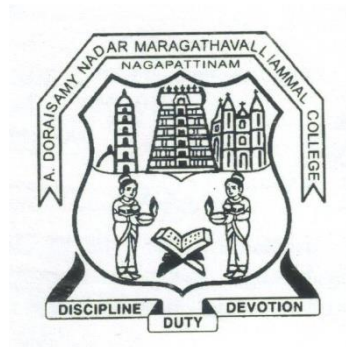


A.D.M COLLEGE FOR WOMEN (AUTONOMOUS),
NAGAPATTINAM-611 001
(Nationally Re-accredited with 'A' Grade by NAAC- 3rd Cycle)

PG DEPARTMENT OF COMPUTER SCIENCE
(for the candidates admitted from the academic year 2019-2022)



B.Sc., COMPUTER SCIENCE

SYLLABUS

A.D.M. COLLEGE FOR WOMEN (AUTONOMOUS), NAGAPATTINAM
B.Sc., Computer Science Degree Programme

(for the candidates admitted from the academic year 2019-2022)

PROGRAMME OBJECTIVES

1. To impart knowledge in advanced concepts and applications in different fields of computer Science.
2. To prepare students to enter into professional courses.
3. To educate students to occupy important positions in Software's, MNCs and Industries.
4. To equip students with skills to excel in their future careers.
5. To prepare students to enter Masters Programme like M.Sc.,(Computer Science),M.Sc., (Information Technology) and pursue professional programmes like M.C.A. etc.
6. To enable students to take up challenging jobs.

B.Sc., Computer Science 2019 – 2022

STRUCTURE OF THE PROGRAMME

Part	Title of the Part	No. of Papers	Hours	Credit
I	Language - Tamil	4	24	12
II	English	4	24	12
III	Core Course	15	71	63
	Allied	6	27	18
	Major Based Elective	3	17	17
IV	Skill Based Elective	3	6	6
	Non-Major Elective	2	4	4
V	Extension Activities	0	0	1
	Value Education	1	2	2
	Environmental Studies	1	2	2
	Soft-Skill Development	1	2	2
	Gender Studies	1	1	1
	Total	41	180	140

Passing Minimum

A candidate shall be declared to have passed in each course if she secures not less than 40% marks out of 75 marks (i.e., 30 marks) in the End Semester Examination (SE) and 40% out of 25 marks (i.e., 10 marks) in the Continuous Internal Assessment.(CIA).

A.D.M. COLLEGE FOR WOMEN(AUTONOMOUS), NAGAPATTINAM
DEPARTMENT OF COMPUTER SCIENCE
B.Sc., COMPUTER SCIENCE

Course Structure under CBCS
(for the candidates admitted from the academic year 2019-2022 onwards)

SEM	PART	COURSE	TITLE	INST HOURS/ WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL MARKS	
							CIA	SE		
I	I	Language Course I (LC)	Tamil-I	6	3	3	25	75	100	
	II	Language English Course I (ELC)	English-I	6	3	3	25	75	100	
	III	Core Course I (CC)	C	Programming	5	4	3	25	75	100
			Programming in C lab	3	3	3	40	60	100	
		Core Course III (CC)	Office Automation Lab	2	2	3	40	60	100	
		First Allied Course I (AC)	Mathematics I	6	3	3	25	75	100	
V	Value Education	Value Education	2	2	3	25	75	100		
		Total		30	20	*	*	*	700	
II	I	Language Course II (LC)	Tamil-II	6	3	3	25	75	100	
	II	Language English Course II (ELC)	English-II	6	3	3	25	75	100	
	III	Core Course IV (CC)	Object Oriented Programming Using C++	4	4	3	25	75	100	
			Programming in C++ Lab	4	2	3	40	60	100	
		First Allied Course II (AC)	Mathematics II	4	3	3	25	75	100	
		First Allied Course III (AC)	Mathematics III	4	3	3	25	75	100	
V	Environmental Studies		2	2	3	25	75	100		
		Total		30	20	*	*	*	700	

SEM	PART	COURSE	TITLE	INST HOURS/ WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL MARKS	
							CIA	SE		
III	I	Language Course III (LC)	Tamil-III	6	3	3	25	75	100	
	II	Language English Course III (ELC)	English-III	6	3	3	25	75	100	
	III		Core Course VI (CC)	Data Structures and Algorithm	5	5	3	25	75	100
			Core Course VII (CC)	Data Structures and Algorithm using C++ Lab	4	3	3	40	60	100
			Second Allied Course I (AC)	Applied Physics I	5	3	3	25	75	100
			Second Allied Course II (AC)	Applied Physics-II Lab	2	-	-	-	-	-
	IV	Non-Major Elective I (NME)	Web Designing Lab	2	2	3	40	60	100	
		Total		30	19	*	*	*	600	
IV	I	Language Course IV (LC)	Tamil-IV	6	3	3	25	75	100	
	II	Language English Course IV (ELC)	English-IV	6	3	3	25	75	100	
	III		Core Course VIII (CC)	Java Programming	5	5	3	25	75	100
			Core Course IX (CC)	Java Programming Lab	3	2	3	40	60	100
			Second Allied Course II (AC)	Applied Physics II Lab	2	3	3	25	75	100
			Second Allied Course III (AC)	Applied Physics III	4	3	3	25	75	100
	IV		Skill Based Course I	Multimedia Lab	2	2	3	40	60	100
		Non Major Elective II (NME)	Animation Lab	2	2	3	40	60	100	
		Total		30	23	*	*	*	800	

SEM	PART	COURSE	TITLE	INST HOURS/ WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL MARKS
							CIA	SE	
V	III	Core Course X (CC)	Computer Organization and Architecture	6	5	3	25	75	100
		Core Course XI (CC)	Operating Systems	6	6	3	25	75	100
		Core Course XII (CC)	Database Systems	6	6	3	25	75	100
		Major Based Elective Course I (MBE)	1. Dot net Programming 2.PHP with MySQL	6	6	3	25	75	100
	IV	Skill Based Course II	Database Systems Lab	2	2	3	40	60	100
		Skill Based Course III	Dot net Programming Lab	2	2	3	40	60	100
	V		Soft skill Development	2	2	3	25	75	100
		Total		30	29	*	*	*	800
VI	III	Core Course XIII (CC)	Microprocessor and Assembly language Programming	6	6	3	25	75	100
		Core Course XIV (CC)	Microprocessor and Assembly language Programming Lab	6	6	3	25	75	100
		Core Course XV (CC)	Project	6	4	3	40	60	100
		Major Based Elective Course II (MBE)	1. Data Communication Network 2.Mobile Communication	6	6	3	25	75	100
		Major Based Elective Course (MBE) III	1.Software Engineering 2.Computer Graphics	5	5	3	40	60	100
	V	Extension Activities		-	1				
		Gender Studies		1	1	3	25	75	100
		Total		30	29				600
	Grand Total		180	140				4100	

Allied I	Allied II
Mathematics	Physics

Skill Based Courses Offered

- Multimedia Lab
- Database Systems Lab
- Dot Net Programming Lab
- Web Programming with PHP & MYSQL Lab
- Mobile Computing
- The Script Language

Department of Computer Science

Mark Allocation for Theory Papers

CIA	-	25 Marks
External	-	<u>75 Marks</u>
		<u>100 Marks</u>

CIA Component

Test	-	10 Marks
Assignment	-	2 Marks
Seminar	-	3 Marks
Quiz/Group Discussion	-	5 Marks
Attendance	-	<u>5 Marks</u>
		<u>25 Marks</u>

Pattern of question Paper (Theory)

Section – A	10 x 2 = 20 Marks	(No Choice)
Section – B	5 x 5 = 25 Marks	(Either or)
Section – C	3 x 10 = <u>30 Marks</u>	(Any three out of 5)
Total		<u>75 Marks</u>

Department of Computer Science

Practical Question Pattern (for B.Sc., CS, B.Sc., IT, BCA & NME Students)

Internal: 40

Total Marks: 100

External: 60

Time : 3 Hrs

ANSWER ALL THE QUESTIONS:

1. -----
2. -----

Record -10 Marks

Program 1- 25 Marks

Program 2- 25 Marks

PG DEPARTMENT OF COMPUTER SCIENCE

(for the candidates admitted from the academic year 2019-2022)

B.Sc., COMPUTER SCIENCE

PROGRAMME OUTCOMES

1. Under Graduate students are to Apply algorithmic, mathematical and scientific reasoning to a variety of computational problems
2. Undergraduate students are made to be competent and socially responsible citizen of India.
3. Undergraduate students are encouraged to take up higher learning programmes.
4. Undergraduate students are to be exposed to technical, analytical and creative.
5. The Under Graduate students are recognize the social and ethical responsibilities of a professional working in the various disciplines.

