05)**

Tools and Technologies, Communities of Practice and Knowledge conversion, The knowledge Management Matrix

#### **Unit VI Social Nature of Knowledge (05)**

Social Network Analysis, Obstacles to knowledge sharing, Organizational learning & Social Capital. Knowledge Application – Individual level, Group level & Organization Level.

#### **Unit V KM Strategy (05)**

Knowledge audit, GAP Analysis, Road Map, KM Metrics, Balance Score Card. KM Tools – Knowledge Capture & Creation tools, Knowledge sharing & Dissemination Tools, Knowledge Acquisition & Application tool

#### **Unit VI Km Team (05)**

Roles & Responsibilities, Political issues in KM, Ethics in KM, Strategies issues in Knowledge Management, Future of Knowledge Management.

### Suggested Readings:

1. Awad, E.M (2007). Knowledge Management. Pearson India, Delhi.
2. Fernandez I. B. and Sabherwal, R. (2010). Knowledge Management: System and Resources. PHI Delhi.
3. Kimiz Dalkir (2005). Knowledge Management in Theory and Practice. Elsevier.
4. Tiwana Amrit (1999). The Knowledge Management Toolkit. Prentice Hall PTR.

<b>Semester -IV</b>	<b>Paper -I</b>
<b>Course Code: BBACA 401 T</b>	<b>Data Communication and Computer Networking</b>
<b>Credits: 04</b>	<b>60 Hours</b>

**Course Outcomes (Cos)**

- 1) To Know the Basics of Data Communication in Computer System.
- 2) To Know the Basics of Computer Networking.
- 2) To understand the application of networking.
- 3) To understand how to use networking day to day activities.

**Unit I. Introduction to Computer Network****( 12 )**

- 1.1 Basics of Computer Network
  - 1.1.1 Definition
  - 1.1.2 Goals
  - 1.1.3 Applications,
  - 1.1.4 Network Hardware –Broadcast, Point to Point
  - 1.1.5 Components of Data Communication
- 1.2 Network Topologies
- 1.3 Types of Networks
- 1.4 Modes of Communication
  - 1.4.1 Simplex,
  - 1.4.2 Half Duplex,
  - 1.4.3 Full Duplex
- 1.5. Server Based LANs & Peer-to-Peer LANs
- 1.6. Protocols and Standards
  - 1.7. Network Software
    - 1.7.1 Protocol Hierarchies, Layers, Peers, Interfaces
    - 1.7.2 Design Issues of the Layers
    - 1.7.3 Connection Oriented and Connectionless Service

**Unit II. Network Models****( 10 )**

- 2.1 OSI Reference Model : Functions of each Layer
- 2.2 TCP/IP Reference Model, Comparison of OSI and TCP/IP
- 2.3 TCP/IP Protocol Suite
- 2.4 Addressing
  - 2.4.1 Physical Addresses
  - 2.4.2 Logical Addresses
  - 2.4.3 Port Addresses,
  - 2.4.4 Specific Addresses
- 2.5 IP Addressing
  - 2.5.1 Classful Addressing
  - 2.5.2 Classless Addressing

**Unit III. Transmission Media****( 10 )**

- 3.1 Introduction, Types of Transmission Media
- 3.2 Guided Media:
  - 3.2.1 Twisted Pair Cable- Physical Structure, Categories, Connectors & Applications
  - 3.2.2 Coaxial Cable – Physical Structure, Standards, Connectors & Applications
  - 3.2.3 Fiber Optic Cable- Physical Structure, Propagation Modes, Connectors & Applications
- 3.3 Unguided Media:
  - 3.3.1 Electromagnetic Spectrum for Wireless Communication
  - 3.3.2 Propagation Modes Ground, Sky, Line-of-Sight
  - 3.3.3 Wireless Transmission: Radio Waves, Microwaves, Infrared

