Department of Electronics and Telecommunication Engineering

LECTURE PLAN

Name of Course with Code: Data Structures (20242102)	**Class: (ET A & B) III Sem.**	**Session: July-December 2025**

Teaching Session	**Content to be Covered**	**CO's**	**Blooms Level (BL)**	**% Coverage**	**Mode**
1.	Introduction to Data Structures and Algorithms	CO1	L2	2%	Offline Teaching
2.	Characteristics of Algorithms, Time and Space Complexity, Asymptotic Notations	CO1	L3	2%	Offline Teaching
3.	Array Representations and Index to Address Translation	CO1	L3	2%	Offline Teaching
4.	Introduction to Linked List and Implementation	CO1	L3	2%	Learning through Demonstration
5.	Types of Linked Lists (Singly, Doubly, Circular) and Operations	CO1	L4	2%	Group-based Learning
6.	Discussion on Unit I	CO1	L2	1%	Open Discussion
7.	Introduction to Stack and its Operations	CO2	L2	2%	Offline Teaching
8.	Applications of Stack: Infix to Postfix, Evaluation of Postfix	CO2	L3	3%	Offline Teaching
9.	Concept of Recursion and its Applications	CO2	L3	3%	Offline Teaching
10.	Introduction to Queue and its Types (Linear, Circular, Priority, Dequeue)	CO2	L2	3%	Offline Teaching
11.	Queue Implementations and Operations	CO2	L3	3%	Group-based Learning
12.	Discussion on Unit II	CO2	L2	2%	Open Discussion
13.	Trees: Types, Terminologies, Binary Tree, Traversals	CO3	L2	3%	Offline Teaching
14.	Binary Search Tree (BST) and Threaded Binary Tree	CO3	L3	3%	Learning through Demonstration
15.	AVL Tree: Rotations and Balancing	CO3	L4	3%	Offline Teaching
16.	Graphs: Terminology, Representations (Adjacency List, Matrix)	CO3	L2	3%	Offline Teaching
17.	Graph Traversals: BFS and DFS	CO3	L3	3%	Group-based Learning

18.	Minimum Spanning Trees: Prim's and Kruskal's Algorithm	CO3	L4	3%	Learning through Demonstration
19.	Discussion on Unit III	CO3	L2	2%	Open Discussion
20.	Searching: Linear and Binary Search	CO4	L2	3%	Offline Teaching
21.	Hashing: Techniques and Collision Resolution	CO4	L3	3%	Offline Teaching
22.	Sorting Techniques: Bubble, Selection, Insertion Sort	CO4	L3	3%	Learning through Demonstration
23.	Time Complexity Comparison of Sorting Algorithms	CO4	L4	3%	Offline Teaching
24.	Discussion on Unit IV	CO4	L2	2%	Open Discussion
25.	Introduction to Advanced Data Structures and Applications in Big Data, AI, etc.	CO5	L2	3%	Offline Teaching
26.	Use of Hashing in Large Scale Systems	CO5	L3	3%	Offline Teaching
27.	Graph-based Structures in Real-time Industrial Systems	CO5	L4	3%	Learning through Demonstration
28.	Introduction to Concurrent and Distributed Data Structures	CO5	L3	3%	Offline Teaching
29.	Final Discussion on Advanced Concepts	CO5	L2	2%	Open Discussion
30.	Time and Space Trade-offs in Algorithm Design	CO5	L4	2%	Offline Teaching
31.	Real-world Applications of Stacks and Queues in OS and Compilers	CO5	L3	2%	Offline Teaching
32.	Tree-based Indexing in Databases (B-Trees and B+ Trees)	CO5	L4	2%	Offline Teaching

Online	**Offline**				
	Black board teaching	**Group based Learning**	**Learning through experimentation**	**Activity based Learning**	**Onsite/field-based learning**
0 %	61.7 %	9.9 %	17.3 %	11.1 %	0 %

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