PROGRAMME SPECIFIC OUTCOMES

PSO1: Disciplinary knowledge

To acquire knowledge with fundamentals of computer science to solve complex problems related to the field of Computer science.

PSO2: Design and Development

Ability to identify, formulate and analyze complex problems related to computer science and reaching a substantiated conclusions using mathematics and its applications

PSO3: Ethics

Ability to understand professional & ethical responsibility in the field of Computer Science.

PSO4: Environment Sustainability:

Understand the impact of the Computer professionals in societal and environmental contexts.

PSO5: ICT & Digital Literacy:

Capability to use appropriate software for analysis of data and relevant information from various sources for easy access and evaluation in variety of learning situation.

PSO6: Individual and Team Work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PSO7: Life-Long Learning:

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSO8: Modern tool usage:

To develop the ability to solve large complex evolving projects using cutting edge technologies and modern tools.

CORE COURSE I

C PROGRAMMING

Internal : 25

External : 75

Exam Hours : 3

Semester : I

No. of Hours/Week : 5

Credit : 4

Course Objectives:

- To obtain knowledge about the structure of the programming language C
- To develop the program writing and logical thinking skill.
- To impart the knowledge about pointers which is the backbone of effective memory handling
- To study the advantages of user defined data type which provides flexibility for application development
- To teach the basics of preprocessors available with C compiler.

UNIT I FUNDAMENTALS OF PROGRAMMING

Computer Basics- Algorithms – Simple Model of a Computer – Characteristics of Computers- Problem Solving Using Computers – Flow Chart – The Working of a Computer.

Introduction To C Language: Identifiers, Keywords, Constants, Variables and data types, Access Modifiers, Data Type Conversions- Operators- Conditional Controls - Loop Controls.

(Content – 12 Hrs, Assessment-3 Hrs)

(15 Hrs)

UNIT II ARRAYS:

One Dimensional Array - Two Dimensional Array – Character Arrays and Strings.

FUNCTION: Introduction - Elements of User Defined Function - Definition of Functions - Return Values and their Types – Function Calls - Function Declaration - Category of Function - Nesting of Function - Recursion - Passing Arrays to Function - Passing Strings to Function – The Scope, Visibility and Lifetime of Variables - Library functions.

(Content – 12 Hrs, Assessment-3 Hrs)

(15 Hrs)

UNIT III STRUCTURES AND UNIONS

Defining Structure - Declaring Structure Variable - Accessing Structure Members - Structure Initialization - Arrays of Structure - Arrays within Structures - Structures within Structures - Structures and Function - Union.

(Content – 12 Hrs, Assessment-3 Hrs)

(15 Hrs)

UNIT IV POINTERS

Pointers - Declaration of Pointers - Accessing Variables through Pointers - Chain of Pointers - Pointer Expressions- Pointer Increments - Pointers with Arrays, Strings- Array of Pointers - Pointers with Functions - Pointers with Structures.

(Content – 12 Hrs, Assessment-3 Hrs)

(15 Hrs)

UNIT V FILE MANAGEMENT IN C

Defining and Opening a File - Closing a File - Input / Output Operations on Files - Error Handling During I/O Operations - Random Access to Files - Command Line Arguments - Dynamic Memory Allocation.

(Content – 12 Hrs, Assessment-3 Hrs)

(15 Hrs)

Text Books:

1. V. Rajaraman, “Fundamentals of Computer “,Asoke k.Ghosh Publications, PHI Course Limited, 5th Ed., New Delhi,2011. UNIT I(A)
2. E. Balagurusamy, “Programming in C”, Tata McGraw Hill, 7th Ed., New Delhi, 2016. UNIT I (B) to UNIT V.

Reference Books:

1. Byron S. Gottfried, “Programming with C”, Tata McGraw Hill, 3rd Ed., New Delhi, 2010.
2. Yashvant Kanetkar, “Working with C”, BPB Publication, New Delhi, 2008.

Web-Resources:

<https://www.w3schools.in/c-tutorial/>

<https://nptel.ac.in/courses/106104128/>

Course Outcomes:

On completion of the Course, Students should be able to

- Understand the basic terminology of algorithm, flowchart and gain awareness used in computer programming.
- Design programs involving the various concepts like decision structures, loops, functions of C language.
- Demonstrate the single, multi-dimensional arrays, String functions and user defined functions.
- Compare the structure and union of C and apply it to construct array of structures and structure function.
- Understand the dynamics of memory by the use of pointers and pointers with functions.

CORE COURSE II
PROGRAMMING IN C LAB

Internal	:40	Semester	:I
External	:60	No. of Hours/Week	:3
Exam Hours	: 3	Credit	:3

Course Objectives:

- To develop skills in implementing algorithms through the programming Language C
- To explore the features of C by applying sample problems.
- The students will be able to enhance their analyzing and problem solving skills
- To learn problem solving techniques.
- To teach the student to write programs in C and to solve the problems.

List of Practicals:

1. a) Program to find Simple Interest
b) Program to calculate area of rectangle, square and triangle c) Program to find whether the given number is odd or even
2. a) Program to find the roots of a quadratic equation using if ... else statement
b) Program to find the biggest of 3 given numbers using nested if ... else statement
3. a) Program to find sum of individual digits of a given number using while statement
b) Program to find the sum of odd numbers between 1 and 100 using do ... while statement.
c) Program to find the sum and average of the given 'n' numbers using for loop
4. a) Program to find the factorial of the given number using recursive function
b) Program to calculate the binomial coefficient.
5. a) Program to sort the given set of numbers
b) Program to perform the addition of two given matrices.
c) Program to perform the multiplication of two given matrices.
6. a) Program to check whether the given string is palindrome or not.
b) Program to arrange the given set of names in alphabetical order.
7. a) Program to illustrate the use of pointers in arithmetic operations
b) Program to compute the sum of all elements stored in an array using pointers.
c) Program to swap the two values using pointers 8. Program to prepare mark sheet using .

Course Outcomes

On completion of the Course, Students should be able to

- Understanding a functional hierarchical code organization.
- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.
- Understanding a concept of object thinking within the framework of functional model.

CORE COURSE III
OFFICE AUTOMATION LAB

Internal	:40	Semester	:I
External	:60	No. of Hours/Week	:2
Exam Hours	: 3	Credit	:2

Course Objectives:

- Office tools course would enable the students in crafting professional word documents, excel spread sheets, power point presentations using the Microsoft suite of office tools.
- Give students an in-depth understanding of why computers are essential components in business, education and society.
- Provide foundational or “computer literacy” curriculum that prepares students for life-long learning of computer concepts and skills.
- To acquire knowledge on editor, spread sheet and presentation software.
- To train them to work on the comment based activities in MS-office system

MS-WORD

1. Text Manipulation – Change the font size and type, Aligning and Justification of text, Underlining the text, indenting the text
 - a) Prepare a Bio-data
 - b) Prepare a letter
2. Using Bullets and Numbering in Paragraphs, Footer and Header, Finding and Replacing Text and Checking Spelling
 - a) Prepare any document
 - b) Prepare any document in newspaper format
3. Tables and Manipulations – Creation, Insertion and Deletion (Rows and Columns) and Usage of Auto Format
 - a) Create a Mark sheet and find total mark, average and result
 - b) Create a calendar and Auto Format it.
4. Picture Insertion and Alignment - Prepare a handout
5. Using Mail Merge
 - a) Prepare a business letter
 - b) Prepare an invitation

MS-EXCEL

1. Usage of Formulae and Built-in Functions.
2. Editing Cells and Using Commands and Functions
3. Moving and Copying, Inserting and Deleting Rows and Columns
4. Paybill Preparation

MS-POWERPOINT

Preparation and Manipulation of Slides

Course Outcomes:

On completion of the Course, Students should be able to

- To perform documentation activities
- To execute accounting operations
- To enhance presentation skills
- To work on Document Management Systems
- Format Text, Paragraphs, and sections, and
- To Create and manage documents

CORE COURSE (CC) - IV
OBJECT ORIENTED PROGRAMMING USING C++

Internal Marks	: 25	Semester	:II
External Marks	:75	No. of Hours/Week	:4
Exam Hrs	:3	Credit	:4

Course Objectives:

- To give the concepts of object oriented programming and to impart the programming skills in C++.
- Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
- Understand dynamic memory management techniques
- Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
- Demonstrate the use of various OOPs concepts with the help of programs

UNIT I PRINCIPLES OF OBJECT ORIENTED PROGRAMMING

Object Oriented Programming Paradigm - Basic Concepts and Benefits of OOP – Object Oriented Language - Application of OOP - Structure of C++ - Applications of C++ - Tokens, Expressions - Conditional Statements and Looping Structures - Operators on C++ - Manipulators.

