

LESSON PLAN					
<b>DISCIPLINE:</b> Electronics and Telecommunication Engineering		<b>SEMESTER:</b> 6 <sup>th</sup>		<b>NAME OF THE TEACHING FACULTY:</b> Er. Kishore Kumar Sethi	
<b>SUBJECT:</b> Th.2 - Control system and Components		<b>NO. OF DAYS/ PERIODS PER WEEK CLASS ALLOTTED:</b> 4		Semester From Date: <b>13.02.2023</b> <b>To Date: 23.05.2023</b> No. of Weeks: <b>15</b>	
WEEK	PERIOD	UNIT/ CHAPTER	TOPIC TO BE COVERED		
1st	1st	<b>Fundamentals of control system</b>	Introduction about control system		
	2nd		Classification of control system		
	3rd		Effect of feedback, standard test signals		
	4th		servomechanism		
2nd	1st	<b>Transfer function</b>	Regulators		
	2nd		Transfer function of system		
	3rd		impulse response		
	4th		poles and zeros of transfer function		
3rd	1st		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	<b>Control system components and mathematical modeling of physical system</b>	problems of transfer function		
	2nd		Components of control system		
	3rd		Potentiometer		
	4th		Diode modulator and demodulator		
5th	1st		DC and AC servomotors		
	2nd		Modeling of electrical system (R, L, C Analogous system)		

	3rd	<b>Block diagram and signal flow Graphs</b>	Basic elements of block diagram	
	4th		Rules for block diagram reduction	
6th	1st		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		solving signal flow graph	
	2nd		simple problem of signal flow graph	
	3rd		<b>Time domain analysis of control systems</b>	Definition of time, stability, steady state response
	4th			Accuracy, transient accuracy, in sensitivity and robustness
8th	1st	System time response		
	2nd	Analysis of steady state error		
	3rd	step, ramp and parabolic		
	4th	First order system and second order system		
9th	1st	<b>Feedback Characteristic of control systems</b>	Derivation of time response (Delay time, Rise time)	
	2nd		peak time and setting time	
	3rd		Effects of parameter variation	
	4th		Basic control action of feedback	
10th	1st	<b>Feedback characteristics of control systems</b>	Interval derivative	
	2nd		Effect of feedback	
10th	3rd	<b>Feedback characteristics of control systems</b>	PD and PID	
	4th		PD and PID	
11th	1st	<b>Stability concept and Root locus method</b>	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	<b>Frequency response analysis and Bode plot</b>	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 margins and phase margin
	2nd		Nyquist plot
	3rd		Simple problems
	4th		<b>State variable analysis</b>
15th	1st	State variable and state model	
	2nd	state model	
	3rd	State model for linear continues time function	
	4th	Problem solving	