NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	Integrated B.Tech.(CSE)-MBA
Course Code:	CSI0405
Course Title:	Programming with Data Structures
Course Type:	Core
Year of Introduction:	2021-22

Credit Scheme

L	T	Practical Component				C
		LPW	PW	W	S	
0	0	4	-	-	-	2

Course Learning Outcomes (CLO):

At the end of the course, students will be able to –

1. demonstrate implementations of various operations of linear data structure
2. illustrate applications of various data structures practically
3. implement non-linear data structures like trees and graphs using primitive data types

Syllabus:

Laboratory work will be based on following concepts with minimum 10 experiments.

Various operations on array, operations on stack such as push, pop, and peep. Operations on queue such as insert, delete. Operations on linked list such as traversal, searching, updating. Operations on graphs and trees.

Self-Study: -NA-

Suggested Readings/ References:

1. Jean-Paul Tremblay and Paul G. Sorenson, An Introduction to Data Structures with Applications, Tata McGraw Hill
2. Tanenbaum, Data Structures using C & C++, PHI
3. Robert L. Kruse, Data Structures and Program Design in C, PHI
4. Mary E.S. Loomis, Data Management and file processing, PHI

Suggested List of Experiments:

Sr. No.	Title	Hours
1	To realize array operations on a suitable application	04
2	To reverse a given string using Stack To convert fully parenthesized infix expression to postfix expression.	02
3	To simulate printer spooler application To implement priority queue using an array.	02
4	To realize linked list operations on suitable applications	04
5	To simulate music playlist application using appropriate data structure	06
6	To implement Quick sort for sorting a given set of integers in ascending order.	04

7	To implement Binary search operation on a given set of integers.	04
8	To construct a binary tree from a given preorder and post order traversal sequence	04
9	To implement phone book dictionary using Binary Search Tree	06
10	To obtain a spanning tree of a connected undirected graph using appropriate data structure	04

Suggested Case List: -NA-