LESSON PLAN

Subject: Analysis & Design of Algorithms **Subject code: PE-IT-S310A**

Session: 2022-23 **Semester: VI**

S.No	Topic	No. of Lectures	CO Covered	Teaching Methodology
1	Introduction to Data Structures	2	CO1	Board
2	Introduction to Algorithms	1		PPT
3	Analysis of Algorithms, Designing techniques of algorithms	1		Board
4	Concept of algorithmic efficiency Run time analysis of algorithms	2		PPT
5	Asymptotic Notations	1		PPT
6	Divide and conquer: Structure of divide and conquer algorithms and recurrence relationship	2		Website
7	Recurrence Relationship	2		Website
8	Binary Search	1		Board
9	Quick Sort	1		PPT
10	Straseen Multiplication	1		Board
11	Approximate solution (Knapsack problem),	1		PPT
12	Singles source shortest paths	1		Video
13	Dynamic programming: Overview, difference between dynamic programming and divide and conquer	1		PPT
14	Shortest path in graph	1		Flip Learning
15	Matrix multiplication	1		Board
16	Travelling salesman problem	1		Board
17	Longest common sequence.	1		Video
18	**Unit 3** Back tracking: Overview, 8-queen problem	2	CO3	PPT
19	Solution to Knapsack problem using Backtracking approach	1		Board
20	Branch and bound: LC searching Bounding	1		PPT
21	FIFO branch and bound	1		PPT
22	LC branch and bound application: 0/1 Knapsack problem	1		PPT
23	LC branch and bound application: Traveling Salesman Problem	1		PPT
24	**Unit 4** Graph Traversal: Overview	1		Flip Learning

25	Depth first search	1	CO4	Board
26	Breadth first search	1		Board
27	Trees: Review of trees Binary search tree	1		PPT
28	Traversal, Insertion & Deletion in Binary Search Tree	1		Video
29	B-Trees B+ Trees	2		PPT and Video
30	Basic operations on B Trees.	2		Video
31	Computational Complexity measures	1		PPT
32	Polynomial Vs non-polynomial time complexity	1		PPT
33	NP hard problem with examples	1		PPT
34	NP Complete problem with examples	1		PPT