Course: BCA
Sub Code: 3BCA1

Semester: III
Subject Name: Data Structure 7215

Unit	Lectures	Practical's	Workshops	Demo	Field Visits	Total Hours	Remarks
UNIT - I The Concept of Data Structure, Abstract Data Type, Concept of List & Array, Introduction to Stack, Stack as an Abstract Data Type, Primitive Operation on Stack, Stack's Application - Infix, Postfix, Prefix and Recursion. Introduction to Queues, Primitive Operations on Queues, Queue as an Abstract Data type, Circular Queue, Dequeue, Priority Queue, Applications of Queue.	8	6				14	
UNIT - II Linked List - Introduction to Linked List, Memory Representation of Linked List, Operations on Linked List, Linked List Representation of Stack and Queue, Header Nodes. Types of Linked List - Doubly Linked List, Circular Linked List, Application of Linked List.	8	6				14	
UNIT –III Trees - Basic Terminology of Trees, Binary Trees, Tree Representations as Array & Linked List. Binary Tree Representation. Traversal of Binary Trees - Inorder, Preorder & Postorder, Application of Binary Tree; Threaded Binary tree, Height Balanced tree, B-tree.	8	6				14	
UNIT-IV Analysis of Algorithm, Complexity with Big'O' Notation. Searching - Sequential Search, Binary Search and their Comparison. Sorting - External & Internal Sorting, Insertion Sort, Selection Sort, Quick Sort, Bubble Sort, Heap Sort, Comparison of Sorting Methods.	8	6				14	
UNIT-V Graphs - Introduction to Graphs, Basic Terminology, Directed, Undirected & Weighted graph, Representation of Graphs, Graph Traversals - Depth First & Breadth First Search. Spanning Trees, Minimum Spanning Tree, Applications of Graphs : Shortest Path Problem using Dijkstra Method.	8	6				14	
TEXT & REFERENCE BOOKS: • *FUNDAMENTALS OF DATA STRUCTURE, BY S. SAWHNEV & E. HOROWITZ* • *DATA STRUCTURE: BY T REMBLEY & SORRENSON* • *DATA STRUCTURE: BY LIPSCHUISTS (SCHAUM 'S OUTLINE SERIES MCGRAW HILL PUBLICATION)* • *FUNDAMENTALS OF COMPUTER ALGORITHM: BY ELLIS HOROWITZ AND SARTAJ SAWHNEY*							