Design and Analysis of Algorithm

Unit - 1 Introduction

Notion of Algorithm - Fundamental of Algorithmic problem solving - Important problem types - Fundamental of the analysis of algorithm efficiency - Analysis frame work - Asymptotic notations and his property - Mathematical analysis for recursive and non-recursive Algorithms.

Unit - 2 Brute force ; divide and Conquer

Brute Force - Closest pair and convex Hull - Exhaustive search - Travelling salesman problem - Knapsack problem - Assignment problems - (Divide and Conquer methodology - Merge sort - Quick sort - Binary search)

Unit - 3 Dynamic Programming and Greedy Technique

(Computing a Binomial coefficient - Warshall's and Floyd's Algorithm - Optimal Binary search trees - knapsack problem and memory functions) - Greedy Technique - Prim's Algorithm - Kruskal's Algorithm - Dijkstra's Algorithm - Huffman trees

Unit - 4 Iterating Improvement

The simplex method - The maximum flow problem - Maximum matching in bipartite graphs - stable marriage problem -

Unit - 5 Coping with the limitations of Algorithm power

Back tracking - n Queen's problem - Hamiltonian circuit problem - Subset sum problem - Branch and Bound - Assignment problem - Knapsack problem - Travelling salesman problem - Approximation Algorithms for P, NP, NP Complete problem