

FBEF -310 DATA STRUCTURE USING C AND C++

Unit – I

[6 hours]

Introduction to data structures: storage structure for arrays, sparse matrices, Stacks and Queues: representation and application. Linked lists: Single linked lists, linked list representation of stacks and Queues. Operations on polynomials, Double linked list, circular list.

Unit – II

[10 Hours]

Dynamic storage management-garbage collection and compaction, infix to post fix conversion, postfix expression evaluation. Trees: Tree terminology, Binary tree, Binary search tree, General tree, B+ tree, AVL Tree, Complete Binary Tree representation, Tree traversals, operation on Binary tree-expression Manipulation.

Unit –III

[9 Hours]

Graphs: Graph terminology, Representation of graphs, path matrix, BFS (breadth first search), DFS (depth first search), topological sorting,

Unit-IV[5 Hours]

Warshall's algorithm (shortest path algorithm.) Sorting and Searching techniques – Bubble sort, selection sort, Insertion sort, Quick sort, merge sort, Heap sort, Radix sort. Linear and binary search methods, Hashing techniques and hash functions.

Text Books:

1. Gilberg and Forouzan: "Data Structure- A Pseudo code approach with C" by Thomson publication
2. "Data structure in C" by Tanenbaum, PHI publication / Pearson publication.
3. Pai: "Data Structures & Algorithms; Concepts, Techniques & Algorithms" Tata McGraw Hill.

Reference Books:

1. Fundamentals of data structure in C" Horowitz, Sahani & Freed, Computer Science Press.
2. "Fundamental of Data Structure" (Schaums Series) Tata-McGraw-Hill.