L	T	P	C
0	0	2	1

Course Code: CSEXXX
Semester: V

ALGORITHM DESIGN STRATEGIES & ANALYSIS LABORATORY

Course Objectives

This course will help the learner to select appropriate algorithm and design technique for a given application

1. Applications of Heuristic Method - Travelling Salesman Problem
2. Applications of Greedy Method - Knapsack, Job Sequencing with Deadlines
3. Applications of Dynamic Programming - Optimal Binary Search Trees, 0/1 Knapsack
4. Applications of Branch & Bound - Travelling Salesman Problem, 0/1 Knapsack
5. Applications of Backtracking- 8 Queens Problem, Sum of subsets
6. Programs on Graphs - Topological Sort of Directed Acyclic Graph
7. Programs on Graphs - Minimum Spanning Tree using Prim's and Kruskal's algorithms
8. Programs on Graphs - Single Source Shortest paths using Bellman-Ford algorithm
9. Programs on Graphs - All-Pairs Shortest Paths using Floyd-Warshall algorithm
10. Programs on Graphs - Maximum Flow using Ford Fulkerson Method

COURSE LEARNING OUTCOMES

Upon successful completion of this course, the learner will be able to

- Employ Heuristic and Greedy strategies for optimization problems having greedy choice property
- Employ Dynamic Programming strategy for solving optimization problems having optimal substructure property and overlapping sub-problem property
- Employ Branch & Bound and Backtracking strategies for optimization problems with reducing the problem search space
- Employ graph algorithms for routing and other applications