Course code	Course Title	L	T	P	C
BITE201P	Data Structures and Algorithms Lab	0	0	2	1
Pre-requisite	NIL	Syllabus version			
		1.0			

Course Objectives:

1. To develop programming skills to solve problems using fundamental data structures.
2. To apply appropriate data structures and algorithms in solving the real-world problems.

Course Outcomes:

1. Identify the linear data structures for solving real world problems.
2. Illustrate and analyse various searching, sorting and hashing techniques.
3. Write modular programs on nonlinear data structures and algorithms for solving engineering problems efficiently.

1.	**STACK ADT** Implement Stack and use it to convert Infix to Postfix expression Evaluate Postfix expression Implement Towers of Hanoi problem	6 hours
2.	**QUEUE ADT** Implement Queue and Circular Queue	6 hours
3.	**LIST ADT** Implement Singly and Doubly Linked Lists Implement Circular Singly Linked list Represent a Polynomial as a Linked List and write functions for Polynomial Addition	6 hours
4.	**SORTING AND SEARCHING** Implement Insertion, Bubble, and Selection sorts Implement Heap, Merge, and Radix sorts Implement Binary and Linear search Construct Hash Table and resolve collisions	6 hours
5.	**TREES AND GRAPHS** Implement a Binary tree and traverse it in Pre-order, In-order and Post-order Implement Binary Search Tree insertion and deletion operations Perform Graph Traversal Implement Dijkstra's algorithm	6 hours
	Total Laboratory Hours	30 hours

Mode of Assessment: Continuous Assessments, Final Assessment Test

Recommended by Board of Studies	20-05-2022		
Approved by Academic Council	No. 66	Date	16-06-2022