DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Course Title	**Algorithms Lab**		
Course Code	**CSLR41**	**No. of Credits**	**2**
Course Code of Pre-requisite subject(s)	**CSPC42**	**Section (if, applicable)**	**B**
Session	**Jan. 2021**	**Year**	**II**
Name of Faculty	**Dr R Mohan Dr Kunwar Singh**	**Department**	**CSE**
Email	**rmohan@nitt.edu kunwar@nitt.edu**	**Telephone No.**	**9442421326**
Name of Course Coordinator(s) (if, applicable)			
E-mail		**Telephone No.**	
Course Type	✓ **Core course**	☐ **Elective course**	

Syllabus (approved in BoS)

- Estimating worst case / average case complexity of algorithms via programs
- Determining machine constants
- Programs involving some advanced data structures
- Implementing example problems
- Illustrating the different paradigms of algorithm design
- Solving micellanious problems e.g. problems in string manipulation , graph theory, Optimization

COURSE OBJECTIVES

- To learn how to analyse the complexity of algorithms
- To compare and evaluate algorithms in terms of time and space complexity
- To program brute force, divide and conquer , Decrease and conquer, Transform and conquer, greedy and dynamic techniques.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)							
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
1. Ability to solve and analyze general algorithms based on space and time complexity.	S	M	M	M	S	S	B	M
2. Ability to implement and empirically compare fundamental algorithms and data structures to real world problems.	S	S	M	M	S	S	M	M
3. Ability to design, develop and optimize algorithms in different paradigms.	S	S	M	M	S	S	M	M

COURSE PLAN – PART II

COURSE OVERVIEW

This course mainly covers implementation of different Algorithm design techniques.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1.	1st week	Algorithm based on number theory such as Euclidean Algorithm	Online
2.	2nd week	Divide and Conquer	
3.	3rd week	Divide and Conquer	
4.	4th week	Priority queue programs	
5.	5th week	Greedy Algorithms	
6.	6th week	Dynamic Programming	
7.	7th week	Dynamic Programming	
8.	8th week	Graph Algorithms : BFS, DFS	
9.	9th week	Graph Algorithms: Prims, Kruskal, Dijkistra's Algorithm	
10.	10th week	Approximation Algorithms	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Continuous Assessment	Every Week	3 hours	20
2	Test1	6th week	2 hours	25
3	Test2	12th week	2 hours	25
4	Final Assessment*	15th week	2 hours	30
			Total	100

COURSE EXIT SURVEY

- Feedbacks are collected before the end semester exam in the feedback forms.
- Suggestions from the students are incorporated for making the course more understanding and interesting.
- Students, through their class representative may give their feedback at anytime to the course faculty which will be duly addresses.
- Students may also give their feedback during class committee meeting.

COMPENSATION ASSESSMENT

The Students those have missed the test 1 or test 2 on medical or OD can appear for COMPENSATION ASSESSMENT (Retest) after showing the medical certificate or OD letter signed by competent authority.

ACADEMIC HONESTY & PLAGIARISM

In cycle tests or semester exam, students who are caught copying from cell phone, paper chit or from neighboring students will be directly given zero marks. In addition, a letter to their parents may be sent reporting the incident. Again if students are caught copying will result in failure in the course.

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ADDITIONAL INFORMATION

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

FOR APPROVAL

Course Faculty _____ **CC-Chairperson** _____ **HOD** _____

Guidelines:

a) The number of assessments for a course shall range from 4 to 6.

b) Every course shall have a final assessment on the entire syllabus with at least 30% weightage.

c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. This is not applicable for project work/industrial lectures/internship.

d) The policy for attendance for the course should be clearly specified.

e) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.