B. TECH. SECOND YEAR (3rd Semester)- CSE/IT/CS/M.Tech. Integrated/ Data Science/AI/AI-ML			
Course code	**ACSE0351**	**L T P**	**Credit**
Course title	**DATA STRUCTURES LAB**	**0 0 2**	**1**

List of Experiments:

Sr. No.	Name of Experiment	CO
1	Program to create and display Linear Array	CO1
2	Program to insert a data item at any location in a linear Array	CO1
3	Program to delete a data item from a Linear Array	CO1
4	Program to implement multiplication of two matrices.	CO1
5	Program to create sparse matrix.	CO1
6	Program to implement linear search in an Array	CO4
7	Program to implement binary search in an Array	CO4
8	Program to implement bubble sort in a non-recursive way	CO4
9	Program to implement selection sort in a non-recursive way	CO4
10	Program to implement insertion sort in a non-recursive way	CO4
11	Program to implement Merge sort in a non-recursive way	CO4
12	Program to implement Merge sort in a recursive way	CO4
13	Program to implement Quick sort in a recursive way	CO4
14	Program to implement Queue Using array	CO3
15	Program to implement Circular Queue Using array	CO3
16	Program to implement Stack Operation using array	CO3
17	Program to implement the Single Linked List a. Insertion b. Deletion c. Traversal d. Reversal e. Searching f. Updation g. Sorting h. Merging	CO2

18	Program to implement the doubly Linked List a. Insertion b. Deletion c. Traversal d. Reversal e. Searching f. Updation g. Merging	CO2
19	Program to implement the circularly Single Linked List a. Insertion b. Deletion c. Traversal d. Reversal e. Searching f. Updation	CO2
20	Program to implement Queue Using linked list	CO3
21	Program to implement Circular Queue Using linked list	CO3
22	Program to implement Priority Queue Using linked list	CO3
23	Program to implement Stack Operation using Linked list	CO3
24	Program to convert infix to postfix expression.	CO3
25	Program to evaluate postfix expression	CO3
26	Program to compute factorial using tail recursion	CO3
27	Program to implement Tower of Hanoi	CO3
28	Program implementing Addition of two polynomials via Linked Lists	CO2
29	Program to implement binary tree using linked list a. Insertion b. Deletion c. Traversal d. Searching	CO5
30	Program to implement binary search tree using linked list a. Insertion b. Deletion c. Traversal d. Searching	CO5
31	Program to implement Heap sort in a non-recursive way	CO5
32	Program to implement Radix sort.	CO4
33	Program to implement BFS algorithm	CO5
34	Program to implement DFS algorithm	CO5
35	Program to implement the minimum cost spanning tree	CO5
36	Program to implement the shortest path algorithm	CO5

Lab Course Outcome: After completion of this course students will be able to		
CO 1	Implement operations on single and multi-dimensional array.	K3
CO 2	Implement various linear data structures like single Linked-list, doubly Linked-list, Circular linked-list.	K3, K6
CO 3	Implement Stack and Queue using array and linked list.	K3
CO 4	Analyze and Implement sorting and searching algorithms.	K4, K6
CO5	Solve complex problems using non-linear data structures like tree and graph.	K6