**Unit IV. Wired and Wireless LAN****(10)**

- 4.1 IEEE Standards
- 4.2 Standard Ethernet MAC Sublayer, Physical Layer
- 4.3 Fast Ethernet – Goals, MAC Sublayer, Topology, Implementation
- 4.4 Gigabit Ethernet – Goals, MAC Sublayer, Topology, Implementation
- 4.5 Ten-Gigabit Ethernet – Goals, MAC Sublayer, Physical Layer
- 4.6 Backbone Networks -Bus Backbone, Star Backbone
- 4.7 Virtual LANs Membership, IEEE standards advantages
- 4.8 Wireless LAN
  - 4.8.1 IEEE 802.11 Architecture,
  - 4.8.2 Bluetooth Architecture (Piconet, Scatternet)

**Unit V. Network Devices****(10)**

- 5.1 Network Connectivity Devices
  - 5.1.1 Active and Passive Hubs
  - 5.1.2 Repeaters
  - 5.1.3 Bridges- Types of Bridges
  - 5.1.4 Switches
  - 5.1.5 Router
  - 5.1.6 Gateways

**Unit VI Network Security****(8)**

- 6.1 Introduction
- 6.2 Need for Security
- 6.3 Security Services :
  - 6.3.1 Message- -Confidentiality, Integrity, Authentication, Non repudiation.
  - 6.3.2 Entity (User)- Authentication.
- 6.4 Types of Attack
- 6.5 Cryptography, Plain Text, Cipher Text, Encryption, Decryption, Symmetric Key and Asymmetric Key Cryptography
- 6.6 Substitution Techniques, Caesar Cipher and Transposition Cipher (Problems should be covered.)
- 6.7 Firewalls- Packet Filter firewall, Proxy firewall 6.8 Steganography

**Suggested Readings:**

1. Computer Networks by Andrew Tanenbaum, Pearson Education. [4th Edition]
2. Data Communication and Networking by Behrouz Forouzan, TATA McGraw Hill. .[4th Edition]

<b>Semester -IV</b>	<b>Paper –II</b>
<b>Course Code: BBACA-402 T</b>	<b>OBJECT ORIENTED CONCEPTS THROUGH C++</b>
<b>Credits: 04</b>	<b>Total Hours :60 Hrs.</b>

**Course Outcomes:**

1. Acquire an understanding of basic object-oriented concepts and the issues involved in effective class design.
2. Enable students to write programs using C++ features like operator overloading, constructor and destructor, inheritance, polymorphism and exception handling.

**Unit I: Introduction to C++****(04)**

- 1.1 Basic concepts, features, advantages and applications of OOP
- 1.2 Introduction, applications and features of C++
- 1.3 Input and Output operator in C++
- 1.4 Simple C++ program

**Unit II: Beginning with C++****(08)**

- 2.1 Data type and Keywords
- 2.2 Declaration of variables, dynamic initialization of variables, reference variable
- 2.3 Operators:
  - 2.3.1 Scope resolution operator
  - 2.3.2 Memory management operators
- 2.4 Manipulators
- 2.5 Functions:
  - 2.5.1 Function prototyping, call by reference and return by reference
  - 2.5.2 Inline functions
- 2.6 Default arguments

**Unit III: Classes and Objects****(08)**

- 3.1 Structure and class, Class, Object
- 3.2 Access specifiers, defining data member
- 3.3 Defining member functions inside and outside class definition.
- 3.4 Simple C++ program using class
- 3.5 Memory allocation for objects
- 3.6 Static data members and static member functions
- 3.7 Array of objects, objects as a function argument
- 3.8 Friend function and Friend class
- 3.9 Function returning objects

**Unit IV: Constructors and Destructors****(08)**

- 4.1 Constructors
- 4.2 Types of constructor: Default, Parameterized, Copy
- 4.3 Multiple constructors in a class
- 4.4 Constructors with default argument
- 4.5 Dynamic initialization of constructor
- 4.6 Dynamic constructor
- 4.7 Destructor

**Unit V: Inheritance****(08)**

- 6.1 Introduction
- 6.2 Defining Base class and Derived class
- 6.3 Types of Inheritance
- 6.4 Virtual Base Class
- 6.5 Abstract class
- 6.6 Constructors in derived class

