SYLLABUS

DATA STRUCTURES

Unit I: Introduction to Data Structures: Introduction to Data structures, Data Structure Operations, Algorithmic Notation, Complexity of algorithms. String processing: storing strings, character data type, string operations, word processing, and pattern matching algorithms.

Unit II: Array& Record Structure: Linear arrays: Memory Representation of arrays, traversing linear arrays, insertion & deletion operations, Bubble sort, Linear search and Binary search algorithms. Multi dimensional arrays, Pointer arrays. Record structures.

Unit III: Linked lists: Linked lists: Memory Representation of Linked List, traversing a linked list, searching a linked list. Memory allocation & garbage collection. Insertion & deletion operations on linked lists. Header linked lists, Two- way linked lists.

Unit IV: Stack & Queue: Stacks: Sequential Memory Representation of Stack, Arithmetic expressions: Polish notation. Quick sort, Recursion, Tower of Hanoi. Queues: Sequential Memory Representation of Queue, DeQueue, Priority queues.

Unit V: Trees: Introduction to Trees, Binary trees, Memory Representation of Binary Tree, Traversing binary trees, Header nodes, Binary Search Tree, Heap and heap sort, Path length & Huffman's algorithm.

Unit VI: Graphs & Sorting Algorithms: Introduction to Graphs, Memory representation of graphs, Warshalls' algorithm, operations on Graphs, Breadth First Search, Depth First Search. Sorting: Insertion Sort, Selection Sort, Radix sort, Merge Sort.