

SATYUG DARSHAN INSTITUTE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Lesson Plan / Teaching Plan / Lecture Plan with Progress : BCA - Gen/DS. Semester 2nd : 2025-26

<u>Course Name(Code):</u> Data Structures (BCG-104-V1)			<u>Faculty :</u>		Ms. Nikita Narang
<u>Topics / lectures are arranged in sequence - same - as to be taught in the class. Maintain data related to "Date" in its hard copy.</u>					
S. No.	Lecture No	Topic Description	Teaching Pedagogy	Reference Material	Remarks, if any
1	1	Introduction to Data Structures	TC-1	R1,R2,R3	
2	2	Classification of Data Structures (Primitive & Non-Primitive)	TC-1	R1,R2,R3	
3	3	Operations and Applications of Data Structures	TC-1	R1,R2,R3	
4	4	Algorithms: Definition and Characteristics	TC-1	R1,R2,R3	
5	5	Algorithms: Complexity Analysis (Time & Space) & Time Space Trade off	TC-1	R1,R2,R3	
6	6	Asymptotic Notations (Big-O, Big-Ω, Big-Θ)	TC-1	R1,R2,R3	
7	7	Arrays: Definition, Memory Representation	TC-1	R1,R2,R3	
8	8	Operations on Arrays - Traversal & Insertion	TC-1	R1,R2,R3	
9	9	Operations on Arrays - Deletion	TC-1	R1,R2,R3	
10	10	Searching in Arrays (Linear Search)	TC-1	R1,R2,R3	
11	11	Searching in Arrays (Binary Search)	TC-1	R1,R2,R3	
12	12	Sorting in Arrays (Bubble, Insertion)	TC-1	R1,R2,R3	
13	13	Sorting in Arrays (Selection, Merge)	TC-1	R1,R2,R3	
14	14	Sorting in Arrays (Quick)	TC-1	R1,R2,R3	
15	15	Merging of Arrays	TC-1	R1,R2,R3	
16	16	2D Arrays and Representation in Memory	TC-1	R1,R2,R3	
17	17	Matrices and Sparse Matrices/Multidimensional Arrays	TC-1	R1,R2,R3	
18	18	Revision/Class Test	TC-1	R1,R2,R3	
19	19	Introduction of Linked List, Array v/s Linked List	TC-1	R1,R2,R3	
20	20	Representation of LL in Memory	TC-1	R1,R2,R3	
21	21	Types of LL and Operations	TC-1	R1,R2,R3	
22	22	Singly LL and Operations	TC-1	R1,R2,R3	
23	23	Doubly LL and Operations	TC-1	R1,R2,R3	
24	24	Circular LL and Operations	TC-1	R1,R2,R3	
25	25	Applications of LL: Addition of Polynomials	TC-1	R1,R2,R3	
26	26	Hashing and Hash Tables	TC-1	R1,R2,R3	
27	27	Hash Functions and Types of Hash Functions	TC-1	R1,R2,R3	
28	28	Collision and Collision Resolution Techniques - Open Addressing	TC-1	R1,R2,R3	
29	29	Collision and Collision Resolution Techniques - Chaining	TC-1	R1,R2,R3	
30	30	Revision/Class Test	TC-1	R1,R2,R3	
31	31	Stack: Definition and Representation	TC-1	R1,R2,R3	
32	32	Stack Implementation (using arrays and LL) and Operations	TC-1	R1,R2,R3	
33	33	Stack Operations & Runtime Stack	TC-1	R1,R2,R3	
34	34	Applications of Stack: Arithmetic Expressions (Infix, Postfix, Prefix)	TC-1	R1,R2,R3	
35	35	Polish Notation	TC-1	R1,R2,R3	
36	36	Conversion of Infix to Postfix, Evaluation of Postfix	TC-1	R1,R2,R3	
37	37	Recursion: Definition & Concept	TC-1	R1,R2,R3	
38	38	Recursive Problems - Factorial & Fibonacci	TC-1	R1,R2,R3	
39	39	Recursive Problems - Towers of Hanoi	TC-1	R1,R2,R3	
40	40	Introduction to Queues, Types and Representation of Queues	TC-1	R1,R2,R3	
41	41	Operations on Simple Queue	TC-1	R1,R2,R3	
42	42	Operations on Circular Queue	TC-1	R1,R2,R3	
43	43	Application of Queue	TC-1	R1,R2,R3	
44	44	Revision/Class Test	TC-1	R1,R2,R3	
45	45	Graphs: Definition & Terminology	TC-1	R1,R2,R3	
46	46	Representation of Graphs and Traversal	TC-1	R1,R2,R3	
47	47	Trees: Definition & Terminology	TC-1	R1,R2,R3	
48	48	Binary Tree and Traversal	TC-1	R1,R2,R3	
49	49	Binary Search Tree	TC-1	R1,R2,R3	
50	50	Insertion and Deletion of BST	TC-1	R1,R2,R3	
51	51	Searching in BST	TC-1	R1,R2,R3	
52	52	Concept of AVL Trees (Height Balanced Trees)	TC-1	R1,R2,R3	
53	53	Insertion in AVL Trees	TC-1	R1,R2,R3	

54	54	Deletion from AVL Trees	TC-1	R1,R2,R3	
55	55	Doubt Class/Revision	TC-1	R1,R2,R3	
TEXT BOOKS:					
R1.	Data Structure Through C, Yashavant Kanetkar, BPB Publications				
R2.	Data Structure using C, Reema Thareja, Oxford University Press				
R3.	Data Sructure using C, A.K Sharma, Pearson Education India				
RECOMMENDED BOOKS:					
R1.	Data Structure Through C, Yashavant Kanetkar, BPB Publications				
R2.	Data Structure using C, Reema Thareja, Oxford University Press				
Name and Signature of Faculty					
Nikita Narang					