



DEPARTMENT OF ELECTRICAL ENGINEERING  
ORISSA SCHOOL OF MINING ENGINEERING KEONJHAR  
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## LESSON PLAN

Discipline- Electrical Engineering	Semester- 6th	Name of the Teaching Faculty- ER.SHRADHA PATRA		
Subject- CONTROL SYSTEM ENGINEERING Subject Code- TH3	No. of days/week class allotted-5	Semester From Date: 16/01/2024 To Date: 26/04/2024 Number of weeks- 15		
MONTH	WEEK	NO. OF PERIODS AVAILABLE	CLASS DAY	THEORY TOPICS TO BE COVERED
JANUARY	1st	3	18/01/2024	Classification of Control system
			19/01/2024	Open loop system & Closed loop system and its comparison
			19/01/2024	Effects of Feed back
	2nd	4	22/01/2024	Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)
			24/01/2024	Servomechanism
			25/01/2024	Transfer Function & Impulse response,
			25/01/2024	Properties, Advantages & Disadvantages of Transfer Function
	3rd	5	29/01/2024	Poles & Zeroes of transfer Function
			31/01/2024	
			01/02/2024	Simple problems of transfer function of network.
			01/02/2024	Simple problems of transfer function of network.
			02/02/2024	Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)
FEBRUARY	4th	5	05/02/2024	Problems based on Electrical analogous systems
			07/02/2024	Problems based on Electrical analogous systems
			08/02/2024	Components of Control System
			08/02/2024	Gyroscope & Synchros
			09/02/2024	Tachometer & DC servomotors
	5th	4	12/02/2024	AC Servomotors
			15/02/2024	CLASS TEST 1
			15/02/2024	Definition: Basic Elements of Block Diagram

<b>MARCH</b>	<b>6th</b>	<b>5</b>	16/02/2024	Rules for Block diagram reduction
			19/02/2024	Procedure for of Reduction of Block Diagram
			21/02/2024	Simple Problem for equivalent transfer function
			22/02/2024	Problems on BDR
			22/02/2024	Basic Definition in Signal Flow Graph & properties
	<b>7th</b>	<b>5</b>	23/02/2024	Construction of Signal Flow graph from Block diagram
			26/02/2024	Mason's Gain formula
			28/02/2024	Simple problems in Signal flow graph for network
			29/02/2024	Simple problems in Signal flow graph for network
			29/02/2024	Revision on BDR & SFG
	<b>8th</b>	<b>4</b>	01/03/2024	Time response of control system Standard test signals- Step, Ramp, Parabolic, Impulse
			04/03/2024	Time Response of first order system with: Unit step response & Unit impulse response.
			06/03/2024	Time response of second order system to the unit step input
			07/03/2024	Time response specification. Derivation of expression for rise time, peak time,
			07/03/2024	Peak overshoot and settling time
	<b>9th</b>	<b>5</b>	11/03/2024	Steady state error and error constants
			13/03/2024	Steady state errors in Type-0, Type-1, Type-2 system
			14/03/2024	Effect of adding poles and zeroes to transfer function
			14/03/2024	Response with P, PI, PD & PID Controllers
			15/03/2024	Root locus concept
	<b>10th</b>	<b>5</b>	18/03/2024	Construction of root loci
			20/03/2024	Rules for construction of the root locus
			21/03/2024	
			21/03/2024	Effect of adding poles and zeros to $G(s)$ and $H(s)$
			22/03/2024	Correlation between time response and frequency response

APRIL	11th	3	27/03/2024	Polar plots- introduction & rules
			27/03/2024	Polar plots- Problems
	12th	4	28/03/2024	Bode plots- introduction and rules
			03/04/2024	Bode plots- problems
			04/04/2024	All pass & minimum phase system
			04/04/2024	Computation of GM & PM
			05/04/2024	INTERNAL ASSESSMENT
	13th	3	08/04/2024	Log magnitude vs phase plot Principle of argument
			10/04/2024	Nyquist stability criterion
			12/04/2024	Nyquist stability criterion applied to inverse polar plot.
	14th	4	15/04/2024	Effect of addition of poles and zeros to $G(S)$ $H(S)$ on the shape of Nyquist plot
			18/04/2024	Assessment of relative stability
			18/04/2024	Constant M and N circle
			19/04/2024	Nicholas chart.
	15th	5	22/04/2024	Revision of Chapter 1, 2 & 3
			24/04/2024	Revision of Chapter 4, 5 & 6
			25/04/2024	Revision of Chapter 7 & 8
			25/04/2024	PYQs Practice
			26/04/2024	VST

Shradha Patra  
16/01/2024  
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16.1.24  
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