14CST31 DATA STRUCTURES	3	0	0	3

PREREQUISITES

1. 11CS101 Problem Solving and Programming

UNIT – I **List :**Data Structures - Abstract Data Types (ADT)-List ADT and Array Implementation - Linked List - Doubly Linked List - Circular Linked List - Applications of Linked Lists	9
UNIT - II **Stack and Queues:** Stack ADT – Array and Linked List implementation of Stacks- Applications of Stacks - Queue ADT – Array and Linked List implementation of Queues - Circular Queue- Applications of Queues	9
UNIT - III **Trees:** Trees-Preliminaries – Binary Trees – The Search Tree ADT – Binary Search Trees – AVL Trees –Tree Traversals - Priority Queues (Heaps) – Binary Heap - d Heaps.	9
UNIT – IV **Sorting and Hashing:** Sorting - Preliminaries – Insertion Sort – Bubble Sort – Heapsort – Mergesort – Quicksort – External Sorting – Hashing – General Idea – Hash Function – Separate Chaining – Open Addressing.	9
UNIT - V **Graphs:** Graphs - Definitions – Topological Sort – Shortest-Path Algorithms – All Pair Shortest Path- Algorithm – Dijkstra's Algorithm – Minimum Spanning Tree – Prim's Algorithm- Kruskal's Algorithm – Breadth First Search - Depth First Search— Undirected Graphs – Biconnectivity	9
TOTAL : 45	

COURSE OUTCOMES

At the end of this course, student will be able to:

- Describe the usage of various implementation of list
- Make use of ADTs like stacks and queues in different systems
- Illustrate the structure and operations on trees
- Summarize various sorting and searching techniques
- Apply appropriate graph algorithms for solving computing problems

TEXT BOOKS

1.	Weiss M. A., "Data Structures and Algorithm Analysis in C", 2nd Edition, Pearson Education Asia,New Delhi, 1997..

REFERENCE BOOKS

1.	Aho A.V., Hopcroft, J.E. and Ullman J.D., "Data Structures and Algorithms", Pearson Education, New Delhi, 2003.
2.	Langsam Y.M, Augenstein J. and Tenenbaum, A. M., "Data Structures using C", Pearson Education Asia, New Delhi, 2004.
3.	Baase Sara and Van Gelder Allen, "Computer Algorithms: Introduction to Design and Analysis", Pearson Education Asia, New Delhi, 2003.