DISCIPLINE (ELECTRICAL ENGG.)	SEMETER – 6th sem(2022-2023)	NAME OF THE FACULTY- Er.Soumya Ranjan Jena
SUBJECT:- CONTROL SYSTEM ENGINEERING	**NO OF CLASS/WEEKS** Allotted :5	**SEMESTER FROM-14.02.2023 to 25.05.2023** No of weeks:15
WEEKS – 15	CLASS/DAY	Theory
14.02.2023 to 18.02.2023	1st	FUNDAMENTAL OF CONTROL SYSTEM
	2nd	Classification of Control system
	3rd	Open loop system & Closed loop system and its comparison
	4th	MAHA SHIVA RATRI
20.02.2023 to 25.02.2023	1st	Effects of Feed back
	2nd	Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)
	3rd	Servomechanism
	4th	MATHEMATICAL MODEL OF A SYSTEM Transfer Function & Impulse response,
	5th	Properties, Advantages & Disadvantages of Transfer Function
27.02.2023 to 04.03.2023	1st	Poles & Zeroes of transfer Function
	2nd	Simple problems of transfer function of network.
	3rd	Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)
	4th	CONTROL SYSTEM COMPONENTSComponents of Control System
	5th	Gyroscope, Synchros, Tachometer, DC servomotors, Ac Servomotors.BLOCK DIAGRAM ALGEBRA & SIGNAL FLOW GRAPHS
06.03.2023 to 11.03.2023	1st	Definition: Basic Elements of Block Diagram
	2nd	DOLO PURNIMA
	3rd	HOLI
	4th	Canonical Form of Closed loop Systems
	5th	Rules for Block diagram reduction
13.03.2023 to 18.03.2023	1st	Procedure for of Reduction of Block Diagram
	2nd	Simple Problem for equivalent transfer function
	3rd	Basic Definition in Signal Flow Graph & properties
	4th	Construction of Signal Flow graph from Block diagram
	5th	Mason's Gain formula
20.03.2023 to 25.03.2023	1st	Simple problems in Signal flow graph for network
	2nd	TIME RESPONSE ANALYSIS.Time response of control system.
	3rd	Standard Test signal.
	4th	Step signal, Ramp Signal,Parabolic Signal, Impulse Signal
	5th	Time Response of first order system with:
	1st	Unit step response

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27.03.2023 to 01.04.2023	2nd	Unit impulse response.
	3rd	Time response of second order system to the unit step input.
	4th	RAMA NAVAMI
	5th	UTKAL DIVAS
03.04.2023 to 08.04.2023	1st	Time response specification.
	2nd	Derivation of expression for rise time, peak time, peak overshoot, settling time and steady state error.
	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
10.04.2023 to 15.04.2023	1st	Response with P, PI, PD and PID controller.
	2nd	ANALYSIS OF STABILITY BY ROOT LOCUS TECHNIQUE.
	3rd	Root locus concept.
	4th	Construction of root loci.
	5th	Rules for construction of the root locus.
17.04.2023 to 22.04.2023	1st	Effect of adding poles and zeros to G(s) and H(s).
	2nd	FREQUENCY RESPONSE ANALYSIS.
	3rd	Correlation between time response and frequency response.
	4th	Polar plots
	5th	ID-UI-FITRE
24.04.2023 to 29.04.2023	1st	Bode plots.
	2nd	All pass and minimum phase system.
	3rd	Computation of Gain margin and phase margin.
	4th	Computation of Gain margin and phase margin.
	5th	Computation of Gain margin and phase margin.
01.05.2023 to 06.05.2023	1st	Closed loop frequency response.
	2nd	NYQUIST PLOT
	3rd	NYQUIST PLOT
	4th	Principle of argument.
	5th	Principle of argument.
08.05.2023 to 13.05.2023	1st	Principle of argument.
	2nd	Nyquist stability criterion.
	3rd	Nyquist stability criterion.
	4th	Niquist stability criterion applied to inverse polar plot.
	5th	Niquist stability criterion applied to inverse polar plot.
15.05.2023 to 20.05.2023	1st	Effect of addition of poles and zeros to G(S) H(S) on the shape of Niquist plot.
	2nd	Effect of addition of poles and zeros to G(S) H(S) on the shape of Niquist plot.
	3rd	Assessment of relative stability.
	4th	Assessment of relative stability.
	5th	Constant M and N circle
22.05.2023 to 25.05.2023	1st	Constant M and N circle
	2nd	Constant M and N circle
	3rd	Nicholas chart
	4th	Nicholas chart

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