GOAPAL KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY
GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005

LESSON PLAN

Name of the Subject: CSPC2002 DATA STRUCTURES
Session : 2025-26
Name of the Faculty: Pranati Nayak
Semester: 3rd **Branch:** Computer Sc.&Engg.
Semester From: JULY **No. of Weeks:** 13 Weeks

Week	Day	THEORY TOPICS	Classes
		Unit 1: **Introduction**	**12Hrs**
1	1	Introduction to data structures	50Min
	2	Concept of Abstract Data Types	50Min
	3	Operations: Insertion	50Min
	4	Operations: Deletion	50 Min
2	5	Operations: Traversal, Merging	50Min
	6	Strings and Arrays	50Min
	7	Operations on Arrays and strings	50Min
	8	Concept of Sparse Matrix	50Min
3	9	Address calculation and Representation of Matrices	50Min
	10		50Min
	11	Searching: Linear Search and its complexity analysis	50Min
	12	Binary Search and its complexity analysis	50Min
4	13	Revision class	50Min
		UNIT 2: **Stacks and Queues:**	**8Hrs**
	14	ADT Stack and its operations: Algorithms	50Min
	15	Applications of Stacks: Expressions Conversion ; corresponding algorithms and its analysis,	50 Min
	16	Recursion using Stack	50Min
5	17	Queues & Its Type	50 Min
	18	Queues operations **algorithms and its analysis**	50 Min
	19	Insertion and Deletion algorithms Application of Queues	50 Min
	20	Array Implementation of Stack and Queue	50Min
6	21		50Min
	22	Revision class	50Min
		UNIT 3: **Linked Lists:**	**8Hrs**
	23	Concept of Linked Lists, Advantages of Linked Lists over Arrays	50 Min
	24	Representation in Memory &Types of Linked Lists:	50 Min
7	25	Operations on Linked Lists: Merging, Updation,;	50 Min

	26	Operations on Linked Lists: Insertion, Deletion,	50 Min
	27	Linked Representation of Queue,	50 Min
	28	Linked Representation of Stack	50 Min
8	29	Single Linked-Lists: Operations and algorithmic analysis	50 Min
	30	Double Linked-Lists: Operations and algorithmic analysis	50 Min
	31	Circular Linked-Lists: Operations and algorithmic analysis	50 Min
		Unit 4: **Trees and Graphs:**	**10Hrs**
	32	Trees Terminologies & types of trees:	50Min
9	33	Threaded Binary Trees: Operations, algorithms and their analysis,	50Min
	34	Binary Search Trees: Operations, algorithms and their analysis,	50Min
	35	AVL Trees: Operations, algorithms and their analysis,	50 Min
	36	Applications of Binary Trees:B-Trees (Definitions, algorithms and analysis)	50 Min
10	37	Applications of Binary Trees: B+-Trees: (Definitions, algorithms and analysis)	50Min
	38	Graphs: Terminologies and Representations,	50Min
	39	Graph Search and Traversal algorithms and their analysis,	50Min
	40	Shortest-path algorithms- Dikjstra	50 Min
11	41	Warshall's, Spanning Tree algorithms-Kruskal, Prims	50Min
	42		50Min
		Unit 5: **Sorting and Hashing:**	**7Hrs**
	43	Sorting and Hashing: Objective and analysis	50Min
	44	Selection Sort, Bubble Sort,	50Min
12	45	Merge Sort, Heap Sort,	50Min
	46	Quick Sort, Radix Sort,	50Min
	47	Insertion Sort,	50Min
	48	Hashing Techniques	50Min
13	49	Revision class	50Min