**Unit VI: Polymorphism****(08)**

- 7.1 Compile Time Polymorphism
  - 7.1.1 Introduction, rules for overloading operators
  - 7.1.2 Function overloading
  - 7.1.3 Operator Overloading unary and binary
  - 7.1.4 Operator Overloading using friend function
  - 7.1.5 Overloading insertion and extraction operators
  - 7.1.6 String manipulation using operator overloading
- 7.2 Runtime Polymorphism
  - 7.2.1 this Pointer, pointers to objects, pointer to derived classes
  - 7.2.2 Virtual functions and pure virtual functions

**Unit VII: Managing Console, I/O operations****(04)**

- 8.1 C++ streams and C++ stream classes
- 8.2 Unformatted I/O operations
- 8.3 Formatted console I/Operations
- 8.4 Output formatting using manipulators
- 8.5 User defined manipulators

**Unit VIII: Working with Files****(08)**

- 9.1 Stream Classes for File operations
- 9.2 File operations - Opening, Closing and updating
- 9.3 File updating with random access.
- 9.4 Error handling during File operations
- 9.5 Command Line arguments

**Unit IX: Templates****(04)**

- 10.1 Introduction
- 10.2 Class Template and class template with multiple parameters
- 10.3 Function Template and function template with multiple parameter
- 10.4 Exception Handling Introduction.

**Suggested Readings:**

1. Object Oriented programming with C++ by E Balagurusamy
2. Object Oriented Programming with C++ by Robert Lafore
3. The Complete Reference C++ by Herbert Schildt

<b>Semester -IV</b>	<b>Paper –III</b>
<b>Course Code: BBACA-403 T</b>	<b>ADVANCED WEB DEVELOPMENT</b>
<b>Credits: 04</b>	<b>Total Lectures: 60 Hrs.</b>

### Course Outcomes (Cos)

On completion of this course, students will be able to:

1. To know & understand concepts of internet programming.
2. Understand how server-side programming works on the web.
3. Understanding How to use PHP Framework (Joomla / Drupale)

#### Unit I Introduction to Object Oriented Programming in PHP (08)

- 2.1 Server information
- 2.2 Processing forms
- 2.3 Sticky forms
- 2.4 Setting response headers

#### Unit I I Web Techniques (06)

- 2.1 Server information
- 2.2 Processing forms
- 2.3 Sticky forms
- 2.4 Setting response headers

#### Unit I II XML (10)

- 3.1 Introduction XML
- 3.2 XML document Structure
- 3.3 PHP and XML
- 3.4 XML parser
- 3.5 The document object model
- 3.6 The simple XML extension
- 3.7 Changing a value with simple XML

#### Unit I V Ajax with PHP (08)

- 4.1 Understanding java scripts for AJAX
- 4.2 AJAX web application model
- 4.3 AJAX –PHP framework
- 4.4 Performing AJAX validation
- 4.5 Handling XML data using php and AJAX
- 4.6 Connecting database using php and AJAX

#### Unit V Introduction to Web Services (12)

- 5.1 Definition of web services
- 5.2 Basic operational model of web services, tools and technologies enabling web services
- 5.3 Benefits and challenges of using web services.
- 5.4 Web services Architecture and its characteristics
- 5.5 Core building blocks of web services
- 5.6 Standards and technologies available for implementing web services
- 5.7 Web services communication models
- 5.8 Basic steps of implementing web services.

**Unit VI          PHP Framework (Joomla / Druple)****(16)**

## 6.1 Introduction to Joomla/Druple

## 6.1.1 Introduction

## 6.1.2 Joomla/Druple features

## 6.1.3 How Joomla/Druple works ?

## 6.1.4 The platform Components, Modules and Plugins

## 6.2 Administering Joomla/Druple

## 6.2.1 Presentation Administration

## 6.2.2 Content Administration

## 6.2.3 System Administration

## 6.3 Working with Joomla/Druple

## 6.3.1 Adding articles

## 6.3.2 Adding menus to point to content

## 6.3.3 Installing new templates

## 6.3.4 Creating templates

## 6.3.5 Adding a Module and Component

## 6.3.6 Modifying the existing templates

## 6.3.7 Creating templates with web editors

Suggested reading :

1.Php: A Beginner's Guide 1st Edition McGraw-Hill Osborne Media; 1 edition by Vikram Vaswani

2.Murach's PHP and MySQL (2nd Edition) by Joel Murach and Ray Harris

3.PHP: The Complete Reference Paperback – 1 Jul 2017 by Steven Holzner (Author)

4.Building Web Services with Java, 2nd Edition, S. Graham and others, Pearson Edn., 2008..



