Course:Major
Computer Science Practical-Design and Analysis of Algorithms

Semester I	Credits: 2	Subject Code: SMAJCCSP123554	Lectures: 60

Objectives:

At the end of this course, the learner will be able to:
- CO1- Evaluate various algorithm design strategies used for solving different problems using JAVA.
- CO2-Implement range of advanced algorithms including greedy, dynamic programming, backtracking and branch and bound techniques
- CO3-Compare and contrast various algorithms with respect to their complexities.
- CO4- Apply the knowledge of different strategy to write efficient algorithms for building an efficient software.

Unit 1: DAA Algorithms I	30

- Divide and Conquer Approach- Merge Sort, Quick Sort, Binary Search
- Greedy Approach- Job scheduling and activity selection problem, Minimum-cost spanning trees and algorithms using Kruskal, Minimum-cost spanning trees and algorithms using Prim, Knapsack Problem

Unit 2:DAA Algorithms II	30

- Backtracking - 8 Queen's problem, Sum of subsets problem, Graph coloring problem, Hamiltonian cycle
- Brach and Bound – FIFO, LIFO, LCBB, TSP problem, 0/1 knapsack problem

References books:

- A. Aho, J. Hopcroft, & J. Ullman, *The Design and Analysis of Computer Algorithms*, Addison Wesley, 1974
- Donald Knuth, *The Art of Computer Programming* (3 vols., various editions, 1973-81), Addison Wesley
- Ellis Horowitz, Sartaj Sahni & Sanguthevar Rajasekaran, *Computer Algorithms*, Galgotia.
- T. Cormen, C. Leiserson, & R. Rivest, *Algorithms*, MIT Press, 1990

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Chairperson (HoD)	Computer Science	Ms Ashwini Kulkarni	

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