Department of Computer Science and Engineering
National Institute of Technology Tiruchirappalli

1. Course Outline			
Course Title	Data Structures Laboratory		
Course Code	CSLR21		
Department	CSE	**No. of Credits**	2
Pre-requisites Course Code	CSPC21	**Faculty Name**	Dr. R.Mohan Dr. Kunwar Singh
E-mail	rmohan@nitt.edu kunwar@nitt.edu	**Telephone No.**	0431-250-3210
Course Type	Lab Course		

2.Course Overview

This course covers some of the linear, non linear data structures, algorithms with time complexity, and software development.

3. Course Objectives

- To analyze the time and space complexities and efficiency of various algorithms.
- To understand the practical application of linear and nonlinear data structures.
- To introduce and practice advanced algorithms, programming techniques necessary for developing sophisticated computer application programs.

4. Course Outcomes (CO)

- Ability to apply and implement the learned algorithm for problem solving
- Ability to identify the data structure to develop program for real time applications
- Ability to design and develop optimal algorithms

5. Course Outcome (CO)	Aligned Programme Outcome (PO)							
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
Ability to develop programs to implement linear data structures such as stacks, queues, linked lists, etc.	S	B	M	M	B	M	B	M
Ability to apply the concept of trees and graph data structures in real world scenarios	S	B	M	B	M	B	B	M
Ability to comprehend the implementation of sorting and searching algorithms	M	B	S	S	M	M	M	B

S = 0.6 M = 0.4 B = 0.0

6. Course Teaching and Learning Activities							
L.No	Title	Type		Mode of delivery			
		L	T	C& T	PPT	VL/VC	DEMO
1.	Problems in C/C++ using data structures involving arrays.						√
2.	Operations on stacks						√
3.	Conversion of infix expressions to postfix and evaluation of postfix expressions						
4.	Operations on queues						√
5.	Operations on stacks, queues and linked lists						√
6.	Implementation of Binary Tree and Binary Search Tree						√
7.	Implementation of Tree Traversal						
8.	Implementation of Sorting Algorithms(set 1)						√
9.	Implementation of Sorting Algorithms (set 2)						√
10.	Implementation of Graph operations						√
11.	Implementation of BFS & DFS						√
12.	Implementation of MST Algorithms						√

7. Course Assessment Methods				
Sl. No.	Mode of Assessment	Week/Date	Duration	Marks
1	Continuous Assessment	Every lab session	3 hours	40
2	Mid Test 1	4th week	90 minutes	15
3	Mid Test 2	8th week	90 minutes	15
4	End Semester Exam	November 2nd week	2 hours	30
			Total	100

8. Essential Readings (Textbooks, Reference books, Websites, Journals, etc.)

Text Books

- J. P. Tremblay and P. G. Sorenson, "An Introduction to Data Structures with applications", Second Edition, Tata McGraw Hill, 1981
- M. Tenenbaum and Augestien, "Data Structures using C", Third Edition, Pearson Education 2007
- Sartaj Sahni, "Data Structures, Algorithms and Applications in C++", Universities Press (I) Pvt. Ltd.

For Senate's Consideration

Course Faculty	Class Committee Chairperson	HOD
(Dr.R.Mohan) (Dr. Kunwar Singh)	(Dr. N. RAMASUBRAMANIAN)	(Dr. R. LEELA VELUSAMY) 11/7/2016