Techno India NJR Institute of Technology
Academic Administration of Techno NJR Institute
Lab Deployment

Name of Faculty: Mr. Akilesh Arya	Subject Code:3EC3-24
Subject Name: Computer Programming Lab	Semester: III
Department: Department of Electronics and Communication Engineering	
Total No. of Labs Planned: 12	

COURSE OUTCOMES

At the end of this course students will be able to:
CO1: Read, understand and trace the execution of programs written in C language.
CO2: Write the C code for a given algorithm.
CO3: Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor
CO4: Write programs that perform operations using derived data types.

Lab No.	Name of Experiment
1.	Write a simple C program on a 32 bit compiler to understand the concept of array storage, size of a word. The program shall be written illustrating the concept of row major and column major storage. Find the address of element and verify it with the theoretical value. Program may be written for arrays upto 4-dimensions.
2.	Simulate a stack, queue, circular queue and dequeue using a one dimensional array as storage element. The program should implement the basic addition, deletion and traversal operations.
3.	Represent a 2-variable polynomial using array. Use this representation to implement addition of polynomials.
4.	Represent a sparse matrix using array. Implement addition and transposition operations using the representation.
5.	Implement singly, doubly and circularly connected linked lists illustrating operations like addition at different locations, deletion from specified locations and traversal.

6.	Simulate a stack, queue, circular queue and dequeue using linked list as storage element. The program should implement the basic addition, deletion and traversal operations.
7.	Represent a 2-variable polynomial using linked list. Use this representation to implement addition of polynomials.
8.	Represent a sparse matrix using linked list. Implement addition and transposition operations using the representation.
9.	Implementation of binary tree with operations like addition, deletion, traversal.
10.	Depth first and breadth first traversal of graphs represented using adjacency matrix and list.
11.	Implementation of binary search in arrays and on linked Binary Search Tree.
12.	Implementation of insertion, quick, heap, topological and bubble sorting algorithms.

TEXT/REFERENCE BOOKS
1. Problem Solving and Program Design in C, 4th edition, by jeri R. Hanly and Elli B.Koffman.
2. 2.Programming in C by Pradip Dey, Manas Ghosh 2nd edition Oxford University Press.
3. 3. E.Balaguruswamy, Programming in ANSI C 5th Edition McGraw-Hill
4. 4. A first book of ANSI C by Gray J.Brosin 3rd edition Cengagedelmer Learning India P.Ltd
5. 5.AL Kelly, Iraphol,Programming in C,4th edition Addison-Wesley – Professional
6. 6.Brain W.Kernighan & Dennis Ritchie, C Programming Language, 2nd edition, PHI