15 MMCF 107 DATA STRUCTURE using C++ (3-0-0)

Module – I [10 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 [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.

Module –III [10 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: 1. Gilberg and Forouzan: "Data Structure- A Pseudo code approach with C++" by Thomson publication

2. "Data structure in C++" by Y. Kanetkar TMH publication.

Reference Books: 1. Pai: "Data Structures & Algorithms; Concepts, Techniques & Algorithms "Tata McGraw Hill.

2. "Fundamentals of data structure in C" Horowitz, Sahani & Freed, Computer Science Press.

3. "Fundamental of Data Structure" (Schaums Series) Tata-McGraw-Hill. 22 BE