

DISCIPLINE	SEMESTER	NAME OF THE TEACHING FACULTY	
ELECTRICAL	6TH	MISS.SINDHUJA PANIGRAHI(PTGF)	
SUBJECT: CSE		NO. OF DAYS PER WEEK CLASS ALLOTTED : 05	SEMESTER FROM 04/02/2025 TO 17/05/2025
			NO. OF WEEKS : 15 NOS.
WEEKS	CLASS DAYS	THEORY TOPICS	
1ST WEEK	1ST	Introduction to control system & Classification of Control system	
	2ND	Open loop system & Closed loop system and its comparison	
	3RD	Effects of Feed back	
	4TH	Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)	
	5TH	Servomechanism	
2ND WEEK	1ST	Mathematical model of a system	
	2ND	Transfer Function & Impulse response	
	3RD	Properties, Advantages & Disadvantages of Transfer Function	
	4TH	Poles & Zeroes of transfer Function	
	5TH	Simple problems of transfer function of network	
3RD WEEK	1ST	Simple problems of transfer function of network	
	2ND	Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)	
	3RD	Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)	
	4TH	Components of Control System,Gyroscope	
	5TH	Synchros,Tachometer	
4TH WEEK	1ST	DC servomotors	
	2ND	Ac Servomotors.	
	3RD	Block diagram algebra & signal flow graphs	
	4TH	Definition: Basic Elements of Block Diagram	
	5TH	Canonical Form of Closed loop Systems	
5TH WEEK	1ST	Rules for Block diagram reduction	
	2ND	Procedure for of Reduction of Block Diagram	
	3RD	Simple Problem for equivalent transfer function	
	4TH	Basic Definition in Signal Flow Graph & properties	
	5TH	Construction of Signal Flow graph from Block diagram	
6TH WEEK	1ST	Mason's Gain formula	
	2ND	Simple problems in Signal flow graph for network	
	3RD	Simple problems in Signal flow graph for network	
	4TH	Time response Analysis,Time response of control system	
	5TH	Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)	
7TH WEEK	1ST	Time Response of first order system	
	2ND	Time Response of first order system with Unit step response	
	3RD	Time Response of first order system with Unit impulse response	
	4TH	Time response of second order system to the unit step input	
	5TH	Time response specification	
	1ST	Derivation of expression for rise time, peak time, peak overshoot	
	2ND	Derivation of expression for settling time and steady state error	

8TH WEEK	3RD	Steady state error and error constants
	4TH	Types of control system.[ Steady state errors in Type-0, Type-1, Type-2 system]
	5TH	Effect of adding poles and zero to transfer function.
9TH WEEK	1ST	Response with P, PI, PD and PID controller.
	2ND	Response with P, PI, PD and PID controller.
	3RD	Analysis of stability by root locus technique
	4TH	Root locus concept.
	5TH	Construction of root loci.
10TH WEEK	1ST	Rules for construction of the root locus.
	2ND	Effect of adding poles and zeros to $G(s)$ and $H(s)$ .
	3RD	solve numericals on root locus
	4TH	solve numericals on root locus
	5TH	solve numericals on root locus
11TH WEEK	1ST	Frequency response analysis
	2ND	Correlation between time response and frequency response
	3RD	Polar plots
	4TH	Polar plots
	5TH	Bode plots
12TH WEEK	1ST	Bode plots
	2ND	All pass and minimum phase system
	3RD	Computation of Gain margin and phase margin
	4TH	Log magnitude versus phase plot
	5TH	Closed loop frequency response
13TH WEEK	1ST	Nyquist Plot
	2ND	Principle of argument.
	3RD	Nyquist stability criterion.
	4TH	Nyquist stability criterion.
	5TH	Nyquist stability criterion applied to inverse polar plot.
14TH WEEK	1ST	Effect of addition of poles and zeros to $G(s)$ $H(s)$ on the shape of Niquist plot.
	2ND	Assessment of relative stability
	3RD	Constant M and N circle
	4TH	Constant M and N circle
	5TH	Constant M and N circle
15TH WEEK	1ST	Nicholas chart
	2ND	Nicholas chart
	3RD	Nicholas chart
	4TH	Doubt clearing session
	5TH	Doubt clearing session

For  
10/04/2025  
(GF, ELECT)

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4/2/2025  
HOD (ELECTRICAL)  
GOVT. POLY.  
GAJAPATI