

Data Structure syllabus

Unit – 1: Data Structures Basics: Structure and Problem Solving, Data structures, Data structure Operations, Algorithm: complexity, Time- complexity;

Unit – 2: Linked List: Introduction, Linked lists, Representation of linked lists in Memory, Traversing a linked list, Searching a linked list, Memory allocation and Garbage collection, insertion into linked list, Deletion from a linked list, Types of linked list.

Unit – 3: Stack and Queue: Introduction, Array Representation of Stack, Linked List Representation of stack, Application of stack, Queue, Array Representation of Queue, Linked List Representation of Queue.

Unit – 4: Trees: Definitions and Concepts, Operations on Binary Trees, Representation of binary tree, Conversion of General Trees to Binary Trees, Sequential and Other Representations of Trees, Tree Traversal.

Unit –5: Graphs: Matrix Representation of Graphs, List Structures, Other Representations of Graphs, Breadth First Search, Depth First Search, Spanning Trees.

Unit - 6: Directed Graphs Types of Directed Graphs; Binary Relation As a Digraph; Euler's Digraphs; Matrix Representation of Digraphs.

Unit -7 – Dijkstra's Algorithm, Minimum spanning tree- Prim's Algorithm;

Unit – 8: Searching Techniques: Sequential Searching,

Unit -- 9 : Binary Searching, Search Trees, Hash- Table Methods.

Unit 10: Mathematical Functions and Notations Functions and Notations; Efficiency of an Algorithm; Well Known Asymptotic Functions and Notations; Analysis of Algorithms – Simple Examples; Well Known Sorting Algorithms – Insertion sort, Bubble sort, Selection sort, Shell sort, Heap sort.

Unit 11: Divide and Conquer Divide and Conquer Strategy; Binary Search; Max. And Min.; Merge sort; Quick sort.

Unit 12: Greedy Method Greedy Method Strategy;

Unit 13: Dynamic Programming Dynamic Programming Strategy; All Pair Shortest Paths;

Unit 14: Complexity of Algorithms: Notations for the Growth Rates of Functions; Classification of Problems;