(Content – 10 Hrs, Assessment-2 Hrs)

(12 Hrs)

UNIT II FUNCTIONS IN C++

Function Prototyping - Call by Reference - Return by Reference - Inline Functions – Default Arguments - Constructor Arguments - Function Overloading - Friend and Virtual Functions - Classes and Objects - Member Functions - Nesting of Member Functions – Private Member Functions - Memory Allocation of Objects - Static Data Members – Static Member Functions - Arrays of Objects – Objects as Function Arguments .

(Content – 10 Hrs, Assessment-2 Hrs)

(12 Hrs)

UNIT III CONSTRUCTORS

Parameterized Constructors – Multiple Constructors - Constructor with Default Parameters - Copy and Dynamic Constructors - Destructors - Operator Overloading - Overloading Unary and Binary Operators - Overloading Operators using Friend Function.

(Content – 10 Hrs, Assessment-2 Hrs)

(12 Hrs)

UNIT IV INHERITANCE

Defining Derived Classes - Single Inheritance - Making a Private Member Inheritable - Multiple Inheritance – Hybrid Inheritance - Virtual Base Class - Abstract classes - Constructors in Derived Class - Member Classes - Nesting of Classes.

(Content – 10 Hrs, Assessment-2 Hrs)

(12 Hrs)

UNIT V STREAMS FORMATTED AND UNFORMATTED I/O:

Defined Manipulators - File I/O - Reading and Writing - Various Functions.

Exception Handling: try - throw - catch Statements – Re-throwing.

(Content – 10 Hrs, Assessment-2 Hrs)

(12 Hrs)

Text Book:

E. Balagurusamy, “Object Oriented Programming with C++”, TMG, 7th Ed., New Delhi, 2017.

Reference Books:

1. Robert Lafore, “Object Oriented Programming in Microsoft C++”, Galgotia Publications, New Delhi, 2000.
2. Bjarne Stroustrup, “The C++ Programming Language”, Addison- Wesley, 4th ed., 2013

Web-Resources:

<https://www.w3schools.com/cpp/>

<http://nptelvideos.com/video.php?id=2187&c=28>

Course Outcomes:

On completion of the Course, Students should be able to

- Learn the basic concepts in Object-Oriented programming
- Develop programming skills by applying Object-Oriented programming
- Discuss the function overloading and Member Functions
- Understand the concepts of Constructors and Inheritance
- An Ability to incorporate Exception Handling in Object-Oriented programs
- Analyze File Input/Output Streams

CORE COURSE-V (CC)
PROGRAMMING IN C++ LAB

Internal Marks	: 40	Semester	: II
External Marks	:60	No. of Hours/Week	: 4
Exam Hrs	:3	Credit	: 2

Course Objectives:

- To understand the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
- Understand how to produce object-oriented software using C++
- To familiarize the students with language environment.
- To implement various concepts related to language.
- Be able to understand the difference between object oriented programming and procedural oriented language and data types in C++.

List of Practicals:

1. a) Program to find factorial of a given number.
b) Program to convert dollars to rupees.
2. Program to illustrate the call by value and call by reference
3. Define a class to represent a bank account. Include the following members:

Data members : Name of the depositor, Account number, Type of account Balance amount in the account
Member functions : To assign initial values, To deposit an amount, To withdraw an amount after checking the balance, To display the name and balance. Write a main program to invoke the member functions.

Consider a shopping list of items for which orders are placed with a dealer. The list should include the code number and price of each item. Operations such as adding an item to the list, deleting an item from the list and printing the total value of the order are to be provided for. Write a program to implement the above using a class with arrays as data members.

4. a) Program to find the largest of three numbers using inline function.
b) Program to find mean of 'N' numbers using friend function.
5. a) Program to find volume of cube, cylinder and rectangular box using function overloading.
b) Program to add two times in hours and minutes format using objects as function arguments.
6. Program to illustrate the use of arrays of objects.
7. Program to add two complex numbers using overloaded constructors

8. Program to illustrate unary and binary operator overloading

9. Program to check whether the given string is a palindrome or not using pointer method.

10. Program to read the derived class data members such as name, roll number, sex, height and weight from the keyboard and display the contents of a class on the screen. Write a program to demonstrate a single inheritance.

Course Outcomes:

On completion of the Course, Students should be able to

- After the completion of this course, the students will be able to develop applications.
- Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
- Understand dynamic memory management techniques using pointers, constructors, destructors, etc
- Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
- Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
- Demonstrate the use of various OOPs concepts with the help of programs.

CORE COURSE-VI (CC)

DATA STRUCTURES AND ALGORITHMS

Internal Marks : 25	Semester : III
External Marks : 75	No. of Hours/Week : 5
Exam Hrs : 3	Credit : 5

Course Objectives:

- To impart the basic concepts of data structures and algorithms
- To understand concepts about searching and sorting techniques
- To Understand basic concepts about stacks, queues, lists, trees and graphs
- To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures
- To Solve problems based upon different data structure & also write programs.

UNIT I INTRODUCTION AND OVERVIEW

Introduction – Basic Terminology - Elementary Data Organization - Data Structures - Data Structure Operations. **ARRAYS:** Introduction - Linear Arrays - Representation – Traversing Insertion and Deletion. **SEARCHING:** Linear Search - Binary Search.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT II LINKED LISTS

Introduction - Linked Lists - Representation of Linked List in Memory - Traversing a Linked List - Searching a Linked List – Memory Allocation, Garbage Collection - Insertion into a Linked List - Deletion from a Linked List.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT III STACKS, QUEUES AND RECURSION

Introduction - Stacks – Array Representations of Stacks - Arithmetic Expressions- Polish Notation - **Recursion:** Factorial Function and Fibonacci Sequence .**QUEUES:** Representation of Queues - Array Representation of Queues.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT IV TREES

Introduction - Binary Trees - Representing Binary Tress in Memory – Traversing Binary Trees- Binary Search Tree- Searching and Inserting in Binary Search Trees - Deleting in Binary Search Trees. **SORTING:** Introduction -Insertion Sort - Selection Sort - Merge Sort - Heap Sort – Quick Sort.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT V THE COMPLETE DEVELOPMENT OF AN ALGORITHM

Algorithms – Basic Steps. **Algorithm Design Methods:** Sub goals – Hill Climbing and Working Backward – Heuristics – Backtrack Programming – Branch and Bound.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

Text Books:

1. Seymour Lipschutz, “Data Structures”, Tata McGraw Hill Publishing Company Limited, New Delhi, 2014. UNITS: I, II, III & IV
2. S.E. Goodman and S.T. Hedetniemi, “Introduction to the Design and Analysis of Algorithms”, Tata McGrawHill, International Edition, 1987. UNIT: V

Reference Books:

1. Ellis Horowitz, SartajSahni and Dinesh Mehta, “Fundamentals of Data Structures in C++”, University Press (India) Pvt. Ltd., Hyderabad, 2007.
2. Yashavant P. Kanetkar, “Data Structures Through C++”, BPB Publications, 2008.

Web-Resources:

https://www.iare.ac.in/sites/default/files/lecture_notes/IARE_DS_LECTURE_NOTES_2.pdf

https://ece.uwaterloo.ca/~dwharder/aads/Lecture_materials/#lists-stacks-queues

http://www.vssut.ac.in/lecture_notes/lecture1428550942.pdf

Course Outcomes:

- On completion of the Course, Students should be able to
- Learn the fundamental Concepts of Data Structures
 - Understand the working principles of Linked List, Stack, Queue and Trees.
 - Determine the applications of Linked List, Stack, Queue and Trees.
 - Grasp various operations and searching methods applied using Binary Tree.
 - Demonstrate understanding of various sorting algorithms, including insertion sort, selection sort, merge sort, heap sort and quick sort.
 - Comprehend various Algorithm Design Strategies.