<b>Semester -IV</b>	<b>Paper –IV</b>
<b>Course Code: BBACA-404 P</b>	<b>PRACTICAL BASED ON BBACA - 402 T</b>
<b>Credits: 02</b>	<b>Total Hours :30 Hrs.</b>

**Course Outcomes:**

<b>Ass. No.</b>	<b>Week</b>	<b>Assignment</b>
1.	First	First CPP Program - Print Hello World Program for Use of cin and cout Program of Arithmetic Operations Program to find Largest and Smallest Between Numbers Program using conditional operators and Manipulators.
2.	Second	Programs Using Control Structure, Loops. Program to Accept Marks in Subject and Print Total and Percentage. Program for the illustration of switch case Program of finding Maximum Number, Product of Digits, Prime, Factorial, Sum of Digits, Palindrome, Armstrong using Loop Pattern Programs.
3.	Third	Programs of Function, Function Declaration, Definition, Inline Function - to calculate square and cube of number and Inline function for arithmetic operations. Friend Function - to check number is even or odd, to calculate multiplication of two numbers using forward declaration, Function to check a given number is : Armstrong or not, Palindrome or not, Prime or not, Perfect or not, Leap Year or not, etc.
4.	Fourth	C Class and Objects, Declare, Define and Access Data Members and Member Functions, C++ Program Using Class to accept and display Student data calculate Marks, Employee Data and calculate DA, HRA, Gross Salary.
5.	Fifth	Program to define function outside the class definition using scope resolution operator. Program to demonstrate Static Data Members and Member Function
6.	Sixth	Programs of Constructor - Default Constructor - Calculate area of Circle, Square, Rectangle, Roots of Quadratic Equation. Parameterized Constructor - Check Leap Year, Calculate Base and Power, Overloaded Constructor for the addition of numbers Program for the demonstration of Copy Constructor
7.	Seventh	Programs of Constructor with Default Arguments, Dynamic Constructor, Multiple Constructor in class, Destructor
8.	Eighth	Programs of Inheritance -

		Demonstration of Single Inheritance - Accept Number and perform Mathematical Operations, Demonstration of Multilevel Inheritance - get Child, Father and GrandFather details and display it, Demonstration of Multiple Inheritance - Accept data of Teaching and Non Teaching and derive in Record class
9.	Ninth	Programs of Hierarchical Inheritance - Accept Base class Fields and derive classes as Arts and Science, accept and display Data Hybrid Inheritance - Program Using Student class Regular Subject Marks and Add On Courses Marks, Calculate and Display Result. Virtual Base Class, Abstract Class, Constructor in Derived Class
10.	Tenth	Programs of Polymorphism - Function Overloading - Overloaded function to calculate Area, Perimeter, Volume, Addition, Multiplication, Operator Overloading - Overloading Unary and Binary Operators, Operator Overloading using Friend Function Program for the illustration of this pointer
11.	Eleven	Programs of Managing Console Input/Output Operations, Unformatted Input/Output Operations - programs using get() function, getline() function, put() function, read() function, write function(). Formatted Input/Output Operations - programs using width() function, precision() function, fill() function, setf() function, unsetf() function
12.	Twelve	Programs of File Handling and File Operations - Open File Close File Read data from file write data into file Deleting Data from file Detecting end of file Update file
13.	Thirteen	Programs of Exception Handling using try, catch, throw, throws. Program using User defined exception
14.	Fourteen	Programs of Function Template Programs of Class Template

<b>Semester -III</b>	<b>Paper –V</b>
<b>Course Code: BBACA-405 P</b>	<b>PRACTICAL – BASED ON BBACA-403 T</b>
<b>Credits: 02</b>	<b>Total Lectures: 30 Hrs.</b>

