

Hour	Unit	Topic	Teaching Methodology	Remarks
1	I	Introduction to Algorithms – Definition and Specification	Whiteboard	
2	I	Performance Analysis & Performance Measurement	Whiteboard	
3	I	Asymptotic Notation (Big O, Omega, Theta)	Whiteboard	
4	I	Randomized Algorithms – Concept and Examples	Whiteboard	
5	II	Divide and Conquer – General Method	Whiteboard	
6	II	Problem: Defective Chessboard	Whiteboard	
7	II	Binary Search – Algorithm & Analysis	Whiteboard	
8	II	Finding Maximum and Minimum using Divide and Conquer	Whiteboard	
9	II	Merge Sort – Algorithm & Complexity	Whiteboard	
10	II	Quick Sort – Algorithm & Complexity	Whiteboard	
11	III	Greedy Method – General Method & Strategy	Whiteboard	
12	III	Knapsack Problem (Fractional)	Whiteboard	
13	III	Minimum-Cost Spanning Trees (Prim's / Kruskal's Algorithms)	Whiteboard	
14	III	Optimal Merge Patterns	Whiteboard	
15	III	Single Source Shortest Paths (Dijkstra's Algorithm)	Whiteboard	
16	IV	Dynamic Programming – General Method	Whiteboard	
17	IV	Multistage Graphs	Whiteboard	
18	IV	All-Pairs Shortest Paths (Floyd-Warshall Algorithm)	Whiteboard	
19	IV	Optimal Binary Search Trees	Whiteboard	
20	IV	0/1 Knapsack Problem	Whiteboard	
21	IV	Traveling Salesperson Problem (TSP)	Whiteboard	
22	V	Backtracking – General Method	Whiteboard	
23	V	The 8-Queens Problem	Whiteboard	
24	V	Sum of Subsets Problem	Whiteboard	
25	V	Graph Coloring Problem	Whiteboard	

26	V	Hamiltonian Cycles	Whiteboard	
27	V	Knapsack Problem using Backtracking	Whiteboard	
28	VI	NP-Hard and NP-Complete Problems – Basic Concepts	Whiteboard	
29	VI	Non-deterministic Algorithms	Whiteboard	
30	VI	NP-Hard and NP-Complete Classes & Examples	Whiteboard	
31	VI	Cook's Theorem	Whiteboard	
32	All	Practice & Recap on Divide and Conquer	Whiteboard	
33	All	Practice & Recap on Greedy Method and Dynamic Programming	Whiteboard	
34	All	Practice & Recap on Backtracking and NP-Hard Problems	Whiteboard	
35	All	Final Revision and Q&A	Whiteboard	