#	Content	Duration
1	**Sorting Algorithms:** Insertion Sort Merge Sort, Quick Sort (with Randomization)	2 weeks
2	**Sorting Algorithms:** Heap and Heap Sort Priority Queue using Binary Heap, Counting Sort Radix Sort	2 weeks
3	**Dynamic Programming & Optimization:** Matrix Chain Multiplication Longest Common Subsequence (LCS), Solving problems with the technique of Memoization Competitive programming problem with dynamic programming	2 weeks
4	**Greedy Algorithms & Huffman Coding** Activity Selection Problem Huffman Tree & Prefix Generation	2 weeks
5	**Graph Algorithms** Breadth First Search (BFS) Depth First Search (DFS) Kruskal's Algorithm (Minimum Spanning Tree) Prim's Algorithm (Minimum Spanning Tree) Dijkstra's Algorithm (Single-Source Shortest Path) Bellman-Ford's Algorithm (Single-Source Shortest Path)	3 weeks
6	**Advanced Graph Algorithms** : Floyd-Warshall's Algorithm (All-Pairs Shortest Path), Computational Geometry, Graham Scan Algorithm	2 weeks
7	**String Matching Algorithm** Naive String Matching Algorithm Rabin-Karp Algorithm	1 week
8	**Miscellaneous Algorithms & Problem Solving** Extended Euclid's Algorithm (GCD) Prime Number Generation Algorithms N-Queen Problem Backtracking Problems Modular Exponentiation Fractional Knapsack Problem	1 week