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DEPARTMENT OF ELECTRICAL ENGINEERING Govt. Polytechnic, Balasore

LESSON PLAN FOR ACADEMIC SESSION - 2025-26 LINEAR CONTROL SYSTEMS

Course Code : EEPE202(b) (TH:4(b))	Semester : 4th
Total Periods : 45 Hours	Examination : 3 Hours
Theory Periods : 3 P/Week	Progressive Assessment: 30 Marks
Maximum Marks : 100	End Semester Examination : 70 Marks
Semester From Date : 22/12/2025	To Date :
Name of the Teaching Faculty: Er. Radha Rani Panda	

WEEK	PERIOD	TOPIC
1st	1 st	Introduction to Laplace Transform. Open loop and closed loop control systems: Feedback principle, Transfer function of LTI systems-Mechanical and Electromechanical systems
	2 nd	Force voltage and force current analogy - block Diagram representation
	3 rd	Force voltage and force current analogy - block Diagram representation
2nd	1 st	Block diagram reduction
	2 nd	Block diagram reduction
	3 rd	Signal flow graph
3rd	1 st	Signal flow graph
	2 nd	Mason's gain formula - characteristic equation.
	3 rd	Mason's gain formula - characteristic equation.
4th	1 st	Control system components: DC and AC servo motors
	2 nd	DC and AC servo motors
	3 rd	Synchro - gyroscope
5th	1 st	Stepper motor - Tacho generator
	2 nd	Time domain analysis of control systems: Transient and steady state responses
	3 rd	Time domain specifications - first and second order systems
6th	1 st	Time domain specifications - first and second order systems
	2 nd	Step responses of first and second order systems.
	3 rd	Step responses of first and second order systems.

7 th	1 st	Error analysis: Steady-state error analysis
	2 nd	Static error coefficient of type 0, 1, 2 systems
	3 rd	Static error coefficient of type 0, 1, 2 systems
8 th	1 st	Dynamic error coefficients
	2 nd	Dynamic error coefficients
	3 rd	Concept of stability: Time response for various pole locations
9 th	1 st	Stability of feedback system
	2 nd	Routh's stability criterion
	3 rd	Routh's stability criterion
10 th	1 st	Root locus and Polar plot: General rules for constructing Root loci
	2 nd	General rules for constructing Root loci
	3 rd	Stability from root loci
11 th	1 st	Effect of addition of poles and zeros.
	2 nd	Lag, Lead and Lead-Lag compensators
	3 rd	Lag, Lead and Lead-Lag compensators
12 th	1 st	Nyquist stability criterion-Nichols chart
	2 nd	Nyquist stability criterion-Nichols chart
	3 rd	Non-minimum phase system
13 th	1 st	Transportation lag.
	2 nd	Frequency domain analysis: Frequency domain specifications
	3 rd	Analysis based on Bode plot
14 th	1 st	Log magnitude vs. Phase plot
	2 nd	Log magnitude vs. Phase plot
	3 rd	State space model
15 th	1 st	State space model
	2 nd	State Transition matrix
	3 rd	State Transition matrix

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22/12/25

Lect. Stage-I, Elect Dept.
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