Discipline: ETC Summer 2024			Lesso	n Plan
SI. Subject-TH-2 CONTROL SYSTEM & COMPONENT Weeks/Months Class Day Class Day Topic 1. Fundamental of Control System 2nd 1. Fundamental of Control System 1. Class Edition of Control System of Closed loop system and its comparison 4th 1. Streadard test Signals (Step, Ramp, Parabolic, Impulse 1. Streadard test Signals (Step, Ramp, Parabolic, Impulse response 1. Streadard test Signals (Step, Ramp, Parabolic, Impulse response 1. Streadard test Signals (Step, Ramp, Parabolic, Impulse response) 1. Streadard test Signals (Step, Ramp, Parabolic, Impulse response) 1. Streadard test Signals (Step, Ramp, Parabolic, Impulse response, Stread, Step, Ste			Semester- 6th Summer-	Name of the Teaching Faculty:
3		CONTROLIENT	No. Of Days/Week class	26.04.2024 (No of weeks: 15)
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3rd 6.3 Effect of feedback on overall gain, Stability.	10		2nd	6.2 Introduction to Basic control Action& Basic modes of
4th 6.4 Realisation of Controllers(P, PI,PD,PID) with OPAMP			3rd	6.3 Effect of feedback on overall gain, Stability.
4ul 0,4 (Calloddolf of Contract				6.4 Realisation of Controllers (P, PI, PD, PID) with OPAMP
		A STATE OF THE PARTY OF THE PAR	7,01	

	5th week 25 march To 30 march	2nd	7.1 Effect of location of poles on stability.
1		3rd	7.2 RouthHurwitz stability criterion.
/		4th	7.3 Steps for Root locus method.
	1st week 01 april To 06 april	1st	7.4 Root locus method of design(Simple problem)
/		2nd	8. Frequency-response analysis&Bode Plot
12		3rd	8.1 Frequencyresponse, Relationship between time & frequency response
		4th	8.2 Methods of Frequency response.
	2nd week 08 april To 13 april	1st	8.3 Polar plots & steps for polar plot.
40		2nd	8.4 Bodes plot & steps for Bode plots.
13		3rd	8.5 Stability in frequency domain, Gain Margin& Phase margin.
		4th	8.6 Nyquist plots. Nyquiststability criterion.
	3rd week 15 april To 20 april	1st	8.7 Simple problems as above.
		2nd	9. State variable Analysis
14		3rd	9.1 Concepts of state, state variable, state model,
100		4th	Stability in frequency domain, Gain Margin& Phase margin.
	4th week 22 april To 26 april	1st	Frequencyresponse, Relationship between time & frequency response
15		2nd	Effect of feedback on overall gain, Stability
13		3rd	Parameters of first order system & second-order systems
		- 4th	Bodes plot & steps for Bode plots.

