

**ST.ANN'S COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
LESSON PLAN**

SUBJECT: **Design and Analysis of Algorithms**
FACULTY: **A.V.S.Sudhakar Rao**

ACADEMIC YEAR: **2017-18**
YEAR/SEM /SECTION: **III – II 'C'**

S.No	Unit No.	Name Of The Topic	No. of Classes required
1	I	Introduction: Algorithm, Pseudo code for expressing algorithms, performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, probabilistic analysis, Amortized analysis.	9
2	II	Divide and conquer: General method, applications-Binary search, Quick sort, Merge sort.	6
3	III	Greedy method: General method, applications-Job sequencing with deadlines, knapsack problem, spanning trees, Minimum cost spanning trees, Single source shortest path problem.	9
4	IV	Dynamic Programming: General method, applications-Matrix chain multiplication, Optimal binary search trees, 0/1 knapsack problem, All pairs shortest path problem, Travelling sales person problem, Reliability design.	9
5	V	Backtracking: General method, applications-n-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles.	8
6	VI	Branch and Bound: General method, applications - Travelling sales person problem,0/1 knapsack problem- LC Branch and Bound solution, FIFO Branch and Bound solution.	7
Total No. of hours			48

TEXT BOOKS:

1. Fundamentals of Computer Algorithms, Ellis Horowitz, Satraj Sahni and Rajasekharam, Universities Press.
2. Design and Analysis of Algorithms , S Sridhar, Oxford
3. Design and Analysis of Algorithms, Parag Himanshu Dave, Himansu Balachandra Dave, 2ed,Pearson Education.

REFERENCE BOOKS:

1. Design and Analysis of algorithms, Aho, Ullman and Hopcroft,Pearson education.
2. Introduction to the Design and Analysis of Algorithms, Anany Levitin, PEA
3. Introduction to Algorithms, second edition, T.H.Cormen, C.E.Leiserson, R.L.Rivest and C.Stein,PHI Pvt.Ltd.
4. Algorithm Design, Foundation, Analysis and internet Examples, Michel T Goodrich, Roberto Tamassia, Wiley

FACULTY

HEAD OF THE DEPARTMENT