CORE COURSE (CC) VII
DATA STRUCTURES AND ALGORITHMS USING C++ LAB

Internal Marks	: 40	Semester	:III
External Marks	:60	No. of Hours/Week	: 4
Exam Hrs	:3	Credit	: 3

Course Objectives:

- To understand basic data structures such as arrays, linked lists, stacks and queues
- Know about the basic concepts of Function, Array and Link-list.
- Understand how several fundamental algorithms work particularly those concerned with Stack, Queues, Trees and various Sorting algorithms.
- Understand how work the graphs, trees and heaps function
- Design new algorithms or modify existing ones for new applications and able to analyze the space & time efficiency of most algorithms.

List of Practicals

1. Merging two arrays into a single array.
2. To find the following in a matrix:
 - i. Row Sum
 - ii. Column Sum
 - iii. Sum of all the elements
3. Matrix Addition and Multiplication operations
4. To find an element using Sequential and binary search.
5. Perform the following types of Sorting: i. Bubble sort ii. Insertion sort iii. Selection sort
6. To find the Factorial of a number using Recursion
7. To PUSH and POP an element from STACK
8. To Insert and Delete an element from QUEUE.
9. To insert and delete a node in a linked list.
10. Program to traverse a binary tree

Course Outcomes:

On completion of the Course, Students should be able to

- Describe the hash function and concepts of collision and its resolution methods
- Solve problem involving graphs, trees and heaps
- Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.
- To analyze the problems to apply suitable algorithm and data structure.
- To use appropriate algorithmic strategy for better efficiency.

NON MAJOR ELECTIVE I
WEB DESIGNING LAB

Internal Marks	: 40	Semester	: III
External Marks	: 60	No. of Hours/Week	: 2
Exam Hrs	:3	Credit	: 2

Course Objectives:

- To understand the importance of the web as an effective medium of communication.
- To develop basic skills in analyzing the usability of a web site.
- To develop hands on experience using open source technologies such as HTML, CSS, JavaScript, PHP and MySQL.
- To implement static, dynamic and interactive web pages and web applications.
- To be able to analyze the available open source technologies and select the appropriate one based on need.

List of Practicals

1. Design a Bio-Data Form.
2. Create a Web Page With Four Frame (Picture, Table, List, Hyperlink).
3. Write a Program to show all Character Entities.
4. To Create a Web Page in HTML to Show the Block Level Elements and Text Level Elements.
5. Create your own page with your favourite hobbies.
6. A Web Page in HTML to show books in inventory in different tables using Row Span and Column Span.
7. Create a Web Page in HTML to show Admission form.
8. A Web Page in HTML to show your resume using appropriate Formatting Elements.
9. A Web Page in HTML to show all the Text, Color, Background and Font Elements.
10. Write a Program to Create a Nested List.

Course Outcomes:

On completion of the Course, Students should be able to

- Develop skills in analyzing the usability of a web site.
- Understand how to plan and conduct user research related to web usability.
- Design, develop and host a user friendly website.
- Know the usage of APIs.
- Layout management in line with current trend.

CORE COURSE VIII (CC) JAVA PROGRAMMING

Internal Marks	: 25	Semester	:IV
External Marks	:75	No. of Hours/Week	:5
Exam Hrs	:3	Credit	:5

Course Objectives:

- Programming in the Java programming language,
- Knowledge of object-oriented paradigm in the Java programming language,
- The use of Java in a variety of technologies and on different platforms.
- To learn why Java is useful for the design of desktop and web applications.
- To learn how to implement object-oriented designs with Java.
- To identify Java language components and how they work together in applications.

UNIT I BASIC CONCEPTS OF OOPS

Benefits of OOPS- Java History-Java Features- Java Environment- Java Tokens- Constants- Variables- Data Types - Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT II CLASSES, OBJECTS AND METHODS

Classes and Objects- Constructors- Method Overloading- Static Members- Inheritance- Overriding Methods- Final Variables, Final Methods and Final Classes - Finalizer Method- Abstract Methods and Abstract Classes - Visibility Control - Arrays - Strings.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT III INTERFACES

Defining Interface- Extending Interfaces- Implementing Interfaces- Packages- Multithreaded Programming: Thread Life Cycle - Thread Exceptions – Thread Priority-Synchronization.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT IV MANAGING ERRORS AND EXCEPTIONS

Types of Errors- Exceptions- Syntax of Exception Handling Code-Multiple Catch Statements- Using Finally Statements- Managing Input / Output Files in Java: Concept of Streams-

Stream Classes- Character Stream Classes- Reading / Writing Characters- Reading / Writing Bytes- Handling Primitive Data Types- Random Access files.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

UNIT V AWT

Event Handling Methods- Labels- Button Control- Check Box Control- Radio Button Control- Choice Control- List Control-Flow Layout- Border Layout- Grid Layout- Menus- Mouse Events- Applets: Life cycle of an Applet- Development and Execution of a Simple Applet.

(Content – 13 Hrs, Assessment-2 Hrs)

(15 Hrs)

Text Books:

1. E.Balagurusamy, “Programming with JAVA”, Tata McGraw Hill, New Delhi, 4th edition.
(UNIT I,II,III,IV)
2. C. Muthu, “Programming with JAVA”, Vijay Nicole Imprints Private Limited, Chennai, Second Edition, 2011. (UNIT V)

Reference Book:

Herbert Schildt, Complete Reference Java 2, Tata McGraw-Hill Publishing Company Limited, Fifth Edition, 2009.

Web-Resources:

http://www.math.hcmuns.edu.vn/~hvthao/courses/java_programming/lecture_notes/
https://mrcet.com/downloads/digital_notes/CSE/II%20Year/JAVA%20PROGRAMMING_19.11.2018.pdf
http://www.crectirupati.com/sites/default/files/lecture_notes/PRKJAVA-1.pdf

Course Outcomes:

On completion of the Course, Students should be able to

- Upon successful completion, students will have the knowledge and skills to:
- Read and understand Java-based software code of medium-to-high complexity.
- Use standard and third party Java's API's when writing applications.
- Understand the basic principles of creating Java applications with graphical user interface (GUI).
- Create rich user-interface applications using modern API's such as JAVAFX.

**CORE COURSE (CC) IX
JAVA PROGRAMMING LAB**

Internal Marks	: 40	Semester	:IV
External Marks	: 60	No. of Hours/Week	:3
Exam Hrs	:3	Credit	:2

Course Objective:

- Understand fundamentals of programming such as variables, conditional and iterative execution, APIs etc.
- Understand fundamentals of object oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
- Have the ability to write computer programs to solve specific problems.
- Be able to use the Java SDK environment to create, debug and run Java programs.
- To implement frontend and backend of an application

List of Practicals

1. 1. Write simple programs to demonstrate
 - a) The various forms of inputs in Java
 - b) Operators and expressions
 - c) Control statements
2. Write a Java Program to define a class, describe its constructor, and instantiate its Object
3. Write a Java Program to demonstrate method overloading
4. Write a Java Program to demonstrate single and two Dimensional arrays.
5. Write a Java program to demonstrate various methods in the String and StringBuffer class.
6. Write a Java Program to demonstrate methods in the Vector class.
7. Write a Java Program to implement single inheritance
8. Write a Java Program to implement multiple inheritance
9. Write a Java program to implement the concept of importing classes from user defined package and creating packages.
10. Write a Java program to implement the concept of threading by using Thread class and Runnable interface.
11. Write a Java program to implement the concept of Exception Handling.
12. Write a Java program using Applet
 - a) to display a message.

b) for passing parameters.

13. Write a Java programs for using Graphics class to display basic shapes and fill them and set background and foreground colors.

14. Write a Java program to demonstrate use of I/O streams.

Course Outcomes:

On completion of the Course, Students should be able to

- Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
- Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
- Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
- Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.

SKILL BASED COURSE I
MULTIMEDIA LAB

Internal Marks : 40
External Marks : 60
Exam Hrs :3

Semester :IV
No. of Hours/Week :2
Credit :2

Course Objectives:

- To understand about data compression techniques, image compression techniques like JPEG, video compression techniques like MPEG, and the basic concepts about animation.
- To offer the knowledge of creating and working with digital images .
- To manipulate them and to develop a presentation package using multimedia tools.
- To give an overall view of multimedia tools.
- To understand and differentiate text, image, video & audio.

