

Lesson Plan of the 5th semester for session 2021-22

Name of the faculty:	Ms. Ayushi Chahal
Designation:	Assistant Professor
Discipline:	Computer Science and Engg.
Semester:	IV th sem
Subject:	DESIGN AND ANALYSIS OF ALGORITHMS
Subject Code:	PCC-CSE-307G
Lesson Plan duration:	15 weeks
Work Load per week in hours:	Lectures- 03, Practical-03

Week	Lecture day	Topic (Including Assignment/Test)
UNIT – I		
1	1	Introduction to Algorithms: Algorithm
	2	Performance Analysis (Time and Space complexity)
	3	Asymptotic Notation (Big OH, Omega and Theta)
2	4	Asymptotic Notation : best, average and worst-case behaviour
	5	Elementary Data Structures: Stack and Queues
	6	Elementary Data Structures: Tree, Graph
3	7	Sets and Disjoint Set Union.
	8	Divide and Conquer: General method, Binary Search
	9	Merge Sort algorithm and analysis
4	10	Quick Sort algorithm and analysis
	11	Strassen's Matrix Multiplication algorithm and analysis
	12	Revision Unit 1
UNIT – II		
5	13	Greedy Method: General method
	14	Fractional Knapsack problem
	15	Job Sequencing with Deadlines
6	16	Minimum Cost Spanning Trees : Prim's Algorithm
	17	Minimum Cost Spanning Trees : Krushkal Algorithm
	18	Single source shortest paths : Dijkstra Algorithm
7	19	Dynamic Programming: General method
	20	Optimal Binary Search Trees
	21	0/1 knapsack
8.	22	The Traveling Salesperson problem

	23	Revision unit 2
	24	Class Test
UNIT – III		
9.	25	Back Tracking: General method
	26	The 8-Queen's problem
	27	Sum of subsets
10.	28	Graph Colouring
	29	Hamiltonian Cycles.
	30	Branch and Bound: The method
11.	31	0/1 knapsack problem
	32	Traveling Salesperson problem
	33	Efficiency considerations.
12.	34	Revision Unit 3
	35	Class Test Unit 3
UNIT – IV		
12.	36	NP Hard and NP Complete Problems: Basic concepts
13.	37	Cook's theorem
	38	NP hard graph problems
	39	NP hard scheduling problems
14.	40	NP hard code generation problems
	41	Some simplified NP hard problems
	42	Revision unit 4
15.	43	Class Test Unit 4
	44	All syllabus revision
	45	All syllabus test