BE 2106 DATA STRUCTURE (3-0-0)

Module - I

[12 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.

Module - II

[12 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.

Module -III

[12 Hours]

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

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

eference Books:

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