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. 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.
5. To Change A Circle Into a Square Using Flash.

GIMP (Photoshop Equivalent)

1. Cropping images using Lasso Tools
2. Designing Pictures using Paint Tools
3. Designing Text using Text Tools
4. Applying Layer Effects to Images and Texts
5. Designing an Employee or Student ID card
6. Designing a seasonal greetings
7. Design a photograph applying Filter effects
8. Design an invitation for a conference
9. Design a brochure or poster for a technical symposium
10. Design a Web banner for a website

Course Outcomes:

On completion of the Course, Students should be able to do

- To learn and understand technical aspect of Multimedia System
- Design and implement an animation for various themes.
- Prepare multimedia advertisement...
- Develop various Multimedia Systems applicable in real time.
- To develop multimedia application and analyze the performance of the same.

**NON MAJOR ELECTIVE (NME) II
ANIMATION LAB**

Internal Marks : 40	Semester :IV
External Marks : 60	No. of Hours/Week :2
Exam Hrs : 3	Credit :2

Course Objectives:

- To give an overall view of multimedia tools.
- To understand and differentiate text, image, video & audio
- To create animated sequences from the development of the original concept through design to video production.
- The computer graphics course prepares students for activities involving in design, development and testing of modeling, rendering, shading and animation.
- To understand about data compression techniques, image compression techniques like JPEG, video compression techniques like MPEG, and the basic concepts about animation.

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

Photoshop

1. Illustrate the use of Blur tool using an Image.
2. Create a new layer and load an image on to it. Add a text object using Horizontal type mask tool and vertical mask tool.
3. Illustrate the use of Crop tool using an image.

Course Outcomes:

On completion of the Course, Students should be able to

- Communicate ideas, believable action and emotion effectively by employing principles of *animation* and performance in all aspects of drawing.
- Integrate the concepts, principles and theories involved in the physics of animation in all aspects of drawing.
- Design layouts and backgrounds that incorporate principles of composition, perspective and colour, with speed, accuracy and dexterity, using a variety of media.
- Using OpenGL for Graphics
- Programming User-interface issues

CORE COURSE (CC) X
COMPUTER ORGANIZATION AND ARCHITECTURE

Internal Marks	: 25	Semester	:V
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:5

Course Objectives:

- To understand the principles of digital logic circuits & their design.
- To understand the working of a central processing unit architecture of a computer.
- Study basic computer organization, design and micro-operations.
- Understanding of CPU functioning and computer arithmetic.
- Learning various methods and techniques of memory organization.

UNIT I BASIC COMPUTER AND DESIGN

Instruction codes – Computer Instructions – Timing and control – execution of instruction – input / output and interrupt.

(Content – 15 Hrs, Assessment-3 Hrs) (18 Hrs)

UNIT II CENTRAL PROCESSOR ORGANIZATION

Processor – bus organization – ALU – Stack Organization – instruction format – Addressing modes – data transfer and manipulation –program control – microprocessor organization – parallel processing. Micro program control organization – control - memory – address – sequencing – micro – program sequence – micro instruction formats.

(Content – 15 Hrs, Assessment-3 Hrs) (18 Hrs)

UNIT III ARITHMETIC PROCESSOR DESIGN

Comparison and subtraction of unsigned binary number – Addition and subtraction algorithm – multiplication algorithm –division algorithm – processor configuration.

(Content – 15 Hrs, Assessment-3 Hrs) (18 Hrs)

UNIT IV INPUT – OUTPUT ORGANIZATION

Peripheral device – I/o interface – asynchronous data transfer – direct memory access input output processor – priority interrupt – multiprocessor system organization.

(Content – 15 Hrs, Assessment-3 Hrs) (18 Hrs)

UNIT V MEMORY

Volatile and non volatile memory – RAM – ROM – digital recording – techniques – auxiliary memory – microcomputer memory – hierarchy – associative memory – virtual memory cache memory.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Book:

”Computer System Architecture”, M.Morris Mano “Digital Computer Fundamentals”, Thomas C.Bartee.

Reference Book:

Computer Organization and Programming – C.W. Gean.

Web-Resources:

<https://nptel.ac.in/courses/106103068/pdf/coa.pdf>

<http://www.svecw.edu.in/Docs%5CITIIBTechIIISemLecCOA.pdf>

Course Outcomes:

On completion of the Course, Students should be able to

- Conceptualize the basics of organizational and architectural issues of a digital computer.
- Analyze processor performance improvement using instruction level parallelism.
- Articulate design issues in the development of processor or other components that satisfy design requirements and objectives.
- Learn various methods and techniques of memory organization.
- Learn the function of each element of a memory hierarchy.

**CORE COURSE (CC) XI
OPERATING SYSTEMS**

Internal Marks	: 25	Semester	:V
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- To gain the basic knowledge about the operating systems and its various schemes and services.
- To make students able to learn different types of operating systems along with concept of file systems and CPU scheduling algorithms used in operating system.
- To provide students knowledge of memory management and deadlock handling algorithms
- At the end of the course, students will be able to implement various algorithms required for management, scheduling, allocation and communication used in 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.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

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-Selection Problem – Semaphores. **DEADLOCKS:** System Model - Methods for Handling Deadlocks - Deadlock Avoidance - Recovery from Deadlock.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT III

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

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

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.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V

PROTECTION: Goals of Protection - Access Matrix - Capability Based Systems - Language-based Protection. **SECURITY:** The Security Problem - Authentication - Security Systems and Facilities - Encryption. **DISTRIBUTED SYSTEMS:** Distributed System Structures- Background – **Distribution Coordination:** Mutual Exclusion- Atomicity – Concurrency Control – Deadlock Handling- Election Algorithms.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Book:

Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, 9th Ed., John Wiley & Sons Inc., New Delhi 2013.

Reference Books:

1. Harvey M. Deitel, “An Introduction to Operating System”, 3rd ed., Addison Wesley, New York, 2003.
2. Andrew S. Tanenbaum, “Modern Operating Systems”, 4th ed., Prentice Hall, New Delhi, 2014.

Web-Resources:

<http://www.svecw.edu.in/Docs%5CCSEOSLNotes2013.pdf>

http://www.crectirupati.com/sites/default/files/lecture_notes/Operating%20Systems%20Lecture%20Notes.pdf

Course Outcomes:

On completion of the Course, Students should be able to

- Understand the basic concept of Computer System and Operating System Structure
- Gain Knowledge of the fundamental aspects of process and processor managements with deadlocks and CPU scheduling
- Introduce memory and virtual memory techniques
- Understand files, directories and its accessing methods and its structures
- Ability to know mass storage devices and its scheduling
- Understand the security on the operating system and protection mechanisms.

**CORE COURSE (CC) XII
DATABASE SYSTEMS**

Internal Marks	: 25	Semester	:V
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- Distinguish between data and information and Knowledge
- Distinguish between file processing system and DBMS
- Describe DBMS its advantages and disadvantages
- Describe Database users including data base administrator
- Describe data models, schemas and instances.
- Describe DBMS Architecture & Data Independence • Describe Data Language

UNIT I

Introduction: Database System Applications –Database Languages – Transaction Management – Database Architecture – Database users and Administrators - **Relational Model:** Structure of Relational Databases – Database Design – ER Model – The Entity-relationship Model – Constraints – Entity Relationship Diagrams.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT II

Relational Algebra Operations – **Relational Languages:** The Tuple Relational Calculus – The Domain Relational Calculus – **SQL:** Background – Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate Functions – Null Values – Nested Sub-Queries – Views – Modification of the Database.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT III

Data Normalization: Pitfalls in Relational Database Design – Decomposition – Functional Dependencies – Normalization – First Normal Form – Second Normal Form – Third Normal Form – Boyce- Codd Normal Form – Fourth Normal Form – Fifth Normal Form – Denormalization – **Database Security:** Data Security Requirements – Protecting the Data within the Database – Granting and Revoking Privileges – Data Encryption.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT IV

PL/SQL: A Programming Language: History – Fundamentals – Block Structure –Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables –

Substitution Variables – Printing – Arithmetic Operators. Control Structures and **Embedded SQL**: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V

PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Books:

1.“Database System Concepts”, Abraham Silberschatz, Henry F.Korth, .Sudarshan, TMH 5th Edition (Units - I, II,)

2.“Fundamentals of Database Management Systems”, Alexis Leon, Mathews Leon, Vijay Nicole Imprints Private Limited. (Unit – III)

3.“Database Systems Using Oracle” Nilesh Shah, 2nd edition, PHI.UNIT-IV: Chapters 10 & 11 UNIT-V: Chapters 12, 13 & 14)

Reference Book:

Text Book of RDBMS (Relational Database Management Systems)- By Mrs Vidya H. Bankar, Mrs DeepaShree K, Mehendale, Mrs Sujatha P. Patel

Web-Resources:

<http://www.svecw.edu.in/Docs%5CITIIBTechIIISemLecDBMS.pdf>

http://www.kciti.edu/wp-content/uploads/2017/07/dbms_tutorial.pdf

Course Outcomes:

On completion of the Course, Students should be able to

- Emphasize the need, role, importance and uses of databases in application development
- Design E-R modeling for a given situation and provide the foundation for development of relational database structure.
- Identify the advantages of the database approach over the file based data storage system.
- Distinguish between different models of file organizing, storing and using of data.
- Understand the relational model and relational algebra operations.
- Normalize the relational tables applying normalization rules.
- Apply PL/SQL procedural interfaces statement on relational tables as per requirements.