## Assignments: Advance PHP

### Assignment 1

- 1) Write a PHP script to create a simple calculator that can accept two numbers and perform operations like addition, subtraction, multiplication etc.
- 2) Write a php script to create a student.xml file which contains student rollno, name, address, college and course. Print student details of specific courses in tabular format after accepting the course as input.
- 3) Write a simple PHP program which implements Ajax for subtraction of two numbers.
- 4) Write a script to solve following questions (Use "Student.xml" file)
  1. Create a DOM Document object and load this XML file.
  2. Get the output of this Document to the browser.
  3. Save this [. XML] document in another format i.e. in [.doc]Write a XML Script to print the names of the students present in the "Student.xml "
- 5) Write a Calculator class that can accept two values, then add, subtract, multiply them or divide them on request.

### Assignment 2

- 1) Write a script to create "cricket.xml" file with multiple elements as shown below:

```
<CricketTeam>
<Team country="Australia">
<player> ----- <runs>
</player>-----</ runs>
<wicket>-----</wicket>
</Team>
</CricketTeam >
```

Write a script to add multiple elements in the "cricket.xml" file of category, country=" India".

- 2) Define a class Employee having private members - id, name, department, salary. Define parameterized constructors. Create a subclass called "Manager" with a private member bonus. Create 3 objects of the Manager class and display the details of the manager having the maximum total salary (salary + bonus).

- 3) Create an xml file which should comprise the following:

```
<cricket>
<player>Sachin Tendulkar</ player>
<runs>2000</runs>
<wickets> 100 </ wickets>
<noofnotout>20</noofnotout>
</cricket> For at least 5 players.
```

Write a PHP script to display the details of players who have scored more than 1200 runs and at least 50 wickets.

- 4) Create an abstract class Shape with methods area( ) and volume( ). Derive three classes: rectangle (length, breadth), Circle(radius) and Cylinder(radius, height) , Calculate area and volume of all. (Use Method overriding).
- 5) Create student table as follows: Student(sno, sname, standard, Marks, per). Write AJAX script to select the student name and print the student's details of a particular standard.

**Assignment 3**

- 1) Write a PHP script, which will return the following component of the URL (Using response header)http://www.college.com/Science/CS. php
- 2) Create an employee table as follows: EMP (eno, ename, designation, salary). Write an Ajax program to select the employees name and print the selected employee's details.
- 3) Consider the following relational database: Project (P\_Group No, Project\_Tittle)  
Student (Seat\_no, Name, Class, P\_Group\_No)  
Write an AJAX script to accept project titles and display a list of students who are working on a particular project.
- 4) Write a PHP Script to create class Shape and its subclass Triangle, Square, Circle and display area of selected shape (use concept of inheritance).
- 5) Write an Ajax script to get player details from an XML file when the user selects the player name. Create an XML file to store details of the player (name, country, wickets and runs).

**Assignment 4**

- 1) Write a PHP program to create a Class Calculator which will accept two values from user and pass as an argument through parameterized constructor and do the following task:
  - a) Add
  - b) Subtract
  - c) Multiply them together or divide them on request.
- 2) Consider the following entities and their relationships Movie(movie no, movie\_name, release\_year) Actor(actor no, name) Relationship between movie and actor is many-many with attribute rate in Rs. Create a RDB in 3 NF. With using three radio buttons (accept, insert, update)  
Write an AJAX script to accept actor names and display names of movies in which he has acted.
- 3) Write a PHP Script to demonstrate the concept of Introspection for examining objects.(Using any 3 predefined functions)
- 4) Write a PHP script to perform the following stack related operations-insert, display.(Use concept of self processing form)
- 5) Write a PHP script to perform the following stack related operations-delete, display.(Use concept of self processing form)

**Assignment 5**

- 1) Write a PHP program to create a class circle having a radius data member and two member functions find\_circumference() and find\_area(). Display area and circumference depending on user's preference.
- 2) Write an Ajax code to print the content of "Myfile.dat" on clicking on fetch Button. The Data fetches from the server using Ajax Technique.

