

U. G. M. I. T, RAYAGADA						
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGG						
ACADEMIC LESSON PLAN FOR SUMMER SEMESTER-2023						
NAME OF THE FACULTY		Smita Patnaik		DEPT		ETC
SEMESTER		6th		SUBJECT		Control system and Components
NO. OF PERIODS PER WEEK		4		TOTAL PERIODS		60
END SEMESTER EXAM		80		CLASS TEST		20
TOTAL MARKS		100				
WEEK	PERIOD	UNIT/ CHAPTER	TOPIC TO BE COVERED			
1st	1st	Fundamentals of control system	Introduction about control system			
	2nd		Classification of control system			
	3rd		Effect of feedback, standard test signals			
	4th		servomechanism			
2nd	1st	Transfer function	Regulators			
	2nd		Transfer function of system			
	3rd		impulse response			
	4th		poles and zeros of transfer function			
3rd	1st	Control system components and mathematical modelling of physical system	Representing of poles and zeros in s plane			
	2nd		Advantage of transfer function			
	3rd		Disadvantage of transfer function			
	4th		Problem of transfer function			
4th	1st	Block diagram and signal flow Graphs	problems of transfer function			
	2nd		Components of control system			
	3rd		Potentiometer			
	4th		Diode modulator and demodulator			
5th	1st	Time domain analysis of control systems	DC and AC servomotors			
	2nd		Modelling of electrical system (R, L, C Analogous system)			
	3rd		Basic elements of block diagram			
	4th		Rules for block diagram reduction			
6th	1st	Feedback characteristics of control systems	procedure for reduction of block diagram			
	2nd		simple problem for equivalent transfer function			
	3rd		Basic definition in SFG and properties			
	4th		Masons gain formula			
7th	1st	Feedback characteristics of control systems	solving signal flow graph			
	2nd		simple problem of signal flow graph			
	3rd		Definition of time, stability, steady state response			
	4th		Accuracy, transient accuracy, in sensitivity and robustness			
8th	1st	Feedback characteristics of control systems	System time response			
	2nd		Analysis of steady state error			
	3rd		step, ramp and parabolic			
	4th		First order system and second order system			
9th	1st	Feedback characteristics of control systems	Derivation of time response (Delay time, Rise time)			
	2nd		peak time and setting time			
	3rd		Effects of parameter variation			
	4th		Basic controlection of feedback			
10th	1st	Feedback characteristics of control systems	Interval derivative			
	2nd		Effect of feedback			

	3rd		P and PI
	4th		PD and PID
11th	1st	Stability concept and Root locus method	Location of poles on stability
	2nd		Routh hurwitz stability
	3rd		Root locus methods
	4th		Step for root locus
12th	1st		Method of design
	2nd		Step for routh Hurwitz criteria
	3rd		Simple problem
	4th		Simple problem
13th	1st	Frequency response analysis and Bode plot	Frequency response and relationship between time and frequency
	2nd		Methods of frequency of response
	3rd		Polar plot draw
	4th		Bode a plot draw
14th	1st		Gain margin snd phase margin
	2nd		Nyquist plot
	3rd		simple problems
	4th		Concept of state
15th	1st	State variable analysis	State variable and state model
	2nd		state model
	3rd		State model for linear continues time function
	4th		problem solving