MAJOR BASED ELECTIVE (MBE) I

ASP.NET

Internal Marks	: 25	Semester	:V
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- This course is designed to provide the knowledge of Dot Net Frameworks along with ASP.Net and C#
- Set up a programming environment for ASP.net programs.
- Configure an asp.net application.
- Creating ASP.Net applications using standard .net controls.
- Develop a data driven web application.
- Connecting to data sources and managing them.

UNIT I INTRODUCTION

The .NET Framework – Course .NET Languages – Understanding Namespaces & Assemblies – Setting up ASP.NET and IIS. **Using Visual Studio.Net:** Starting VS.NET Project – Web Form Designer – Writing Code.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT II WEB CONTROLS

Stepping Up to Web Controls – Web Control Classes – AutoPostBack and Web Control Events. **Validation & Rich Controls:** Calendar – AdRotator – Validation Validation – Understanding Regular Expression.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT III STATE MANAGEMENT

View State – Transferring Information-Cookies – Session State – Session State Configuration – Application State. **ADO.NET OVERVIEW:** Characteristics of ADO.NET – ADO.NET Object Model.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT IV ADO.NET DATA ACCESS

Creating a Connection – Using Command with Data Reader – Updating Data – Accessing Disconnected Data. **Datalist And Datagrid:** Using Templates with DataList – Data

Binding with Multiple Templates – Selecting Items – Editing Items – Paging with DataGrid – Sorting with DataGrid.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V USING XML

Basics – XML Classes – XML Validation – XML Display and Transforms – XML in ADO.NET – **Caching And Performance Tuning:** Caching – Data Caching.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Book:

Mathew MacDonald, “ASP.NET: The Complete Reference”, Tata McGraw Hill Ltd., New Delhi, 2017.

Reference Book:

Dr. C. Muthu, “ASP.NET”, Shalom InfoTech Pvt. Ltd., 2011.

Web-Resources:

<http://sigc.edu/department/computerscience/studymet/AdvancedASP.NET.pdf>

http://www.mentor.com/docs/Traindocs/dotNET_Tutorial_for_Beginners.pdf

Course Outcomes:

On completion of the Course, Students should be able to

- Understand the fundamental concepts of .NET framework
- Discuss the use of various web controls and rich controls
- Infer State Management techniques in asp.net webpages
- Discuss and extend data list and data grid controls
- Demonstrate the database connectivity in ASP.NET
- Comprehend the need for XML in performance tuning

**MAJOR BASED ELECTIVE (MBE) I
SOFTWARE ENGINEERING**

Internal Marks	: 25	Semester	:V
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- Knowledge of basic SW engineering methods and practices, and their appropriate application.
- Describe software engineering layered technology and Process frame work.
- A general understanding of software process models such as the waterfall and evolutionary models.
- Understanding of software requirements and the SRS documents.
- Understanding of the role of project management including planning, scheduling, risk management, etc.

UNIT I INTRODUCTION TO SOFTWARE ENGINEERING

Definitions, Size factors- Quality and Productivity Factors – Managerial Issues – Planning a Software Project: Defining the Problem – Developing a Solution Strategy – Planning the Development Process – Planning an Organizational Structure.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT II SOFTWARE COST ESTIMATION

Software Cost Factors – Software Cost Estimation Techniques – Staffing Level Estimation – Estimating Software Maintenance Costs – Software Requirements Definition: The Software Requirements Specification – Formal Specification Techniques – State Oriented Notations.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT III SOFTWARE DESIGN

Fundamental design concepts – Modules and Modularization criteria – Design Notations – Design Techniques.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT IV IMPLEMENTATION ISSUES

Structured coding techniques – Coding Style – Modern programming language Features: Type checking – User-defined data types – Data abstraction – Scoping Rules.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V VERIFICATION AND VALIDATION TECHNIQUES

Quality Assurance – Walkthroughs and Inspections – Unit Testing and Debugging – System Testing – Formal Verification – Software Maintenance: Enhancing Maintainability during development – Managerial Aspects of Software maintenance.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Book:

Richard Fairley, Software Engineering Concepts, TMH, 30th Reprint, 2008.

Reference Book:

Roger S. Pressman, Software Engineering: A Practitioner's Approach, TMH, Fourth Edition.

UNIT I : Chapter 1 (1.1, 1.2, 1.3, 1.4), Chapter 2 (2.1 – 2.4)

UNIT II :Chapter-3(3.1–3.4),Chapter-4(4.1,4.2.2)

UNIT III :Chapter-5(5.1–5.4)

UNITIV :Chapter-6(6.1,6.2),Chapter7(7.1,7.3,7.4,7.5)

UNIT V : Chapter -8 (8.1, 8.2, 8.5, 8.6, 8.7), Chapter 9 (9.1, 9.2)

Web-Resources:

http://www.vssut.ac.in/lecture_notes/lecture1428551142.pdf

<https://nptel.ac.in/downloads/106105087/>

Course Outcomes:

On completion of the Course, Students should be able to

- Plan a software engineering process life cycle , including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements.
- Able to elicit, analyze and specify software requirements through a productive working relationship with various stakeholders of the project.
- Analyze and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology.
- Know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice.
- Able to use modern engineering tools necessary for software project management, time management and software reuse.

SKILL BASED COURSE II
DATABASE SYSTEMS LAB

Internal Marks : 40

Semester :V

External Marks : 60

No. of Hours/Week :2

Exam Hrs :3

Credit :2

Course Objectives:

- To acquire skills in SQL statements with various constructs
- To acquire skills in PL/SQL Programming
- To practice with stored Objects,functions,procedures,triggers
- Design different views of tables for different users and to apply embedded and nested queries.
- Design and implement a database for a given problem according to well known design principles that balance data retrieval performance with data consistency.

List of Practical'ss

1. Creating, modifying and dropping Tables.
2. Inserting, modifying and deleting rows.
3. Working with Decode and case.
4. Creating tables with Adding , Dropping ,disabling /enabling constraints.
5. Retrieving rows with Character functions.
6. Retrieving rows with Number and Date functions.
7. Retrieving rows with Group functions and HAVING.
8. Retrieving rows with Sub Queries.
9. PL/SQL programs with control structures.
10. PL/SQL programs with Cursors.
11. PL/SQL programs with Exception Handling.
12. PL/SQL programs with Triggers.

Course Outcomes

On completion of the Course, Students should be able to

- Design and implement a database schema for a given problem-domain
- Normalize a database
- Declare and enforce integrity constraints on a database using a state-of-the-artRDBMS
- Programming PL/SQL including stored procedures, stored functions, cursors,packages

SKILL BASED COURSE III

ASP.Net LAB

Internal Marks	: 40	Semester	:V
External Marks	: 60	No. of Hours/Week	:2
Exam Hrs	:3	Credit	:2

Course Objectives:

- To enable the students to learn the fundamental concepts of ASP.NET.
- Maintain session and controls related information for user used in multi-user web applications
- Understand the fundamentals of developing modular application by using object oriented methodologies
- Use AJAX to create partial-page updates that refresh only the parts of the Web page that have changed.
- Connecting to data sources and managing them.

