

CA529 ALGORITHMICS

Prerequisite: CA522 Data and File Structures

Aim: This course builds on Data Structures and emphasizes design and analysis of algorithms.

Course Content:

Efficiency of algorithms; Asymptotic Notation; Analysis of Algorithms; Solving recurrences; Application of data structures; Greedy Algorithms, Spanning trees, shortest paths, knapsack problem, scheduling problem; Divide-and-conquer, binary search, sorting; Dynamic programming principle of optimality; Graph Algorithms, BFS, DFS, Back tracking, Branch and Bound; Computation Complexity, reductions and introduction to NP-completeness; Examples and brief overview of heuristic, probabilistic and parallel algorithms, String Matching methods.

Books:

1. Fundamentals of Algorithms, G.Brassard and P.Bratley, PH India 1997.
2. Fundamentals of Computer Algorithms, E.Horowitz and S.Sahani, Galgotia Publications.
3. Introduction to Algorithms, T.H.Cormen, CE Leigerson, R.Rivest, PH India 1998.