



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

I Year – II Semester	L	T	P	C
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DATA STRUCTURES LAB (CS1202)				

Course Objectives:

The objective of this lab is to

- Demonstrate the different data structures implementation.

Course Outcomes:

By the end of this lab the student is able to

- Use basic data structures such as arrays and linked list.
- Programs to demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and shortest paths.
- Use various searching and sorting algorithms.

Exercise -1 (Searching)

Write C program that use both recursive and non recursive functions to perform Linear search for a Key value in a given list.

b) Write C program that use both recursive and non recursive functions to perform Binary search for a Key value in a given list.

Exercise – 2 (Sorting-I)

a) Write C program that implement Bubble sort, to sort a given list of integers in ascending order

b) Write C program that implement Quick sort, to sort a given list of integers in ascending order

c) Write C program that implement Insertion sort, to sort a given list of integers in ascending order

Exercise -3 (Sorting-II)

a) Write C program that implement radix sort, to sort a given list of integers in ascending order

b) Write C program that implement merge sort, to sort a given list of integers in ascending order

Exercise -4 (Singly Linked List)

a) Write a C program that uses functions to create a singly linked list

b) Write a C program that uses functions to perform insertion operation on a singly linked list

c) Write a C program that uses functions to perform deletion operation on a singly linked list

d) Write a C program to reverse elements of a single linked list.

Exercise -5(Queue)

a) Write C program that implement Queue (its operations) using arrays.

b) Write C program that implement Queue (its operations) using linked lists

Exercise -6 (Stack)

a) Write C program that implement stack (its operations) using arrays

b) Write C program that implement stack (its operations) using Linked list

c) Write a C program that uses Stack operations to evaluate postfix expression

Exercise -7 (Binary Search Tree)

a) Write a C program to Create a BST

b) Write a C program to insert a node into a BST.

c) Write a C program to delete a node from a BST.

d) Write a recursive C program for traversing a binary tree in preorder, inorder and postorder.