

Lesson Plan

Name of Faculty : Dr. Sanjay Dahiya, Associate Professor of CSE
Discipline : Computer Science and Engineering
Semester : 3rd (Odd)
Subject : Data Structure & Algorithm (PC/CSE/31-T)
Lesson Plan Duration : 15 weeks (from July-December-2024)
Work Load (Lecture/Practical) per week (in hours): Lectures-03 hours

Week	Theory		Topic Covered Date and Remarks		
	Lecture-Day	Topic (Including Assignment/Test)	Date	HOD	Director- Principal
1 st	1	Data Structure: Definition and its types			
	2	Abstract Data Types			
	3	Static and dynamic memory storage			
	4	Query and Solution			
2 nd	5	Array and Matrices			
	6	Sparse matrices			
	7	Multi-dimensional arrays			
	8	Operations on arrays: Linear search			
3 rd	9	Binary search			
	10	Selection sort			
	11	Bubble sort			
	12	Insertion sort			
4 th	13	Merge Sort			
	14	Linked List: Type (singly, circular, header, doubly)			
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	16	Operations on Lists — create, Insert, display			
5 th	17	Operations on Lists — Search, delete			
	18	Application of Linked List			
	19	Stacks: Definition, POP and PUSH operation			
	20	Array implementation of stacks			
6 th	21	Linked implementation of stacks			
	22	Applications of Stacks: Infix, Prefix expression			
	23	Applications of Stacks: Postfix expression			
	24	Conversion and Evaluation of Expression			
7 th	1st Minor Test				
8 th	25	Recursion			
	26	Quick Sort			
	27	Queues: Definition, Array implementation of queues			
	28	Linked implementation of queues			
9 th	29	Circular queues			
	30	Double-ended queues			
	31	Priority Queue			
	32	Query and Solution			
10 th	33	Tree: Binary tree and their properties			
	34	Complete Binary Tree and Threaded Tree			
	35	Linked and static representation of binary trees			
	36	Query and Solution			
11 th	37	Different tree traversal algorithms (non-recursive)			
	38	Different tree traversal algorithms (non-recursive)			
	39	Binary Search Tree (create, delete, search, insert, Display)			
	40	Heap Sort and its complexity analysis			
12 th	41	AVL Trees			
	42	Balanced multi-way search trees			
	43	Graphs: Definition, Array and linked representation of graphs			
	44	Traversal (BFS and DFS)			
13 th	45	Adjacency matrix and adjacency lists, path matrix			
	46	Finding Shortest Path - Warshall's Algorithm			
	47	Hashing, Hash table, Hash functions.			
	48	Running time: Time Complexity			
14 th	2nd Minor Test				
15 th	49	Big-Oh - notation, Best Case, Worst Case, Average Case			
	50	Factors depends on running time			
	51	Evaluating time Complexity			
	52	Query and Solution			