



4. Horowitz & Sahani: **Fundamentals of Algorithm**, 2<sup>nd</sup> Edition, Universities Press.
5. Goodrich, Tamassia: **Algorithm Design**, Wiley India.

## **DESIGN AND ANALYSIS OF ALGORITHMS LAB**

1. Using a stack of characters, convert an infix string to postfix string (1 class)
  2. Implement insertion, deletion, searching of a BST. (1 class)
  3. (a) Implement binary search and linear search in a program  
(b) Implement a heap sort using a max heap.
  4. (a) Implement DFS/ BFS for a connected graph.  
(b) Implement Dijkstra's shortest path algorithm using BFS.
  5. (a) Write a program to implement Huffman's algorithm.  
(b) Implement MST using Kruskal /Prim algorithm.
  6. (a) Write a program on Quick sort algorithm.  
(b) Write a program on merge sort algorithm.  
Take different input instances for both the algorithm and show the running time.
  7. Implement Strassen's matrix multiplication algorithm.
  8. Write down a program to find out a solution for 0 / 1 Knapsack problem.
  9. Using dynamic programming implement LCS.
  10. (a) Find out the solution to the N-Queen problem.  
(b) Implement back tracking using game trees.
- \*College should conduct at least one NSDC program under this category.