LESSON PLAN (SUMMER-2022)

Discipline:ETC	Semester:6th	Name of the Teaching Faculty: S. DASH/P.Bhawani	
Subject:Control System	No of Days /per week class allotted:4	Semester From date: 10.03.2022 To 10.06.2022 No of Weeks:15	
Week	**Class Day**	**Theory / Practical Topics**	**Date**
1st	1st	**1.Fundamental of Control System(5)** 1.1 Classification of Control system	10.03.2022
	2nd	1.2 Open loop system & Closed loop system and its comparison	11.03.2022
	3rd	1.3 Effects of Feed back	15.03.2022
	4th	1.4 Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)	16.03.2022
2nd	1st	1.5 Servomechanism 1.6 Regulators (Regulating systems)	17.03.2022
	2nd	**2.Transfer Functions(8)** 2.1 Transfer Function of a system & Impulse response	22.03.2022
	3rd	2.2 Properties,Advantages& Disadvantages of Transfer Function	23.03.2022
	4th	2.3 Poles & Zeroes of transfer Function, 2.4 Representation of poles & Zero on the s-plane	24.03.2022
3rd	1st	2.5 Simple problems of transfer function of network	25.03.2022
	2nd	2.5 Continue	29.03.2022
	3rd	2.5 Continue	30.03.2022
	4th	2.5 Continue	31.03.2022
4th	1st	2.5 Continue	05.04.2022
	2nd	**3.Control system Components & mathematical modelling of physical System(5)** 3.1 Components of Control System	06.04.2022
	3rd	3.2 Potentiometer, Synchros	07.04.2022
	4th	3.2 continue, 3.3 DC motors, AC Servomotors	08.04.2022
5th	1st	AC Servomotors 3.4 Modelling of Electrical Systems(R, L, C, Analogous systems)	12.04.2022
	2nd	3.4 continue	13.04.2022
	3rd	**4.Block Diagram & Signal Flow Graphs(SFG)(8)** 4.1 Definition of Basic Elements of a Block Diagram	19.04.2022
	4th	4.2 Canonical Form of Closed loop System	20.04.2022
6th	1st	4.3 Rules for Block diagram Reduction,	21.04.2022
	2nd	continue	22.04.2022
	3rd	4.6 Basic Definition in SFG & properties	26.04.2022
	4th	4.7 Mason's Gain formula, 4.8 Steps for solving Signal flow Graph	27.04.2022
7th	1st	4.9 Simple problems in Signal flow graph for network	28.04.2022
	2nd	continue	29.04.2022
	3rd	**5.Time Domain Analysis of Control Systems(8)** 5.1 Definition of Time, Stability, steady-state response, accuracy, transient accuracy, In-sensitivity and robustness.	04.05.2022
	4th	5.2 System Time Response	05.05.2022

8th	1st	5.3 Analysis of Steady State Error	06.05.2022
	2nd	5.4 Types of Input & Steady state Error(Step ,Ramp, Parabolic)	10.05.2022
	3rd	5.5 Parameters of first order system & second-order systems	11.05.2022
	4th	continue	12.05.2022
9th	1st	5.6 Derivation of time response Specification (Delay time, Rise time, Peak time,Setting time,Peak over shoot)	13.05.2022
	2nd	continue	17.05.2022
	3rd	**6.FeedbackCharacteristics of Control Systems(6)** 6.1 Effect of parameter variation in Open loop System & Closed loop Systems	18.05.2022
	4th	6.2 Introduction to Basic control Action& Basic modes of feedback control: proportional, integral and derivative	19.05.2022
10th	1st	continue	20.05.2022
	2nd	6.3 Effect of feedback on overall gain, Stability	24.05.2022
	3rd	6.4 Realisation of Controllers(P, PI,PD,PID) with OPAMP	25.05.2022
	4th	continue	26.05.2022
11th	1st	**7.Stability concept& Root locus Method(8)** 7.1 Effect of location of poles on stability	27.05.2022
	2nd	7.2 RouthHurwitz stability criterion.	31.05.2022
	3rd	7.3 Steps for Root locus method	01.06.2022
	4th	7.4 Root locus method of design(Simple problem)	02.06.2022
12th	1st	continue	03.06.2022
	2nd	continue	07.06.2022
	3rd	continue	08.06.2022
	4th	continue	09.06.2022
13th	1st	**8.Frequency-response analysis&Bode Plot(7)** 8.1 Frequencyresponse,Relationship between time & frequency response	10.06.2022
	2nd	8.2 Methods of Frequency response, 8.3 Polar plots & steps for polar plot	Extra Class
	3rd	8.4 Bodes plot & steps for Bode plots	Extra Class
	4th	continue	Extra Class
14th	1st	8.5 Stability in frequency domain, Gain Margin& Phase margin	Extra Class
	2nd	8.6 Nyquist plots. Nyquiststability criterion.	Extra Class
	3rd	8.7 Simple problems as above	Extra Class
	4th	**9.State variable Analysis(5)** 9.1 Concepts of state, state variable, state model,	Extra Class
15th	1st	continue	Extra Class
	2nd	9.2 state modelsfor linear continuous time functions(Simple)	Extra Class
	3rd	continue	Extra Class
	4th	continue	Extra Class

Signature of the Faculty