

PNS SCHOOL OF ENGINEERING AND TECHNOLOGY

Branch: Electrical Engineering	Semester: 6 TH	Name of the Lecturer:
Subject: CSE	No of Classes Alloted in a Week: 6	Duration of Semester: 14.2.2023 - 23.5.2023
Week	Class Day	Theory / practical Topic
1st	1	Fundamental of control system - Classification of Control system
	2	Open loop system & Closed loop system and Its comparison
	3	Effects of Feed back
	4	Standard test Signals (Parabolic, Impulse, Parabolic, Impulse Functions)
	5	Servomechanism
	6	Mathematical model of a system - Transfer Function, Impulse response
2nd	1	Properties, Advantages & Disadvantages of Transfer Function
	2	Poles & Zeroes of transfer Function, Simple problems of transfer function of network
	3	Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)
	4	Control system components - Components of Control System
	5	Gyroscope, Synchros, Tachometer
	6	DC servomotors, Ac Servomotors
3rd	1	Block diagram algebra & signal flow graphs - Basic Elements of Block Diagram
	2	Canonical Form of Closed loop Systems
	3	Rules for Block diagram reduction, Procedure for of Reduction of Block Diagram
	4	Simple Problem for equivalent transfer function
	5	Basic Definition in Signal Flow Graph, Properties of Signal Flow Graph
	6	Construction of Signal Flow graph from Block diagram
4th	1	Mason's Gain formula
	2	Simple problems in Signal flow graph for network
	3	Class Test - I
4th	4	Time response analysis - Time response of control system.
	5	Standard Test signal (Step signal, Ramp Signal)
	6	Standard Test signal (Parabolic Signal, Impulse Signal)
5th	1	Time response of second order system to the unit step input - Time response specification.
	2	Expression for rise time, peak time, peak overshoot, settling time, steady state error
	3	Steady state error & error constants.
	4	Types of control system.[Steady state errors in Type-0, Type-1, Type-2 system]
	5	Effect of adding poles and zero to transfer function.
	6	Response with P, PI, PD and PID controller.
6th	1	Internal Assessment
	2	Analysis of stability by root locus technique - Root locus concept
	3	Root locus concept
	4	Construction of root loci.
	5	Construction of root loci.
	6	Rules for construction of the root locus
7th	1	Rules for construction of the root locus
	2	Rules for construction of the root locus
	3	Rules for construction of the root locus
	4	Effect of adding poles and zeros to G(s)
	5	Effect of adding poles and zeros to H(s)
	6	Frequency response of system - Correlation between time and frequency response

8th	1	Polar plots
	2	Bode plots.
	3	All pass and minimum phase system
	4	Computation of Gain margin.
	5	Computation of phase margin
	6	Computation of phase margin
9th	1	Log magnitude versus phase plot
	2	Closed loop frequency response
	3	Closed loop frequency response
	4	Nyquist plot - Principle of argument
	5	Nyquist stability criterion.
	6	Nyquist stability criterion applied to inverse polar plot
10th	1	Nyquist stability criterion applied to inverse polar plot
	2	Effect of addition of poles and zeros to $G(S) H(S)$ on the shape of Nyquist plot
	3	Effect of addition of poles and zeros to $G(S) H(S)$ on the shape of Nyquist plot
	4	Assessment of relative stability
	5	Constant M and N circle
	6	Constant M and N circle
11th	1	Nicholas chart.
	2	Class Test - II
	3	Previous Year Question
	4	Previous Year Question
	5	Previous Year Question
	6	Previous Year Question

Signature of the
Lecturer

Signature of the
H.O.D.