Design & Analysis of Algorithm

Unit 1 :-

1) Introduction & fundamentals of Algorithm
2) Complexity Analysis of Algorithm.
3) Insertion Sort
4) Algorithm Design paradigms.
5) Designing an algorithm & its analysis
6) Asymptotic Notation.
7) Recurrence relations
8) Solution of recurrence relations (Using substitution Recursion tree method).
9) Mathematical analysis of Asymptotic Notation.

Unit - 2

1) Merge Sort
2) Quick Sort, Binary Search.
3) Maximum & Minimum
4) Strassen's Matrix Multiplication
5) Largest Sub-array.
6) Master Theorem
7) Closest pair problem
8) Convex Hull.

Unit - 3

1) Huffman Coding
2) Fractional knapsack
3) Prims Algorithm
4) Kruskal's Algorithm
5) 0/1 knapsack
6) Matrix chain Multiplication
7) Longest Common Subsequence
8) Optimal BST

Unit - 4

1) N-Queen's Problem
2) Sum of Subset
3) Hamiltonian cycle
4) Knapsack problem (Branch & Bound)
5) Travelling Salesman problem
6) DFS & BFS
7) Floyd - Warshall ~~Int~~

Unit - 5

1) Intro to Randomization & approximation
2) Randomized hiring problem
3) Randomized Quick Sort
4) String matching algorithm (Rabin karp)
5) Vertex covering
6) P type Problem
7) NP type problem
8) Hamiltonian cycle
9) Satisfiability problem