Signature of the Faculty

H			esson Plan
	Discipline: ETC	Semester-4th Summer-2024	Name of the Teachng Faculty: Payal Bindia Parida(GF, ETC Engg)
SI	MACHINE)	No. Of Days/Week class alloted:04	Semester From date: 16.01.2024 To date: 26.04.2024 (No of weeks: 15)
	Weeks/Months	Class Day	Topic
	3rd week 16 jan To 20	1st	Unit-1. ELECTRICAL MATERIAL(INTRODUCTION)
1		- 2nd	1.1 Properties & uses of different conducting material 1.2 Properties & use of various insulating materials used electrical
	jan	3rd	engineering.
-		4th	1.3 Various magnetic materials & their uses.
	4th week 22 jan To 27 jan	1st	Unit-2. DC GENERATOR(INTRODUCTION)
2		2nd 3rd	2.1 Construction, Principle & application of DC Generator.
		200	2.2 Classify DC generator including voltage equation.
		- 4th	2.3 Derive EMF equation & simple problems.
	5th week 29 jan To 1st week 03 feb	2nd	2.3 Derive EMF equation & simple problems.
3			2.4 Parallel operation of DC generators.
		3rd 4th	Unit-3. DC MOTOR(INTRODUCTION)
	2nd week 05 feb To 10 feb	1st	3.1 Principle of working of a DC motor 3.2 Concept of development of torque & back EMF in DC motor including simple problems.
4		2nd	3.3 Derive equation relating to back EMF, Current, Speed and Torque equation.
		3rd	3.4 Classify DC motors & explain characteristics, application.
		4th	3.5 Three point & four point stator/static of DC motor by solid State converter.
	3rd week 12 feb To 17 feb	1st	3.6 Speed of DC motor by field control and armature control method.
5		2nd	3.7 Power stages of DC motor & derive Efficiency of a DC motor.
		3rd	Unit-4. AC CIRCUITS(INTRODUCTION)
		4th	4.1 Mathematical representation of phasors, significant of operator **
	4th week 19 feb To 24 feb	1st	4.2 Addition, Subtraction, Multiplication and Division of phasor quantities.
		3rd	4.3 AC series circuits containing resistance, capacitances, Conception of active, Reactive and apparent power and Q-factor of series circuits & solve related problems.
-		3rd	4.3 AC series circuits containing resistance, capacitances, Conception of active, Reactive and apparent power and Q-factor of series circuits & solve related problems
		4th	4.4 Find the relation of AC Parallel circuits containing Resistances. Inductance and Capacitances Q-factor of parallel circuits.
1	5th week 26 feb To1st week 02 march	1st	Unit-5.TRANSFORMER(INTRODUCTION)
		2nd	5.1 Ideal transformer.
5		3rd	5.2 Construction & working principle of transformer.
		4th	5.3 Derive of EMF equation of transformer, voltage transformation ratio.

		1st	5.4 Discuss Flux, Current, EMF components of transformer and their phasor diagram under no load Condition.
8	2nd week 04 march To 09 march	2nd	5.5 Phasor representation of transformer flux, current EMF primary and secondary Voltages under loadedcondition.
		3rd	5.6 Types of losses in Single Phase (1-ø) Transformer.
		4th	5.7 Open circuit & short-circuit test (simple problems)
		1st	Open circuit & short-circuit test (simple problems)
9	3rd week 11 march To	- 2nd	5.8 Parallel operation of Transformer.
9	16 march	3rd	5.9 Auto Transformer
		4th	Unit-6. INDUCTION MOTOR
		1st	1 Construction feature, types of three-phase induction motor
10	4th week 18 march To	2nd	Establish relation between torque, rotor current and power factor.
10	23 march	3rd	Parallel operation of Transformer.
	7	4th	Open circuit & short-circuit test (simple problems)
		-	6.2 Principle of development of rotating magnetic field in the stator.
	Y	1st	6.3 Establish relationship between synchronous speed, actual speed
4.2	5th week 25 march To	2nd	and slip of induction motor
11	30 march	3rd	Auto Transformer
		Distriction Control	C. A Catablish relation between torque, rotor current and power factor
		4th	6.4 Establish relation between torque of the first of the
		4-1	Delta stator. State
		- 1st	l of induction motor
40	1st week 01 april To 06	2nd	Establish relation between torque, rotor current and power factor.
12	april	1 2000	Principle of development of rotating magnetic field in the stator.
		3rd	Unit-7. SINGLE PHASE INDUCTION MOTOR
		4th	
		1st	Parallel operation of Transformer.
			Establish rel tionship between synchronous speed, actual speed ar
		2nd	slip of induction motor
13	2nd week 08 april To 13 april	3rd	Open girquit & short-circuit test (simple problems)
	арт	0.0	Explain starting of an induction motor by using DOL and Star-Delt
		4th	letator State industrial use of induction motor.
			7.4 Construction features and principle of operation of capacitor ty
		1st	and shaded note type of single-phase induction motor
	"T- 20		Principle of development of rotating magnetic field in the stator.
14	3rd week 15 april To 20		
14	april	3rd	Auto Transformer
		4th	7.3 Concept of alternator & its application.
		1st	Parallel operation of Transformer.
		Ond	Concept of alternator & its application.
	4th week 22 april To 26	2nd	This construction & operation of AC series motor
15	april	3rd	Principle of development of rotating magnetic field in the state
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