Design and Analysis of Algorithms
Effective: January 2020

1. Basic Tools and Techniques: order notation, induction, recurrence relations, summing sequences, lower bound for comparison-based sorting algorithms. (CLRS: 1–3, 9.1)

2. Divide and Conquer Algorithms: quick sort, insertion sort, heap sort, linear time selection. (CLRS: 4, 6–8)

3. Basic and Advanced Data Structures. (CLRS: 6.5, 11, 12, 18, 19, 21)


5. Dynamic Programming and Greedy Algorithms: 0-1 Knapsack problems, shortest paths, optimal binary search trees, matrix chain products. (CLRS: 15, 16)


7. NP-Completeness and Approximation Algorithms: P and NP classes, NP-complete problems, Hamiltonian circuit and other NP-complete problems, dealing with NP-complete and NP-hard problems, approximation algorithms. (CLRS: 34, 35)