Branch: BCA	Semester-III
Subject Code: 3201	Lecture: 04 Credit: 02
Course Opted	Core Course Practical - 7
Subject Title	DATA STRUCTURES- LAB

Course Objectives:

- To introduce the concepts of data structures including arrays, linked list, stack and queues.
- To design and implement various data structure algorithms.
- To introduce various techniques for representation of the data in the world.
- To create programs using algorithms and also techniques of sorting and searching.

Course Outcomes:

- Select appropriate data structures as applied to specified problem definition.
- Implement operations like traversing, insertion, deletion, searching etc. on data structures.
- Students will be able to implement linear and non - linear data structures.
- Implement appropriate sorting and searching techniques for given problems.

Modules	Sr. No.	Topic and Details	No. of Practicals Assigned	Marks Weightage %
UNIT-I	1	**Arrays:** Implementation & Operations of Array - Insertion, deletion from one dimensional array, Traversing of array	2	4
	2	**Linked Lists: Singular** Implementation of List and Linked List and Operations- Inserting, Deleting of nodes etc	2	4
UNIT-II	3	**Linked Lists:** Implementation of Two way Doubly and Circular Linked List and Operations- Inserting, Deleting nodes	3	6
	4	**Stack:** Stack Implementation, Operations on stack(Push Pop). Implementation of stack using pointer	4	8
UNIT-III	5	**Queue:** Implementation, Operations - Insertion & deletion	3	6
	6	**Trees:** Implementation of tree as Array and Linked lists and Traversal (Inorder, Preorder, Postorder)	4	8
UNIT-IV	7	**Graphs:** Implementation of Graph traversal(BFS,DFS,Shortest path)	3	6
	8	**Searching & Sorting:** Implementation of searching (Sequential, Binary search),Sorting (Bubble sort, Selection sort, Quick sort etc.)	4	8
Total			**25**	**50**

Text Book:

1. S.Sawhney & E. Horowitz, “Fundamentals of Data Structure”, Computer Science Press, 1987

References:

1. Lipschuiz, “Data structures” , (Schaum’s Outline Series Mcgraw Hill Publication)