

State Institute Of Engineering and Technology, Nilokheri

DEPARTMENT OF CSE(AIML)

LECTURE PLAN(B23-CAM-201)

NAME OF FACULTY : Diksha Saini

DISCIPLINE : B. Tech. Computer Science and Engineering

SEMESTER : 3rd

SUBJECT : Data Structure And Algorithm

LESSON PLAN DURATION : 15 weeks (July-December, 2026)

WORK LOAD PER WEEK : L: T: P- 3:0:3

(IN HOURS)

Week	Theory		Practical	
	Lecture No.	Topic	Practical No.	Topic (including viva-voce)
1ST	1	Introduction to Data Structures, Data Types	1	Write a program for Binary search methods.
	2	Built in and User Defined Data Structures, Applications of Data Structure.		
	3	Algorithm Analysis, Worst, Best and Average Case Analysis		
2ND	4	Notations of Space and Time Complexity Basics of Recursion.	2	Write a program for insertion sort, selection sort and bubble sort
	5	Arrays, One Dimensional Arrays		
	6	Two Dimensional Arrays and Multi-Dimensional Arrays		
3RD	7	Sparse Matrices, Searching from array using Linear	3	Write a program to implement Stack and its operation.
	8	Binary Searching Algorithm		
	9	Sorting of array using Selection		
4TH	10	Sorting of array using Insertion	4	Write a program for quick sort
	11	Sorting of array using Bubble, Radix Algorithm		
	12	Revision of Unit 1		
5TH	13	Stacks: Definition, Implementation of Stacks	5	Write a program for merge sort.
	14	Stack Operations, Evaluation of Infix, prefix and Postfix Expression		
	15	Interconversion of Infix, Prefix & Post-Fix Exp		

6TH	16	Sessional 1		Viva Voce
7TH	17	Implementation of Merge Sort and Quick Sort Algorithm	6	Write a program to implement Queue and its operation.
	18	Queues: Definition,		
	19	Sequential Implementation of Linear Queues and Its Operations		
8TH	20	Circular Queue and Its Implementation	7	Write a program to implement Circular Queue and its operation.
	21	Priority Queues and Its Implementation		
	22	Applications of queues.		
9TH	23	Revision of unit 2	8	Write a program to implement singly linked list for the following operations: Create, Display, searching, traversing and deletion.
	24	Linked Lists: Need of Dynamic Data Structures		
	25	Single Link List and Its Dynamic Implementation		
10TH	26	Sessional 2		Viva -voce
11TH	27	Traversing, Insertion, Deletion Operations on Single Link Lists	9	Write a program to implement doubly linked list for the following operations: Create, Display, inserting, counting, searching, traversing and deletion.
	28	Comparison between Static and Dynamic		
	29	Implementation of Linked List.		
12TH	30	Circular Link Lists and Doubly Link List,	10	Write a program to implement circular linked list for the following operations: Create, Display, inserting, counting, searching, traversing and deletion.
	31	Dynamic Implementation of Primitive Operations on Doubly Linked Lists		
	32	Dynamic Implementation of Primitive Operations on Circular Link List. Dynamic Implementation of Stacks and Queues		
13TH	33	Revision of unit 3	11	Write a program to implement insertion, deletion and traversing in B tree

	34	Trees: Definition, Basic Terminology, Binary Tree, External and Internal Nodes		
	35	Static and Dynamic Implementation of a Binary Tree, Primitive Operations on Binary Trees		
14TH	36	Binary Tree Traversals: Pre-Order, In-Order and Post-Order Traversals. Representation of Infix, Post-Fix and Prefix Expressions using Trees.	12	Internal viva voce
	37	Introduction to Binary Search Trees: B+ trees, AVL Trees, Threaded Binary trees, Balanced Multi-way search trees, Implementation of Heap Sort Algorithm.		
	40	Graphs: Basic Terminology, Definition of Undirected and Directed Graphs, Memory Representation of Graphs, Minimum-Spanning Trees, Warshal Algorithm, Graph Traversals Algorithms: Breadth First and Depth First.		
15TH	41	Revision/Sessional 3		Internal Viva Voce