

Paper Code: BCADSC 3.5	Paper Title: Design and Analysis of Algorithms	Teaching Hours: 5 Hrs / Week
Total Teaching Hours: 60Hrs	Marks: Th-80+IA-20	Credits: 3

UNIT I

INTRODUCTION: Algorithm, Pseudo code for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation, Big oh notation, Omega notation, Theta notation. **12 Hrs**

UNIT II

DIVIDE AND CONQUER: General method, applications-Binary search, Quick sort, Strassen's Matrix multiplication, Finding Max Min, Selection sort. **12 Hrs**

UNIT III

GREEDY METHOD: General method, applications-Job sequencing with deadlines, Knapsack problem, Single source shortest path, Minimum cost spanning trees, Optimal storage on tapes. **12 Hrs**

UNIT IV

DYNAMIC PROGRAMMING: General method, applications- Multistage graph, All pairs shortest path problem, Travelling sales person problem. **12 Hrs**

UNIT V

Basic Traversal and Search Techniques: Binary search tree, techniques for binary trees, techniques for graphs, connected components and spanning trees, BACKTRACKING: General method, applications- N-queen problem, sum of subsets problem, Hamiltonian cycles. **12 Hrs**

References:

1. Ellis Horowitz, SatrajSahni and Rajasekharan, Fundamentals of Computer Algorithms,2nd Edition, University Press,2008.
2. M. T. Goodrich and R. Tomassia, Algorithm Design Foundations, Analysis and Internet examples, 1st Edition, John wiley and Sons,2006.

Additional Reading:s

1. T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein, Introduction to Algorithms, 3rd Edition, PHI / Pearson Education,2009.
2. Aho, Ullman and Hopcroft, "Design and Analysis of algorithms", 3rd Edition, Pearson Education, 2008.
3. <http://nptel.iitm.ac.in/courses/106101060/>