



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA–533003, Andhra Pradesh, India
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

III Year – I SEMESTER		L	T	P	C
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CONTROL SYSTEMS LABORATORY					

Course Objectives:

- 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 and Synchros.
- To understand time and frequency responses of control system with and without controllers and compensators.

Any 10 of the following experiments are to be conducted:

1. Time response of Second order system
2. Characteristics of Synchros
3. Effect of P, PD, PI, PID Controller on a second order systems
4. Design of Lag and lead compensation – Magnitude and phase plot
5. Transfer function of DC motor
6. Bode Plot, Root locus, Nyquist Plots for the transfer functions of systems up to 5th order using MATLAB.
7. Controllability and Observability Test using MAT LAB.
8. Temperature controller using PID
9. Characteristics of magnetic amplifiers
10. Characteristics of AC servo motor
11. Characteristics of DC servo motor
12. To study and verify the truth table of logic gates and simple Boolean expressions using PLC.

Course Outcomes:

After the completion of the course the student should be able to:

- Analyze the performance and working Magnetic amplifier, D.C and A.C. servo motors and synchros.
- Design P,PI,PD and PID controllers
- Design lag, lead and lag–lead compensators
- Evaluate temperature control of an oven using PID controller
- Determine the transfer function of D.C Motor
- Analyze the performance of D.C and A.C Servo Motor.
- Test the controllability and observability.
- Judge the stability in time and frequency domain.
- To examine different logic gates and Boolean expressions using PLC.