

SEM/YEAR : III SEM
COURSE CODE : 16CS271
TITLE OF THE COURSE : DATA STRUCTURES AND APPLICATIONS LAB
L: T/A:P: C : 0 : 0 : 4 : 2

Course Objectives

1. This Lab course is designed to provide a comprehensive introduction designing algorithms by appropriate selection of Data Structures
2. Code the above algorithms and thus implement various data structures

Course outcomes

At the end of the course student will be able

1. Students will demonstrate knowledge of binary number theory, Boolean algebra and binary codes.
2. Students will analyze and design combinational systems using standard gates and minimization methods (such as Karnaugh maps).
3. Students will analyze and design combinational systems composed of standard combinational modules, such as multiplexers and decoders.
4. Students will analyze and design simple systems composed of programmable logic, such as ROMs and PLAs.

Software Required: ANSI C

List of **applications/Expts** based on the following programs/techniques:

1. Design a problem to search an element in two dimensional array.
2. Design a problem to perform following operations on tables using function only addition, Subtraction, Multiplication.
3. Design a program for performing various Basic elementary Operations (Push , Pop , Peek , isfull , isempty) using ARRAY on stack .
4. Design a program for performing various Basic elementary Operations (Enqueue , Dequeue , Peek etc.) using ARRAY on Queue.
5. Write a program using iteration and recursion concept for Quicksort.
6. Design a problem for Linked list creation and perform operations such as insert, delete ,update and reverse on it.
7. Design a problem to simulate following sorting algorithm.
a)Merge sort, b)Insertion Sort, c) Bubble Sort
8. Design a solution for following Search Techniques.
a)Linear Search, b)Binary Search
9. Design a Program for various Graph traversal techniques
10. Design a program for various tree traversal techniques.
11. Design a program for Binary Tree and Perform the following operations: Creation, Insertion & Traversal on the tree.
12. Implement Circular Linked list.
13. Design a program for performing various Basic elementary Operations (Push, Pop , Peek , isfull, isempty) using Linked List on Stack .
14. Design a program for performing various Basic elementary Operations (Enqueue , Dequeue, Peek etc.) using Linked List on Queue.
15. Design a Problem to Evaluate Prefix expression.