List of Practical's:

1. Form Design using Various Web Controls
2. Ad Rotator and Calendar Control, Login Control (Page should expire after 3 wrong attempts)
3. Validation Controls
4. Cookie Manipulation
5. State Management (using Session and Application)
6. Data Retrieval, Updating using ADO.NET (using Stored Procedure)
7. Template Creation using DataList and DataGrid
8. Sorting and Paging using DataGrid
9. Day Planner Preparation using XML and ADO•NET
10. Data Caching

Course Outcomes:

On completion of the Course, Students should be able to

- Design forms using various web controls
- Apply rich controls and validation controls to the web page
- Illustrate cookies, session and application state in a web page
- Create and manipulate the data in the database using ADO.NET.
- Create a template using data list and data grid
- Build an application using XML

SOFT SKILL DEVELOPMENT

Internal Marks : 25

Semester :V

External Marks :75

No. of Hours/Week :2

Exam Hrs :3

Credit :2

UNIT I KNOW THYSELF/UNDERSTANDING SELF

Introduction to soft skills-Self discovery-Developing positive attitude – Improving perceptions – Forming values.

(Content – 4 Hrs, Assessment-2 Hrs)

(6 Hrs)

UNIT II INTERPERSONAL SKILLS / UNDERSTANDING OTHERS

Developing interpersonal relationships-Team building–Group dynamics-Networking-Improved work relationship.

(Content – 4 Hrs, Assessment-2 Hrs)

(6 Hrs)

UNIT III COMMUNICATION SKILLS / COMMUNICATION WITH OTHERS

Art of listening-Art of Reading- Art of Speaking-Art of Writing-Art of Writing E-Mail-E-Mail Etiquette.

(Content – 4 Hrs, Assessment-2 Hrs)

(6 Hrs)

UNIT IV CORPORATE SKILLS / WORKING WITH OTHERS

Developing Body Language-Practising Etiquette and Memorism –Time Management-Stress Management.

(Content – 4 Hrs, Assessment-2 Hrs)

(6 Hrs)

UNIT V SELLING SELF/JOB HUNTING

Writing Resume / CV-Interview Skills-Group Discussion-Mock Interview-Mock GD-Goal Setting-Career Planning.

(Content – 4 Hrs, Assessment-2 Hrs)

(6 Hrs)

Text Book:

A Book an Development Of Soft Skill Dr. K. Meena & Dr.V. Ayothi. Soft Skills-Dr. K. Alex & Chand Company.

Reference Books:

1. Developing the leader within you John C. Maxwell
2. Good to Great by Jim Collins.

CORE COURSE (CC) XIII
COMMUNICATIONS NETWORKING

Internal Marks	: 25	Semester	:VI
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- Describe how computer networks are organized with the concept of layered approach.
- Describe how signals are used to transfer data between nodes.
- Implement a simple LAN with hubs, bridges and switches.
- Describe how packets in the Internet are delivered.
- Analyze the contents in a given Data Link layer packet, based on the layer concept.

UNIT I DATA COMMUNICATIONS

Networks - Protocols and Standards. **Network Models:** The OSI Model - Layers in the OSI Model - TCP / IP Protocol Suite - Addressing. **Physical Layer And Media:** Analog and Digital - Transmission Impairment – Performance - Guided Media – Unguided Media.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT II DATA LINK LAYER

Error Detection and Correction - Flow and Error Control – Protocols. **Wireless Lans:** IEEE 802.11 - Bluetooth. **Wireless Wans:** Satellite Networks - Categories of Satellites.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

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.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT IV 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.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V GSM AND SIMILAR ARCHITECTURES

GSM - Services and System Architecture - Radio Interfaces - Protocols - Localization - Calling – Handover - Security. GPRS: Switching modes -RSS - NSS and GSS Sub Systems - SGSN - CGSN - Signaling Protocol Layers. **Wireless Medium Access Control And Cdma-Based Communication:** Medium Access Control - Introduction to CDMA Based Systems.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Books:

1. Behrouz A. Forouzan, “Data Communications and Networking”, Tata McGraw Hill Publications, 5th Ed., New Delhi, 2012. Units: I, II & III
2. Raj Kamal, “Mobile Computing”, 2nd ed., Oxford University Press, New Delhi, 2010. Units: IV & V.

Reference Books:

1. Andrew S. Tanenbaum, “Computer Networks”, Pearson Education, 5th Ed., New Delhi, 2011.
2. William Stallings, “Data and Computer Communications”, Pearson Education, 10th Ed., New Delhi 2014.
3. Jochen Schiller, “Mobile Communication”, 2nd ed., Pearson Education, New Delhi, 2009.

Web-Resources:

http://www.vssut.ac.in/lecture_notes/lecture1428550521.pdf

<https://www.cse.iitk.ac.in/users/dheeraj/cs425/>

http://www.crectirupati.com/sites/default/files/lecture_notes/Computer%20Networks.pdf

Course Outcomes:

On completion of the Course, Students should be able to

- Learn the basic concepts of Data Communication and different layers
- Describe the working strategies of Wireless LAN and Wireless MAN
- Differentiate the various protocols used in communication
- Differentiate the IPv4 and IPv6 Addresses
- Familiarizes the basics of GSM and CDMA

CORE COURSE-XIV (CC)

MICROPROCESSOR AND ASSEMBLY LANGUAGES

Internal Marks	: 25	Semester	:VI
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- To understand the architecture and working principles of Microprocessors.
- To write simple assembly language programs and provide knowledge of various real time Microprocessor Applications.
- Introduction to the Architecture and programming of the microprocessor 8085.
- Learning about interfacing and various applications of microprocessor.
- To introduce students with the architecture and operation of typical microprocessors and microcontrollers.

UNIT I

Evolution of microprocessors- single chip- microcomputers- Memory-Semiconductor memory, cache memory, Associate and set associate memory, Real and virtual memory, magnetic memory, PCMCIA cards and slots- Buses- Memory address capacity of CPU- microcomputers- processing architecture-Intel 8085- Instruction cycle- timing diagram.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT II

Instruction set of Intel 8085- Instruction and data formats- Addressing modes- statue flags-INTEL 8085 Instructions- Programming of Microprocessors- Assemblers- stack and subroutines- macros and microprogramming.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT III

Assembly language programming- simple examples- Addition and subtraction of binary and decimal numbers- complements- shift- masking- finding, Max and Min numbers in an array - arranging a series of numbers- Multiplication, division- Multibyte Addition and subtraction.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT IV

Peripheral devices and interfacing- address space partitioning- Memory and I/O Interfacing data transfer schemes- Interrupts of Intel 8085- interfacing devices and I/O devices- I/O ports- Programmable peripheral Interface.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V

Microprocessor Applications- Delay subroutines- Interfacing of 7 segment LED displays- Frequency measurements- Temperature measurements and control- water level indicator – Microprocessors based Traffic control.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Book:

“**Fundamentals of microprocessors and microcomputers**”- Badri Ram- Fifth revised and enlarged edition- dhunpat rai publications- 2001

Reference Book:

“**Microprocessor Architecture, programming and application with the 8085/8080A**”- Romesh s. Gonakar- Pensam International publishers India-1997.

Web-Resources:

http://www.vssut.ac.in/lecture_notes/lecture1423813120.pdf

<https://nptel.ac.in/courses/Webcourse-contents/IISc->

BANG/Microprocessors%20and%20Microcontrollers/pdf/Lecture_Notes/LNm1.pdf

Course Outcomes:

On completion of the Course, Students should be able to

- Understand the taxonomy of microprocessors and knowledge of contemporary microprocessors.
- Describe the architecture, bus structure and memory organization of 8085 as well as higher order microprocessors.
- Explore techniques for interfacing I/O devices to the microprocessor 8085 including several specific standard I/O devices such as 8251 and 8255.
- Demonstrate programming using the various addressing modes and instruction set of 8085 microprocessor.
- Design structured, well commented , understandable assembly language programs to provide solutions to real world control problems.

CORE COURSE(CC) XV
MICROPROCESSOR LAB

Internal Marks	: 40	Semester	:VI
External Marks	:60	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:4

Course Objectives:

- To familiarize the students with the programming and interfacing of microprocessors and microcontrollers.
- To provide strong foundation for designing real world applications using microprocessors and microcontrollers.
- Assembly language programming will be studied as well as the design of various types of digital and analog interfaces
- Understand the architecture of 8085 and 8051.
- To introduce the basic concepts of *microprocessor* and to develop in students the assembly language programming skills and real time applications of *Microprocessor*.