- 3) Write a PHP program to convert temperature Fahrenheit to Celsius using sticky form.
- 4) Write a PHP program to convert temperature Celsius to Fahrenheit using sticky form.
- 5) Write an AJAX script to read the contact.dat file and print the content of a file in a tabular form when the user clicks on the print button. Contact.dat file contains srno, name, residence number, mobile number (Enter at least 3 records in contact.dat file)

**Assignment 6**

- 1) Create a form to accept Employee details and display it in the next page. (Use sticky form concept).
- 2) Create a web Application that contains Voters details and check proper validation for (name, age, and nationality), as Name should be in upper letters only, Age should not be less than 18 yrs and Nationality should be Indian.(use HTML-AJAX-PHP)
- 3) Write a PHP script to accept a string from user and then display the accepted string in reverse order.(use concept of self processing form)
- 4) Write a PHP script to accept a string from user and then display the accepted string in Uppercase.(use concept of self processing form)
- 5) Write a PHP script using AJAX concept, to check if username and passwords are valid or Invalid (use a database to store username and password).

**Assignment 7**

- 1) Write a PHP program to select a list of subjects from the list box and display the selected subject information on the next page. (Use sticky Multi Value parameter).
- 2) Write a PHP script using AJAX concept, to give hints to the user when he/she types a city name in the text field.
- 3) Write an Ajax program to carry out validation for a username entered in the textbox. If the textbox is blank, print ' Enter username '. If the number of characters is less than three, print ' Username is too short '. If the value entered is appropriate the print ' Valid username '.
- 4) Write a PHP Script to display Server information in table format (Use \$\_SERVER).
- 5) Write a script to create an XML file "University.xml". The elements details of "University.xml" are as follows:  
<Univ> <Uname>----- </Uname>  
<City>----- </City>  
<Rank>----- </Rank>  
</Univ>
  - 1) Store the details of at least 3 universities.
  - 2) Link the "University.xml" file to css and get well formatted output as given below.,, i) Uname: Color : black;  
Font-family: copperplate Gothic Light;  
Font-size: 16 pt  
Font: Bold;  
ii) City and Rank : Color : Yellow;  
Font-family: Arial;  
Font-size: 12 pt  
Font: Bold;

**Assignment 8**

1) Write a PHP program to create a simple distance calculator that can accept distance in meters from the user. Convert it into centimeters or kilometers according to user preference. (use radio buttons and Self Processing form)

2) Write a PHP script to generate an XML in the following format.

```
<?xml version = " 1.0" ?>
<BookStore>
<Books>
<PHP>
<title>Programming PHP</title>
<publication>O 'RELLY</ publication>
<price>800</price>
</PHP>
<PHP>

<title>Beginners PHP</title>
<publication>WROX</publication>
<price>900</price>
</PHP>
</Books>
</BookStore>
```

Add more than 5 book details . Display details of the book by selecting the publication of the book from the user.

3) Write an Ajax program to get book details from an XML file when the user selects a book name. Create an XML file to store details of the book(name, author, year and price).

4) Create a XML file which gives details of movies available in "Venus CD Store" from following categories a) Classical b) Action c) Horror Elements in each category are in the following format

```
<Category>
<Movie Name>----- </Movie Name>
<Release Year>----- </Release Year>
<Actor Name>----- </Actor Name>
</Category>
```

Save the file with the name "movies.xml".

5) Write a simple PHP program which implements Ajax to check armstrong number.

**Assignment 9**

1) Write a script to create XML file named "Course.xml"

```
<Course>
<Computer Science>
<Student name>..... </Student name>
<Class name >..... </Class name>
<percentage>..... </percentage>
</Computer Science>
</Course>
```

Store the details of 5 students who are in SYBBA(CA).

2) Create an XML file which gives details of books available in "Pragati Bookstore" from the following categories.

