Lesson Plan 2024(S)

Subject :- CSE(Code) TH-3Name of faculty:- Harekrishna Sahoo

Semester :-6thClass allotted5p/w Branch :- Electrical engg

Discipline	Semester:-6th	From date:-16/01/24 To date:26/04/24	Teaching Aid
Subject:	No. of days/ per week p/w: 5	Theory/ Practical –Topics/Lesson	
Week	Date/Period		

1	16/01/24 – 20/01/24	FUNDAMENTAL OF CONTROL SYSTEM 1.1. Classification of Control system 1.2. Open loop system & Closed loop system and its comparison	White board & marker
2	22/01/24 to 27/01/24	1.3. Effects of Feed back 1.4. Standard test Signals(Step, Ramp, Parabolic, Impulse Functions) 1.5. Servomechanism	White board & marker
3	29/01/24 To 03/02/24	MATHEMATICAL MODEL OF A SYSTEM 2.1. Transfer Function & Impulse response, 2.2. Properties, Advantages & Disadvantages of Transfer Function	White board & marker
4	5/2/24 To 10/2/24	2.3. Poles & Zeroes of transfer Function 2.4. Simple problems of transfer function of network. 2.5. Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)	White board & marker
5	12/2/24 To 17/02/24	CONTROL SYSTEM COMPONENTS 3.1. Components of Control System 3.2. Gyroscope, Synchros, Tachometer, DC servomotors, Ac Servomotors.	White board & marker
6	19/02/24 To 24/2/24	BLOCK DIAGRAM ALGEBRA & SIGNAL FLOW GRAPHS 4.1. Definition: Basic Elements of Block Diagram 4.2. Canonical Form of Closed loop Systems	White board & marker
7	26/2/24 To 2/3/24	4.3. Rules for Block diagram reduction 4.4. Procedure for of Reduction of Block Diagram 4.5. Simple Problem for equivalent transfer function	White board & marker
8	4/3/24 To 9/3/24	4.6. Basic Definition in Signal Flow Graph & properties 4.7. Construction of Signal Flow graph from Block diagram	White board & marker
9	11/3/24 To 16/3/24	4.8. Mason's Gain formula 4.9. Simple problems in Signal flow graph for network TIME RESPONSE ANALYSIS. 5 . 1 Time response of control system. 5 . 2 Standard Test signal. 5.2.1. Step signal, 5.2.2. Ramp Signal 5.2.3. Parabolic Signal 5.2.4. Impulse Signal	White board & marker
10	18/3/24 To 23/3/24	5 . 3 Time Response of first order system with: 5.3.1. Unit step response 5.3.2. Unit impulse response. 5 . 4 Time response of second order system to the unit step input. 5.4.1. Time response specification. 5.4.2. Derivation of expression for rise time, peak time, peak	White board & marker

		overshoot, settling time and steady state error.	
11	277/3/24 To 30/3/24	5.4.3. Steady state error and error constants. 5 . 5 Types of control system.[Steady state errors in Type-0, Type-1, Type-2 system] 5 . 6 Effect of adding poles and zero to transfer function. 5 . 7 Response with P, PI, PD and PID controller.	White board & marker
12	2/4/24 To 6/4/24	ANALYSIS OF STABILITY BY ROOT LOCUS TECHNIQUE. 6 . 1 Root locus concept. 6 . 2 Construction of root loci. 6 . 3 Rules for construction of the root locus. 6 . 4 Effect of adding poles and zeros to G(s) and H(s)	White board & marker & smart board
13	8/4/24 To 13/4/24	FREQUENCY RESPONSE ANALYSIS. 7 . 1 Correlation between time response and frequency response. 7 . 2 Polar plots. 7 . 3 Bode plots. 7 . 4 All pass and minimum phase system. 7 . 5 Computation of Gain margin and phase margin. 7 . 6 Log magnitude versus phase plot. 7 . 7 Closed loop frequency response.	White board & marker
14	15/4/24 To 20/4/24	NYQUIST PLOT 8.1 Principle of argument. 8.2 Nyquist stability criterion. 8.3 Niquist stability criterion applied to inverse polar plot. 8.4 Effect of addition of poles and zeros to G(S) H(S) on the shape of Niquist plot.	White board & marker
15	22/4/24 To 26/4/24	8.5 Assessment of relative stability. 8.6 Constant M and N circle 8.7 Nicholas chart.	White board & marker& smart board

Bikram Keshari parida

Signature of HOD

Harekrushna Sahu

Signature of faculty