COURSE PLAN – PART I			
Name of the programme and specialization	M.Tech Computer Science & Engineering		
Course Title	Design and Analysis of Parallel Algorithms		
Course Code	CS613	No. of Credits	3
Course Code of Pre-requisite subject(s)	Knowledge of algorithms and complexity.	Basic knowledge of data structures	Basic knowledge of computer architecture
Session	July 2018	Section (if, applicable)	-
Name of Faculty	Dr. C. Mala	Department	Department of Computer Science & Engineering
Email	mala@nitt.edu	Telephone No.	0431- 2503208
Name of Course Coordinator(s) (if, applicable)	-		
E-mail		Telephone No.	
Course Type	Elective course		

Syllabus (approved in BoS) Do check Pg 18 in the link
https://www.nitt.edu/home/academics/curriculum/M.Tech-CS-CS-2016.pdf

COURSE OBJECTIVES

To learn about parallel computing models, design and analyse parallel algorithms for PRAM machines and Interconnection networks.

COURSE OUTCOMES (CO)

To enable the student to design and analyse parallel algorithms.

Course Outcomes	Aligned Programme Outcomes (PO)							
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
Ability to design parallel algorithms for SIMD machines	S	B	M	S	B	B	M	B
Ability to design parallel algorithms for MIMD machines	S	B	M	S	B	M	M	B
Ability to analyze parallel algorithms for SIMD and MIMD machines	S	M	S	S	M	S	M	B

S = 0.6 M = 0.4 B = 0.0

COURSE PLAN – PART II			
COURSE OVERVIEW			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	**Contact Hours**	**Topic**	**Mode of Delivery**
		UNIT - I	
1.	1	Introduction to different models of computation	Pen-Board
2.	2	Array Processors	Pen-Board
3.	2	Multiprocessors	Pen-Board
4.	1	Interconnection networks	Pen-Board
5.	2	Shared memory models control and algorithms	Pen-Board
6.	2	Parallel algorithms for Array processors	Pen-Board
		UNIT - II	
7.	1	Broadcast, All sums algorithm	Pen-Board
8.	1	Selection Algorithm	Pen-Board
9.	3	Parallel selection	Pen-Board
10.	3	Searching a random sequence on PRAM models, tree and mesh	Pen-Board
11.	1	Searching a sorted sequence on PRAM models tree and mesh	Pen-Board
		UNIT - III	
12.	1	Need for Merging , Merging on PRAM models	Pen-Board
13.	3	Merging on PRAM models	Pen-Board
14.	1	ODD EVEN Merge	Pen-Board
15.	3	Sorting on EREW,CREW and CRCW SIMD models	Pen-Board
16.	1	MIMD Enumeration sort	Pen-Board
		UNIT - IV	
17.	3	SIMD algorithms for Matrix operations-Transposition	Pen-Board
18.	2	Matrix by matrix multiplication	Pen-Board
19.	1	Matrix by vector multiplication	Pen-Board
20.	2	Numerical problems- solving systems of linear equations	Pen-Board
21.	1	Finding roots of non linear equations on PRAM models	Pen-Board

UNIT - V			
22.	3	Graphs algorithms	Pen-Board
23.	2	Finding connected components	Pen-Board
24.	2	Sparse graphs and Dense graphs	Pen-Board
25.	2	Minimum spanning tree	Pen-Board
26.	2	Biconnected components	Pen-Board

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test 1	As per schedule	1 Hour	20
2	Cycle Test 2	As per schedule	1 Hour	20
3	Assignment			10
CPA	Compensation Assessment*	As per schedule	1 Hour	20
4	Final Assessment *	As per schedule	3 Hours	50

***mandatory; refer to guidelines on page 4**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

MIS Feedback

COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)

MODE OF CORRESPONDENCE (email/ phone etc)

Email

COMPENSATION ASSESSMENT POLICY

One Compensation assessment will be conducted for students who were absent for cycle tests due to genuine reasons.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- **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.

The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION

The Course Coordinator is available for consultation from 3pm to 4pm on all working days

FOR APPROVAL

Course Faculty 16/8/18 **CC-Chairperson** **HOD**