

| Course code | Course Name | L-T-P - Credits | Year of Introduction |
|--|--------------------------------|-----------------|----------------------|
| EE332 | Systems and Control laboratory | 0-0-3-1 | 2016 |
| Prerequisite: EE303 Linear control systems | | | |
| Course Objectives <ul style="list-style-type: none"> To develop mathematical models for electrical systems, analyse the systems and implement compensators for systems based on system performance. | | | |
| List of Experiments: <ol style="list-style-type: none"> Predetermination and verification of frequency response characteristics of Lag and Lead networks. Transfer Function of AC and DC servomotors Step and frequency response of R-L-C circuit Study of P, PI and PID controllers. Response analysis of a typical system with different controllers, using process control simulator. Study of performance characteristics and response analysis of a typical temperature/ Flow/ Level control system. MATLAB: Use of control system Tool box for the Time domain and frequency domain methods of system analysis and design SIMULINK: Simulation and control of real time systems using SIMULINK Compensator design using Bode plot with MATLAB control system Tool box Simple experiments using Programmable Logic Controller- Realization of AND, OR logic, concept of latching, experiments with timers and counters- using ladder diagrams Study of various types of synchros (TX, TR & TDX). Characteristics of transmitter, data transmission using TX-T R pair. Effect of TDX in data transmission. Realization of Lag & lead compensator using active components | | | |
| End examination shall be based on design of a controller for the given system | | | |
| Course Outcome: <p>After successful completion of this course, students will be able to:</p> <ol style="list-style-type: none"> Develop mathematical models for servomotors and other electrical systems Performance analysis of different process control systems Performance analysis of different types of controllers Use MATLAB and SIMULINK to design and analyze simple systems and compensators | | | |

Estd.



2014