1) Yoga 2) Story 3) Technical

and elements in each category are in the following format

<Book>

<Book Title> -----</Book Title>

<Book Author> ----- </Book Author>

<Book Price> ----- </Book Price>

</Book>

Save the file as "Bookcategory.xml"

3) Create an application that reads a "Sports.xml" file into a simple XML object. Display attributes and elements. (Hint: Use simple\_xml\_load\_fileO function)

4) Write Ajax program to print Movie details by selecting an Actor's name. Create table MOVIE and ACTOR as follows with 1 : M cardinality MOVIE (mno, mname, release\_yr) and ACTOR(ano, aname).

5) Write a script to create XML file named "College.xml" The element details of "College.xml" are:

<College >

<Cname>----- </Cname>

<City>----- </City>

<Rank>----- </Rank>

</College>Display at least 3 college Information.

### Assignment 10

1) Write a script to create "vehicle.xml" file with multiple elements as given below <Vehicle>

<Type = Two Wheeler>

<Vehicle Name >----- </vehicle Name >

<Company >----- </Company>

<Color>----- </Color>

<Average>----- </Average>

</Type>

<N vehicle>

Also add Type = "Four Wheeler" and its elements

2) Write a PHP program to implement Create, Read, Update and Display operations on the Teacher table with attributes (tid, tname, address, subject). (UseRadioButtons)

3) Write a simple PHP program which implements Ajax for addition of two numbers.

4) Write a simple PHP program which implements Ajax for Factorial of a number.

5) Write a PHP script to read book.XML and print book details in tabular format using simple XML(Content of book.XML are book\_code, book\_name, author, year, price).

### Assignment 11

1) Write an Ajax program to display a list of games stored in an array on clicking the OK button.

- 2) Write a PHP script using AJ AX concept, to develop user-friendly and interactive search engine (like a Google search engine)
- 3) Write a PHP Script to create a superclass Vehicle having members Company and price. Derive 2 different classes:  
LightMotorVehicle (members - mileage)  
HeavyMotorVehicle (members - capacity-in-tons).
- 4) Derive a class Rectangle from class Square. Create one more class Triangle. Create an interface with only one method called cal\_area (). Implement this interface in all the classes. Include appropriate data members and constructors in all classes. Write a program to accept details of a Rectangle, Square and Triangle and display the area.
- 5) Write a simple PHP program which implements Ajax for multiplication of two numbers.

**Assignment 12**

- 1) write a Ajax program to display list of games stored in an array on clicking OK button
- 2) Create a student table. Write an AJAX program to select the student name and print the details of the selected student.
- 3) Write a PHP script to demonstrate the introspection for examining classes and objects.
- 4) Write a simple PHP program which implements Ajax to find leap year.
- 5) Write a PHP script for the following: Design a form to accept a number from the user. Perform the operations and show the results.
  - 1) Fibonacci Series.
  - 2) To find the sum of the digits of that number.(Use the concept of a self processing page.)

**Assignment 13**

- 1) Write a PHP Script to create a superclass School having members Students and Teachers. Derive 2 different classes from them.
- 2) Write a simple PHP program which implements Ajax to find fibonacci series.
- 3) Write a PHP program to select a list of students from the list box and display the selected students' information on the next page. (Use sticky MultiValue parameter).
- 4) Write a PHP script to accept a string from user and then display the accepted string in Lowercase.(use concept of self processing form)
- 5) Write a PHP script using AJAX concept, to check if username and passwords are valid or Invalid (use a database to store username and password). If valid then show users details(name,age,mobile num)

**Assignment 14**

- 1) Define a class Student having private members - id, name, department. Define parameterized constructors. Create a subclass called "Marks". Create 3 objects of the Marks class and display the details of the student having the maximum marks.
- 2) Write a php script to create a emp.xml file which contains empid, name, address, designation and salary. Print employee details of specific designation in tabular format after accepting the designation as input.
- 3) Write an Ajax program to get emp details from an XML file when the user selects a emp name. Create an XML file to store details of the emp(name,dept, dob and salary).
- 4) Create a form to accept student details and display it in the next page.(Use sticky form concept).
- 5) Write a simple PHP program which implements Ajax to check palindrome.



