



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING - DATA SCIENCE

Lesson Plan & Work-done Diary for AY: 2026-27, Odd Semester

Course with Code:Data Structures Lab 1BCSL306				Faculty: Dr.Neethi M V		Semester & Section:3 'A'	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
1.		Develop a Program in C for the following: a. Define a structure Book with the following fields: Book_ID, Title, Author, Price, Availability Status (Available/Issued) b. Dynamically allocate memory to store the details of N books, where N is entered by the user.	Chalk & Talk PPT			Chalk & Talk PPT	
2.		Develop a menu driven Program in C for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX) a. Push an Element on to Stack b. Pop an Element from Stack c. Demonstrate how Stack can be used to check Palindrome d.Demonstrate Overflow and Underflow situations on Stack e. Display the status of Stack f. Exit Support the program with appropriate functions for each of the above operations	Chalk & Talk PPT			Chalk & Talk PPT	
3.		Develop a program in C for simulating a Printer Queue using Queue data structure	Chalk & Talk			Chalk & Talk	

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING - DATA SCIENCE

		with the following operations: a. Add a print job to the Printer Queue. b. Process (delete) a print job from the Printer Queue. c. Display all pending print jobs in the Queue. d. Display the number of print jobs currently waiting in the Queue. e. Demonstrate Queue overflow and underflow conditions. f. Exit.	PPT			PPT	
4.		Develop a menu-driven Program in C for the following operations on a Singly Linked List of Student Records: a. Create a linked list using front insertion. b. Display all student records and count the number of nodes. c. Insert and delete nodes at the beginning and end of the list. d. Search for a student record using USN	Chalk & Talk PPT			Chalk & Talk PPT	
5.		Develop a menu-driven Program in C for the following operations on a Singly Linked List of Student Records: a. Create a linked list using front insertion. b. Display all student records and count the number of nodes. c. Insert and delete nodes at the beginning and end of the list. d. Search for a student record using USN	Chalk & Talk PPT			Chalk & Talk PPT	
6.		Develop a Program in C for the following operations on Graph(G) of Cities a. Create an Adjacency Matrix representing the graph of N cities b. Print all the nodes reachable from a given starting node in a digraph using DFS/BFS method.	Chalk & Talk PPT			Chalk & Talk PPT	

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING - DATA SCIENCE

7.	Develop a C program to: a. Read two sparse matrices of the same order. b. Convert both into 3-tuple representation. c. Perform matrix addition. d. Display the resultant matrix in both normal matrix form and 3-tuple form.	Chalk & Talk PPT			Chalk & Talk PPT	
8.	Develop a C-based Expression Conversion tool that uses stack data structure to convert arithmetic expressions from infix notation to postfix notation. The tool should support alphanumeric operands, parentheses, and the operators (+, -, *, /, %, ^). Analyze the correctness of the conversion by testing various valid expressions.	Chalk & Talk PPT			Chalk & Talk PPT	
9.	Develop a menu-driven Program in C for the following operations on Circular Queue (integer/floating point data): a. Insert an element into the Circular Queue. b. Delete an element from the Circular Queue. c. Display the contents of the Circular Queue. d. Demonstrate overflow and underflow conditions. e. Exit.	Chalk & Talk PPT			Chalk & Talk PPT	
10.	Develop a menu driven Program in C for the following operations on Doubly Linked List (DLL) of Employee Data with the fields: SSN, Name, Dept, Designation, Sal, PhNo etc. a. Create a DLL of N Employees Data by using end insertion. b. Display the status of DLL and count the number of nodes in it c. Perform Insertion and Deletion at End of DLL d. Perform Insertion and Deletion at Front of DLL e. Demonstrate how this DLL can be used as Double Ended Queue.	Chalk & Talk PPT			Chalk & Talk PPT	

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING - DATA SCIENCE

		f. Exit					
11.		Develop a menu driven Program in C for the following operations on Binary Search Tree (BST) of Integers. a. Create a BST of N Integers b. Traverse the BST in Inorder, Preorder and Post Order c. Search the BST for a given element (KEY) and report the appropriate message d. Exit	Chalk & Talk PPT			Chalk & Talk PPT	
12.		Develop a Program in C for an Employee Record Management System using Hashing with the following operations: a. Create a hash table to store employee records using Employee ID as the key. b. Insert employee records into the hash table using the Hash function $H: K \rightarrow L$ as $H(K) = K \text{ mod } m$ c. Resolve collisions using Linear Probing. d. Search for an employee record using a given Employee ID and display the details. e. Display the contents of the hash table along with the corresponding memory locations.	Chalk & Talk PPT			Chalk & Talk PPT	