

22UCSL303

Data Structures and Applications Laboratory

(0-0-2) 1

Contact Hours: 24

Course Learning Objectives (CLOs): This laboratory course focuses on the following learning perspectives:

- Realization of fundamental data structures like stacks, queues, linked lists and trees.
- Compare and contrast the benefits of dynamic and static data structure implementations.
- Selection of the appropriate data structure for solving a given problem.

Course Outcomes (COs):

Description of the Course Outcome: At the end of the course the student will be able to:		Mapping to POs(1-12) / PSOs (13-16)		
		Substantial Level (3)	Moderate Level (2)	Slight Level (1)
CO-1	Write programs to solve problems using stack.	-	14	1,3, 15, 16
CO-2	Write programs to solve problems using queue.	-	14	1,3, 15, 16
CO-3	Write programs to solve problems using Linked Lists.	-	14	1,3, 15, 16
CO-4	Write programs to solve problems using binary search trees.	-	14	1,3, 15, 16
CO-5	Write programs to solve problems using 2-3 trees and 2-3-4 trees.	-	14	1,3, 15, 16

POs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mapping Level	1.0	-	1.0	-	-	-	-	-	-	-	-	-	-	2.0	1.0	1.0

Suggested list of term works:

The list of experiments is based on the following concepts:

1. Stack
2. Queue
3. Linked Lists
4. Trees (Binary Search Trees, 2-3 Trees, 2-3-4 Trees).

Reference Books:

- 1) Aaron M. Tenenbaum, Yedidyah Langsam & Moshe J. Augenstein, "Data Structures using C and C++", Pearson Education, 2006
- 2) Thomas H.Cormen, Charles E.Leiserson & Ronald L. Rivest, "Introduction to Algorithms", 2/E, Prentice Hall of India, 2003.
- 3) E. Balagurusamy, "Programming in ANSI C", 7/E, Tata McGraw-Hill, 2016

- 4) Behrouz A. Forouzan & Richard F. Gilbert, “Computer Science: A Structured Programming Approach Using C”, 2/E, Cengage Learning, 2003.