COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

Feedback from the students during class committee meetings
Anonymous feedback through questionnaire

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

CORRESPONDENCE

1. All the students are advised to check their NITT WEBMAIL regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be done through their webmail.
2. Queries (if required) may be emailed to me / contact me during 4.00 pm to 5.00 pm on Monday and Friday with prior intimation for any clarifications.

ATTENDANCE

Min 75 %

ACADEMIC HONESTY & PLAGIARISM

1. All the students are expected to be genuine during the course work. Taking of information by means of copying simulations, assignments, looking or attempting to look at another student's paper or bringing and using study material in any form for copying during any assessments is considered dishonest.
2. Tendering of information such as giving one's program, simulation work, assignments to another student to use or copy is also considered dishonest.
3. Preventing or hampering other students from pursuing their academic activities is also considered as academic dishonesty.
4. Any evidence of such academic dishonesty will result in the loss of marks on that assessment. Additionally, the names of those students so penalized will be reported to the class committee chairperson and HoD for necessary action.
5. Students who honestly produce ORIGINAL and OUTSTANDING WORK will be REWARDED.

FOR APPROVAL

Course Faculty	CC-Chairperson	HOD

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	% Weightage
1.	Assessment – 1 (Descriptive type)	End of Aug.	20
2.	Assessment – 2 (Surpise quiz)	End of Sep.	10
3	Assessment – 3 (Open test)	End of Oct.	20
4	Assessment – 4 (Assigment)	End of Nov.	10
5	Assessment – 5 (Seminar)	End of Nov	10
6	End sem	Dec.	30

Note:

1. **Relative grading will be based on the clusters (range) of the total marks (all the Assessments i.e. from 1 to 6, put together for each student) scored for grading by adopting Gap theory / Normalized curve. Letter grades, minimum pass marks and the corresponding grade points will be as per institute norms.**
2. **Suggestion (if any) from Class Committee / Office of the Dean (Academic) on the assessment / grading will be honored with intimation to the students.**

ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc

1. *Linear systmes , C.T.Chen , Oxford Press, 2013, Fourth Edition*
2. *Nonlinear systems, Hassan K. Khalil, Third Edition, 2001, Prentice Hall ltd*

COURSE TEACHING AND LEARNING ACTIVITIES			
Sl.No.	Week	Topic	Mode of delivery
1	First week of Aug.	Introduction to state space and its modelling	Lecture/ Tutorial C & T/ PPT or any suitable mode
2	Second week of Aug.	Linear systems. Solution to state space equations	
3	Third week of Aug.	State space to transfer function	
4	Fourth week of Aug.	Transfer function to state space	
5	First week of Sep	Introduction to the concept of controllability	
6	Second week of Sep.	Controllability test and its proof	
7	Third week of Sep.	Introduction to the concept of observability	
8	Fourth week of Sep.	Observability test and its proof	
9	First week of Oct	Controller and observer design	
10	Second week of Oct.	Kalman Decomposition	
11	Third week of Oct.	Introduction to nonlinear systems	
12	Fourth week of Oct.	Equilibrium points and limit cycles	
13	First week of Nov	Linearization and phase plan analysis	
14	Second week of Nov.	Lyapunov stability – proof	
15	Third week of Nov.	Lyapunov stability – indirect method	
16	Fourth week of Nov.		

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY: TIRUCHIRAPPALLI

COURSE OUTLINE			
Course Title	Linear and Nonlinear Systems Theory		
Course Code	EE653	No. of credits	03
Department	EEE	Faculty	Dr. V. Sankaranarayanan
Pre-requisites course code			
Course Co-ordinator(s)	----		
Other Course Teacher(s)/Tutor(s) E-mail		Telephone No.	0431-250-3268
Course Type	☐ Core course	☐ Elective course	

COURSE OVERVIEW
This course contains the state space approach to both linear nonlinear systems. The main concepts called controllability and observability and Lyapunov stability theory are covered.

COURSE OBJECTIVE
To obtain knowledge on linear and nonlinear system using state space method

COURSE OUTCOMES (COs)

Upon completion of this course , students will have

1. Knowledge on state space modelling
2. Understanding controllability and observability
3. Linear state feedback controller and observer design
4. Modelling nonlinear systems and linearization
5. Lyapunov stability.

Aligned Programme Outcomes (POs)						
COs/POs		Course outcomes (Cos)				
		1	2	3	4	5
Programme Outcomes (POs)	1	M	H	L	M	H
	2	M	H	L	M	H
	3	M	H	L	M	H
	4	M	H	L	M	H
	5	M	H	L	M	H
	6	M	H	L	M	H
	7	M	H	L	M	H
	8	M	H	L	M	H
	9	M	H	L	M	H
	10	M	H	L	M	H
	11	M	H	L	M	H
	12	M	H	L	M	H
	13	M	H	L	M	H
	14	M	H	L	M	H