

**SUBJECT PLAN**  
**DATA STRUCTURES LAB(R3)**

Sl. No.	Day	Topic
1	1	Write a C program to perform linear search in an array of n elements.
2	1	Write a C program to perform binary search in an array of n elements.
3	1	Write a C program to perform bubble sort in an array of n elements.
4	1	Write a C program to perform insertion sort in an array of n elements.
5	2	Write a C program to perform selection sort in an array of n elements.
6	2	Write a program to read two polynomials and store them in an array. Calculate the sum of the two polynomials and display the first polynomial, second polynomial and the resultant polynomial.
7	2	Write a program to enter two matrices in normal form. Write a function to convert two matrices to tuple form and display it. Also find the transpose of the two matrices represented in tuple form and display it. Find the sum of the two matrices in tuple form and display the sum in tuple form.
8	2	Implement a Stack using arrays with the operations: 1.Pushing elements to the Stack. 2.Popping elements from the Stack .3.Display the contents of the Stack after each operation.
9	3	Implement a circular queue using arrays with the operations: 1.Insert an element to the queue. 2.Delete an elements from the queue. 3.Display the contents of the queue after each operation.
10	3	Implement a Queue using arrays with the operations: 1.Insert elements to the Queue. 2.Delete elements from the Queue. 3.Display the contents of the Queue after each operation.
11	3	Implement a Priority Queue using arrays with the operations: 1.Insert elements to the Priority Queue. 2.Delete elements from the Priority Queue. 3.Display the contents of the Priority Queue after each operation.
12	3	Implement a Double-Ended Queue (DEQUEUE) with the operations: 1.Insert elements to the Front of the queue. 2.Insert elements to the Rear of the queue. 3.Delete elements from the Front of the queue. 4.Delete elements from the Rear of the queue. 5.Display the queue after each operation.
13	4	Using stack convert an infix expression to a postfix expression and evaluate the postfix expression.
14	4	Write a program to convert an infix expression to a prefix expression using stacks.
15	4	Convert an infix expression to a postfix expression without using a stack.
<b>Lab Series Exam I</b>		
16	5	Write a menu driven program for performing the following operations on a Linked List: 1.Display 2.Insert at Beginning 3.Insert at End 4.Insert at a specified

		Position 5.Delete from Beginning 6.Delete from End 7.Delete from a specified Position
17	5	Implement a stack using linked list with the operations: 1.Push elements to the queue. 2.Pop elements from the queue. 3.Display the queue after each operation.
18	5	Implement a Queue using linked list with the operations: 1.Insert an elements to the queue. 2.Delete an elements from the queue. 3.Display the queue after each operation.
19	5	Write a program to reverse the content of queue using stack.
20	6	Write a program to read two polynomials and store them using linked list. Calculate the sum of the two polynomials and display the first polynomial, second polynomial and the resultant polynomial.
21	6	Write a program to read two polynomials and store them using linked list. Find the product of two polynomials and store the result using linked list. Display the resultant polynomial.
22	6	The details of students(number, name, total-mark) are to be stored in a linked list. Write functions for the following operations: 1.Insert 2.Delete 3.Search 4.Sort on the basis of number 5.Display the resultant list after every operation
23	6	Create a Doubly Linked List from a string taking each character from the string. Check if the given string is palindrome in an efficient method.
		<b>Lab Series Exam II</b>
24	7	Create a binary tree with the following operations 1.Insert a new node 2.Inorder traversal. 3.Preorder traversal. 4.Postorder traversal. 5.Delete a node.
25	7	Write a program to create a binary search tree and find the number of leaf nodes.
26	7	Create a binary search tree with the following operations: 1.Insert a new node . 2.Inorder traversal. 3.Preorder traversal. 4.Postorder traversal. 5.Delete a node.
27	8	Write a program to sort a set of numbers using a binary tree.
28	8	Represent any given graph and 1.Perform a depth first search. 2.Perform a breadth first search
29	8	Create a text file containing the name, height, weight of the students in a class. Perform Quick sort and Merge sort on this data and store the resultant data in two separate files. Also write the time taken by the two sorting methods into the respective files. Eg. Sony Mathew 5.5 60 Arun Sajeev 5.7 58 Rajesh Kumar 6.1 70
30	9	Write a program to sort a set of numbers using Heap sort and find a particular number from the sorted set using Binary Search.
31	9	Implement a Hash table using Chaining method. Let the size of hash table be 10 so that the index varies from 0 to 9.
32	9	Implement a Hash table that uses Linear Probing for collision resolution.
		<b>Lab Series Exam Final</b>