

Control Systems Lab

Objective:

To impart hands on experience to understand the performance of basic control system components such as magnetic amplifiers, D.C. Servo motors, A.C. Servo motors, stepper motor and potentiometer.
To understand time and frequency responses of control system with and without controllers and compensators.



Sections Handled: 3-1

Major Equipment Details:

Sl.No	Equipment Name	Qty
1	Analog oscilloscope 30MHz	4
2	Multimeter Digital	7
3	Linear system simulator	1
4	Synchronous transmitter receiver pair	1
5	DC servo motor speed torque characteristics	1
6	Transfer function of DC Motor	1
7	PID Simulator	1
8	PID Controller(Analog)	1
9	Study of Compensating networks	1
10	Magnetic amplifier	1
11	AC Servo motor speed torque characteristics	1
12	5kVA Servo stabilizer	1
13	PLC Trainer Kit	1
14	PLC Stepper Motor	1
15	Potentiometer as Error Detector	1
16	D.C position Control Systems	1
17	Function Generator	1

Faculty In charge with qualification: **V. Bindhu**

Lab Technical name with qualification: **Md.Nuzhat Farheen, B.Tech**

Experiment list as per curriculum:

1. Time response of Second order system
2. Characteristics of Synchros
3. Programmable logic controller – characteristics of stepper motor
4. Transfer function of DC motor
5. Effect of P, PD, PI, PID Controller on a second order systems
6. Lag and lead compensation – Magnitude and phase plot
7. DC position control system
8. Temperature controller using PID
9. Characteristics of magnetic amplifiers
10. Characteristics of AC servo motor
11. Characteristics of DC servo motor
12. Potentiometer as an error detector

Experiment list beyond the curriculum

- 1.Stability Analysis of liner time invariant systems (Bodeplots,root locus using mat lab)
- 2.Simulation of state space models using mat lab