PIET – Department of Information Technology						
Academic Year: 2022-23 **Name of Faculty: Jayshree Parmar,N1** **Subject: Design and Analysis of Algorithms** **Lesson Planning**						
Sr. No.	Name of Topic	Hrs.	Div.A	Div. B	Div C	Div. D
1	**Introduction:**	**6**				
	Characteristics of algorithm.		30-05-2022	31-05-2022	31-05-2022	31-05-2022
	Analysis of algorithm: Asymptotic analysis of complexity bounds–best, average and worst-case behavior;		31-05-2022	02-06-2022	1-06-2022	02-06-2022
	Performance measurements of Algorithm, Time and space trade-offs		02-06-2022	03-06-2022	02-06-2022	03-06-2022
	Analyzing control statement, Loop invariant and the correctness of the algorithm		06-06-2022	07-06-2022	06-06-2022	07-06-2022
	Recurrences- substitution method,		07-06-2022	09-06-2022	07-06-2022	09-06-2022
	recursion tree method, master method.		09-06-2022	10-06-2022	09-06-2022	10-06-2022
2	**Divide and conquer technique:**	**6**				
	Structure of divide-and-conquer algorithms		13-06-2022	14-06-2022	13-06-2022	14-06-2022
	Binary search,		14-06-2022	16-06-2022	14-06-2022	16-06-2022
	quick sort		16-06-2022	17-06-2022	16-06-2022	17-06-2022
	, Merge sort,		20-06-2022	21-06-2022	20-06-2022	21-06-2022
	Strassen Multiplication;		21-06-2022	23-06-2022	21-06-2022	23-06-2022
	Analysis of divide and conquer run time recurrence relations.		23-06-2022	24-06-2022	23-06-2022	24-06-2022
3	**Greedy technique**	**7**				
	Greedy choice properties,		27-06-2022	28-06-2022	27-06-2022	28-06-2022
	graphs: Minimum Spanning Tree: Kruskal's algorithm,		28-06-2022	30-06-2022	28-06-2022	30-06-2022
	Prim's algorithm,		30-06-2022	01-07-2022	30-06-2022	01-07-2022
	Single source shortest Paths: Dijkstra's algorithm,		04-07-2022	05-07-2022	04-07-2022	05-07-2022
	Huffman code		05-07-2022	07-07-2022	05-07-2022	07-07-2022
	Activity Selection Problem		07-07-2022	08-07-2022	07-07-2022	08-07-2022
	Activity Selection Problem		11-07-2022	12-07-2022	11-07-2022	12-07-2022
4	**Dynamic Programming:**	**8**				
	The principle of optimality		12-07-2022	14-07-2022	12-07-2022	14-07-2022
	, the Knapsack Problem,		14-07-2022	15-07-2022	14-07-2022	15-07-2022
	All pair shortest paths		18-07-2022	19-07-2022	18-07-2022	19-07-2022
	: Warshall's and Floyd's algorithms		19-07-2022	21-07-2022	19-07-2022	21-07-2022
	Making Change,		21-07-2022	22-07-2022	21-07-2022	22-07-2022
	Chained Matrix multiplication		25-07-2022	26-07-2022	25-07-2022	26-07-2022
	Longest Common Subsequence.		26-07-2022	28-07-2022	26-07-2022	28-07-2022
	Longest Common Subsequence.		28-07-2022	29-07-2022	28-07-2022	29-07-2022

5	**Exploring Graphs:**	**5**				
	An introduction using graphs and games		01-08-2022	16-08-2022	01-08-2022	16-08-2022
	Undirected Graph, Directed Graph		02-08-2022	18-08-2022	02-08-2022	18-08-2022
	Traversing Graphs,		16-08-2022	23-08-2022	16-08-2022	23-08-2022
	Depth First Search, Breath First Search,		18-08-2022	25-08-2022	18-08-2022	25-08-2022
	Topological sort.		22-08-2022	26-08-2022	22-08-2022	26-08-2022
6	**Backtracking and Branch and Bound:**	**5**				
	Introduction to Back tracking		23-08-2022	01-09-2022	23-08-2022	01-09-2022
	The Eight queen's problem		25-08-2022	02-09-2022	25-08-2022	02-09-2022
	Branch and Bound:		29-08-2022	06-09-2022	29-08-2022	06-09-2022
	Knapsack problem		30-08-2022	08-09-2022	30-08-2022	08-09-2022
	, Travelling Salesman problem		01-09-2022	09-09-2022	01-09-2022	09-09-2022
7	**Introduction to NP-Completeness:**	**5**				
	The class P and NP, Polynomial reduction		05-09-2022	15-09-2022	05-09-2022	15-09-2022
	NP - Completeness Problem		06-09-2022	16-09-2022	06-09-2022	16-09-2022
	NP-Hard Problems.		08-09-2022	20-09-2022	08-09-2022	20-09-2022
	Introduction to Randomization and Approximation algorithms		15-09-2022	22-09-2022	15-09-2022	22-09-2022
	Introduction to Randomization and Approximation algorithms		20-09-2022	23-09-2022	20-09-2022	23-09-2022