



**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. Kunwar Singh. <i>Dr. R. Mohan</i>
E-mail	kunwar@nitt.edu	Telephone No	0431-2503210
Course Type	Lab Course	Section	A & B

2. Course Over view	
This course covers some of the linear , non-linear data structures, algorithms with time complexity and some development	
3. Course Objectives	
<ul style="list-style-type: none"> ❖ 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)	
<ul style="list-style-type: none"> ❖ Ability apply and implement the learned algorithms for problem solving ❖ Ability to identify the data structure to develop program for real time application ❖ 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	PP	VL/VC	DEM O

1.	Problems in C / C++ using data structures involving arrays							√
2.	Operations on stacks							√
3.	Conversion of infix expressions to post fix and evaluation of post fix 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 Traversals							
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				
Si.No	Mode of Assessment	Week/Date	Duration	Marks
1.	Continuous Assessment	Every lab session	3 hours	40
2.	Mid Test 1	4 th week	90 minutes	15
3.	Mid Test 2	8 th week	90 minutes	15
4.	End Semester exam	November 2 nd week	2 hours	30
Total				100

8. Essential Readings (Text books, 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.

9. Course Policy (including plagiarism, academic honesty, attendance, etc.)

Attendance:

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

COMPENSATION ASSESSMENT

The Students those have missed the Lab test 1 or Lab test 2 on medical or OD can appear for COMPENSATION ASSESSMENT (Retest) after showing the medical certificate or OD letter signed by competent authority. Portion for the retest will be portions of Lab test 1 and Lab test 2 combined.

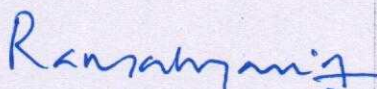
10. Additional Course Information

The students can get their doubts clarified at any time with their faculty member with prior appointment.

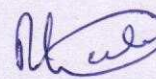
For Senate's Consideration



Course Faculty



Class Committee Chairperson



HOD