Microprocessors Experiments

1. 8-bit addition, subtraction, multiplication and division
2. Multibyte addition and subtraction
3. Sum of series (8-bit)
4. Data transfer from one part of the memory to another
5. Maximum and minimum values
6. Sorting (Ascending and Descending order)
7. Hexadecimal to decimal and decimal to hexadecimal conversion (simple logic only)

Course Outcomes:

On completion of this lab course the students will be able to

- Understand and apply the fundamentals of assembly level programming of microprocessors.
- To develop in students the assembly language programming skills.
- Understand 8085 microprocessor kit, knowledge of 8085 instruction set and ability to utilize it in assembly language programming.
- Understand real mode Memory addressing and ability to interface various devices to the microprocessor.
- Provide practical hands-on experience with microprocessor applications and interfacing techniques.

MAJOR BASED ELECTIVE COURSE (MBE)-II
COMPUTER GRAPHICS

Internal Marks	: 25	Semester	:VI
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- To impart the basic principles of generating primitives, shapes, package development, interactive graphics, raster graphics, two and three dimensional graphics and their transformations.
- To provide comprehensive introduction about computer graphics system, design algorithms and two dimensional transformations.
- To make the students familiar with techniques of clipping, three dimensional graphics and three dimensional transformations.
- The computer graphics course prepares students for activities involving in design, development and testing of modeling, rendering, shading and animation.

UNIT I INTRODUCTION

Overview of Graphics Systems - Video Display Devices - Refresh Cathode Ray Tubes - Raster Scan and Random Scan Displays - Raster Scan and Random Scan Display Processor - Colour CRT Monitors – DVST - 3D Viewing Devices - Input Devices - Hard Copy Devices.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT II OUTPUT PRIMITIVES

Line drawing algorithms - DDA Line drawing algorithm - Bresenham's line drawing algorithm - Circle Drawing algorithms - Bresenham's circle drawing algorithm - Mid point circle drawing Algorithms - Area filling algorithms – Scan line algorithm – boundary fill algorithm – flood fill algorithm - character generation.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT III ATTRIBUTES OF OUTPUT PRIMITIVES

Line attributes – Curve attributes - Area fill attributes - Character attributes - bundled attributes - Anti aliasing techniques - 2D Transformations – Basic transformation – Composite transformation – other transformation.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT IV 2D VIEWING

Windowing concepts – clipping algorithms- window to viewport transformation - Graphical User interfaces - logical classification of input devices -Interactive Input Methods

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V 3D CONCEPTS

Three dimensional display techniques - Three dimensional representation - Three dimensional Transformations

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Book

Donald Hearn and M. Pauline Baker, Computer Graphics , 3rd Edition, Prentice Hall of India.

Reference Books:

1. Steven Harrington, Computer Graphics Programming Approach , 2nd Edition McGraw Hill.
2. Roy A. Plastock and Gordon Kelley, Theory and Problems of Computer Graphics, Schaum s Outline Series, McGraw Hill.

Web-Resources:

<http://www.svecw.edu.in/Docs%5CCSEGLNotes2013.pdf>

<https://drive.google.com/file/d/1st2YSA6l3KoCGiNxFmSAXHMbCdxEHN9i/view>

Course Outcomes:

On completion of the Course, Students should be able to

- Understand the basics of computer graphics, different graphics systems and applications of computer graphics.
- Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.
- Use of geometric transformations on graphics objects and their application in composite form.
- Extract scene with different clipping methods and its transformation to graphics display device.
- Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.

MAJOR BASED ELECTIVE COURSE (MBE) II

PHP with MYSQL

Internal Marks	: 25	Semester	:VI
External Marks	:75	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:6

Course Objectives:

- This PHP and MySQL *course* will provide the skills and knowledge necessary
- Learn how to take a static website and turn it into a dynamic website run from a database using PHP and MySQL.
- Analyze the basic structure of a PHP web application and be able to install and maintain the web server, compile, and run a simple web application.
- Learn how databases work and how to design one, as well as how to use php MyAdmin to work with MySQL.
- Learn different ways of connecting to MySQL through PHP, and how to create tables, enter data, select data, change data, and delete data. Connect to SQL Server and other data sources.

UNIT I ESSENTIAL PHP

Creating your Development Environment- Mixing HTML and PHP – Command Line PHP – Working with Variables – Creating Constants – Understanding PHP’s Internal Data Types – Operators and Flow Control.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT II STRINGS AND ARRAYS

String Function – Modifying Data in an Array – Deleting Array Elements – Array with Loops – PHP Array Functions – Sorting Array – Splitting Array – Merging Array. **Creating Function:** Passing Function – Passing Arrays to Function – Passing by Reference – Using Default Arguments – Passing Variable Numbers of Argument – Data from Function - Nesting Functions.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT III READING DATA IN WEB PAGES

Setting up Web Pages to communicate with PHP – Text field – Checkbox – Radio Button – Password Controls – List Boxes –Button – Hidden Control – File Upload. **Php Browser Handling Power:**PHP’s Server Variables – HTTP Header – Getting the User’s Browser Type – HTTP Header – Data Validation – Client Side Data Validation.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT IV WORKING WITH DATABASE

Creating a MYSQL Database – Creating a New Table – Putting Data into the New Database

– Accessing the Database –Update data into the Database– Insert data into the Database – Delete data from Database– Handling and Avoiding Errors.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

UNIT V AJAX

Writing AJAX – Creating XMLHttpRequest Object – Passing Data to the server with GET AND POST – Handling XML with PHP.

(Content – 15 Hrs, Assessment-3 Hrs)

(18 Hrs)

Text Book:

Steven Holzner, “The Complete Reference PHP”, Tata McGraw Hill Pvt. Ltd., 2008.

Reference Book:

Leon Atkinson, “Core PHP Programming”, Pearson Education, 2004.

Web-Resources:

https://www.withinweb.com/ebooks/PHP-Tutorials_sample.pdf

<https://education.fsu.edu/wp-content/uploads/2015/04/Learning-PHP-MySQL-JavaScript-and-CSS-2nd-Edition-1.pdf>

Course Outcomes

On completion of the Course, Students should be able to

- Understand the Functionality of PHP Language
- Understand the basic Concepts of MySQL
- Develop Applications using PHP with MySQL
- Learn to Produce dynamic PHP forms
- Associate the syntax and functions available to deal with file processing for files on the server as well as processing web URLs
- Design the paradigm for dealing with AJAX FORMS using PHP

MAJOR BASED ELECTIVE COURSE (MBE) III

PHP WITH MYSQL LAB

Internal Marks : 40

Semester :VI

External Marks :60

No. of Hours/Week :5

Exam Hrs :3

Credit :5

Course Objectives:

- Students interested in Web Page design and Internet programming are developed by this paper.
- Develop simple web application using server side PHP programming and Database Connectivity using MySQL.
- List the major elements of the PHP & MySQL work and explain why PHP is good for web development.
- Use a server-side scripting language, PHP Use a relational DBMS, MySQL
- Use PHP to access a MySQL database.

List of Practicals:

1. Simple Programs
2. String Functions
3. Arrays
4. Functions
5. Create a Home Page Design using PHP
6. Form Validation
7. Create Database and Tables using PHP
8. Database Operations – Insert, Update and Delete
9. Cookies Manipulation
10. File Upload and AJAX

Course Outcomes:

On completion of the Course, Students should be able to

- Create a simple web-based system 2.Develope, Test and debug a simple PHP scripts.
- Design PHP scripts that are used to create and populate database
- Apply distributed techniques cookies manipulation in web-based systems.
- Test and debug object-oriented PHP scripts
- Design and Manipulate forms to provide user authentication.
- Perform cookies manipulation

SOFTWARE DEVELOPMENT LAB
MAJOR BASED ELECTIVE COURSE (MBE)– III

Internal Marks	: 40	Semester	:VI
External Marks	:60	No. of Hours/Week	:6
Exam Hrs	:3	Credit	:5

Objectives

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

Course Outcomes:

On completion of this lab course the students will be able to

- Improve the team building, communication and management skills of the students.
- Build and test the mini project successfully.
- Demonstrate and build the project successfully by hardware requirements, coding, emulating and testing.
- To report and present the findings of the study conducted in the preferred domain.