<b>Semester -IV</b>	<b>Paper –VI</b>
<b>Course Code: BBACA-406 T</b>	<b>OPERATING SYSTEM CONCEPTS</b>
<b>Credits: 02</b>	<b>Total Lectures: 30 Hrs.</b>

### Course Outcomes (Cos)

On completion of this course, students will be able to:

1. To know the services provided by Operating System
2. To know the scheduling concept
3. To understand design issues related to memory management and various related algorithms.
4. To understand design issues related to File management and various related algorithms

### Unit I Introduction to Operating System

(06)

- 1.1 What is operating system
- 1.2 Computer system architecture
- 1.3 Services provided by OS
- 1.4 Types of OS
- 1.5 Operating System Structure
- 1.6 Virtual Machines – Introduction, Benefits
- 1.7. User operating system Interface
- 1.8 System Calls, System Program
- 1.9. Operating System Structure

### Unit I I Process Management

(06)

- 2.1 Process Concept
- 2.2 Process Scheduling
- 2.3 Operation on Process
- 2.4 Interprocess Communication

### Unit I II CPU Scheduling

(06)

- 3.1 What is scheduling
- 3.2 Scheduling Concepts
- 3.3 Scheduling criteria
- 3.4 Scheduling Algorithms
- FCFS
- SJF ( Preemptive& non-preemptive)
- Priority Scheduling (Preemptive& Non- preemptive)
- Round Robin Scheduling

### Unit IV Memory Management

(06)

- 4.1. Background
- 4.2 Swapping
- 4.3 Contiguous Memory Allocation
- 4.4 Paging
- 4.5 Segmentation
- 4.6 Virtual Memory Management

### Unit VI I/O System

(04)

- 5.1 Introduction
- 5.2 I/O Hardware
- 5.3 Application of I/O Interface
- 5.4 Kernel I/O Subsystem
- 5.5 Disk Scheduling

Suggested Readings::

1. Operating System Concepts - Silberchatz, Galvin, Gagne (8th Edition).
2. Operating Systems : Principles and Design – Pabitra Pal Choudhary (PHI Learning Private Limited)

<b>Semester -IV</b>	<b>Paper –VII</b>
<b>Course Code: BBACA-408 T</b>	<b>BLOGGING TOOLS</b>
<b>Credits: 02</b>	<b>Total Lectures: 30 Hrs.</b>

### Course Outcomes (Cos)

On completion of this course, students will be able to:

1. Understanding the blogging concept
2. To develop skills to create a good blog
3. To understand various blogging tools and uses.

#### Unit I Introduction to Blogging

(05)

Blogs Introduction  
Content writing  
Publishing and copyright  
Market need  
Earning through blogging  
Design banners

#### Unit II Blogger

(04)

Creating an account  
Understanding the menus  
Adding blog  
View the blog  
Change the themes  
Understand and change the layout of blog  
Pages,comment and statistics

#### Unit III Wordpress

(06)

Creating an account  
Customizing site  
Understanding the menus  
Adding the blog  
View the blog  
Change the themes  
Understand plugins  
Install plugins  
Use plugins  
Understand and change the layout of blog  
Adding Pages  
Working with comment

### Blogging Tools Assignments

#### Assignment 1

1. Install Canva.
2. Make Design
3. Design Thumbnails.
4. Different size banners and thumbnails

#### Assignment 2

1. Install Blooger
2. Login to blogger

3. Create blogger
4. Changing blogger name and properties

**Assignment 3**

1. Post blog in blogger
2. Edit blog
3. Update blog
4. Delete Blog
5. Change Theme
6. Add Page in Blogger
7. Edit Page
8. Delete Page
9. Comment Section

**Assignment 4**

1. Install wordpress
2. Login to wordpress
3. Add post in wordpress blog
4. Edit Post in wordpress blog
5. View Blogs.
6. Delete post in wordpress blog

**Assignment 5**

1. Add edit Delete menu in wordpress
2. Work in customized menu section in wordpress
3. Change themes
4. Edit themes

**Assignment 6**

1. Install wordpress plugins
2. Make changes in wordpress plugins
3. Check multiple functionality in wordpress plugins
4. Analytics Integration .