Panipat Institute of Engineering & Technology
Department of CSE-AI&DS
LESSON PLAN

Subject: Design and Analysis of Algorithms **Subject code:** PC-CS-AIDS-303A
Session: Aug.- Dec 2023-24 **Semester:** 5th

S.No	Topic	CO Covered	Assignment No.	Teaching Methodology
1	Unit 1: Introduction Review: Elementary Data Structures	CO1	Assignment No.1	Board
2	Algorithms and its complexity (Time & Space)			Board
3	Analyzing Algorithms, Asymptotic Notations			Board
4	Priority Queue			Video
5	Quick Sort			PPT
6	Recurrence relation: Methods for solving recurrence (Substitution Method)			Board
7	Recursion tree, Master theorem			Board
8	Strassen multiplication			Board
9	Revision of Unit-1			Flip Learning
10	Unit 2: Advanced Design and analysis Techniques, Dynamic programming: Elements, Matrix-chain multiplication	CO2	Assignment No.2	Board
11	Longest common subsequence			Board
12	Greedy algorithms: Elements, Activity-Selection problem			Board
13	Huffman codes			PPT & Board
14	Task scheduling problem			Board
15	Travelling Salesman Problem			Board
16	Advanced data Structures: Binomial heaps			Board
17	Fibonacci heaps			Board
18	Splay Trees			Board
19	Red-Black Trees			Board
20	Revision of Unit-2			Flip Learning
21	Unit 3: Graph Algorithms, Traversal Methods (Depth first and Breadth first search)	CO3	Assignment No.-3	Board
22	Topological sort, strongly connected components			Board
23	Minimum spanning trees- Kruskal and Prims			Board
24	Single source shortest paths, Relaxation			Video
25	Dijkstras Algorithm			Board
26	Bellman- Ford algorithm			Board

27	Single source shortest paths for directed acyclic graphs			Board
28	All pairs shortest paths- shortest paths and matrix multiplication			Board
29	Floyd-Warshall algorithm			Board
30	Computational Complexity: Basic Concepts			PPT
31	Polynomial Vs Non-Polynomial Complexity			PPT
32	NP-hard and NP-complete classes			PPT
33	Revision of Unit-3			Flip Learning
34	Unit 4: Network and Sorting Algorithms: Flow and Sorting Networks Flow networks	CO4	Assignment No.4	Board
35	Ford- Fulkerson method, Maximum Bipartite matching			Board
36	Sorting Networks, Comparison network			Board
37	the zero- One principle, Bitonic sorting network			Board
38	Merging networks			Board
39	Revision of Unit-4			Flip Learning