ES31181ET: DESIGN AND ANALYSIS OF ALGORITHMS

Unit.No	Unit Name	Resource		Topics
1	Introduction		1	Characteristics of algorithm
			2	Analysis of algorithm: Asymptotic analysis of complexity bounds
			3	best, average and worst-case behavior
			4	Performance measurements of Algorithm
			5	Time and space trade-offs, Analysis of recursive algorithms through recurrence relations
			6	Substitution method, Masters' theorem.
2	Brute Force and Divide-and-Conquer		1	Brute Force: Computing an String Matching
			2	Closest-Pair and Convex-Hull Problems,
			3	Exhaustive Search – Travelling Salesman Problem,
			4	Divide and Conquer : Binary Search,
			5	Merge sort, Quick sort
			6	Heap Sort, Multiplication of Large Integers , Closest-Pair and Convex
3	GREEDY Technique		1	Greedy Method: General strategy
			2	the principle of optimality
			3	Knapsack problem
			4	Scheduling
			5	Optimal merge patterns
			6	Huffman code generation algorithm

Unit.No	Unit Name	Resource	Topics
4	Dynamic Programming		1 General Strategy, Principle of optimality
			2 Coin changing problem
			3 Computing a Binomial Coefficient – Floyd‘s algorithm
			4 Multi stage graph
			5 Optimal Binary Search Trees – Knapsack Problem and Memory functions.
			6 Memory functions
5	Backtracking, Branch and Bound		1 Backtracking: 8 Queen problem
			2 Graphs
			3 Coloring Branch and Bound
			4 Backtracking and branch
			5 bound general strategy
			6 Optimal BST , 0/1 Knapsack problem example of dynamic programming.
6	Tractable and Intractable Problems		1 Computability of Algorithms
			2 Computability classes – P
			3 NP, NP-complete and NP-hard
			4 Cook’s theorem, Standard NP-complete problems
			5 Reduction techniques
			6 Travelling salesman prpblem