CONTROL SYSTEMS LAB

Course Code	23EE3452	Year	II	Semester(s)	II
Course Category	Professional Core	Branch	EEE	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisites	
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes
Upon successful completion of the course, the student will be able to
CO1   Analyze the performance of Magnetic amplifier, D.C & A.C servo motors and synchros (L4)
CO2   Experiment the performance of a system using PID controllers and Solve the State space model for classical transfer function using MATLAB (L3)
CO3   Determine the transfer function of D.C Motor, time response analysis and examine the truth table of logic gates using PLC. (L3)
CO4   Investigate the stability in time and frequency domain and Kalman's test for controllability and observability using MATLAB (L4)
CO5   Conduct experiments as team/individual by using equipment available in the lab
CO6   Make an effective report on the conducted experiments

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		3		3		1							2	1
CO2	3		3	3	3	1						2	2	1
CO3	3			3		1							2	1
CO4	3		3	3	3	1						2	2	1
CO5									3					
CO6										3				

Any 10 of the following experiments are to be conducted:

Syllabus		
Exp.No.	Contents	Mapped CO
1	Analysis of Second order system in time domain	CO3, CO5,CO6
2	Characteristics of Synchros	CO1, CO5,CO6
3	Effect of P, PD, PI, PID Controller on a second order systems	CO2, CO5,CO6
4	State space model for classical transfer function and vice versa using MATLAB-Verification	CO2, CO5,CO6
5	Transfer function of DC motor	CO3, CO5,CO6
6	Root locus, Bode Plot and Nyquist Plot for the transfer function of systems up to 5th order using MATLAB.	CO4, CO5,CO6

7	Kalman's test of Controllability and Observability using MAT LAB.	CO4, CO5,CO6
8	Temperature controller using PID	CO2, CO5,CO6
9	Characteristics of magnetic amplifiers	CO1, CO5,CO6
10	Characteristics of AC servo motor	CO1, CO5,CO6
11	Characteristics of DC servo motor	CO1, CO5,CO6
12	Study and verify the truth table of logic gates and simple Boolean expressions using PLC.	CO3, CO5,CO6