## 3. SYLLABUS

CY2102PC: DATA STRUCTURES

### UNIT-I

Introduction to Data Structures, abstract data types, Linear list – singly linked list implementation, insertion, deletion and searching operations on linear list, Stacks-Operations, array and linked representations of stacks, stack applications, Queues-operations, array and linked representations.

### UNIT-II

Dictionaries: linear list representation, skip list representation, operations - insertion, deletion and searching.

Hash Table Representation: hash functions, collision resolution-separate chaining, open addressing- linear probing, quadratic probing, double hashing, re hashing, extendible hashing.

### UNIT-III

Search Trees: Binary Search Trees, Definition, Implementation, Operations- Searching, Insertion and Deletion, AVL Trees, Definition, Height of an AVL Tree, Operations– Insertion, Deletion and Searching, Red –Black, Splay Trees.

### UNIT-IV

Graphs: Graph Implementation Methods. Graph Traversal Methods.

Sorting: Heap Sort, External Sorting-Model for external sorting, Merge Sort.

### UNIT-V

Pattern Matching and Tries: Pattern matching algorithms- Brute force, the Boyer –Moore algorithm, the Knuth-Morris- Pratt algorithm, Standard Tries, Compressed Tries, Suffix tries.

### TEXT BOOKS:

Fundamentals of Data Structures in C, 2nd Edition, E. Horowitz, S. Sahni and Susan Anderson Freed, Universities Press.