**17EE32P1-CONTROL SYSTEMS LAB**

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| **Course Category:** | Professional core | **Credits:** | 2 |
| **Course Type:** | Laboratory | **Lecture-Tutorial-Practical:** | 0-0-3 |
| **Pre-requisite:** | Linear control systems, Electrical Machines, Microprocessors and  MATLAB Software | **Sessional Evaluation:**  **External Exam Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course Objectives** | To make the student learn about: | |
| 1. The design and analysis of compensators.  2. The frequency & time domain specifications of network.  3. The Speed control of various DC & AC motors.  4.The characteristics of synchros  5.The design of controllers using MATLAB  6.Writing the programme to find frequency & time domain  specifications of network using MATLAB | |
| **Course Outcomes** | After completing the course the student will be able to: | |
| **CO1** | Analyse the compensator circuits experimentally. |
| **CO2** | Analyse time and frequency specifications of network |
| **CO3** | Analyse characteristics of various motors |
| **CO4** | Analyse the speed control of various motors using microprocessors. |
| **CO5** | Analyse the usage of MATLAB in control system. |
| **CO6** | Design the controllers. |
| **Course Content:** | Minimum of 10 experiments to be conducted out of the following:  **LIST OF EXPERIMENTS**   1. Characteristics of Lag and Lead compensator 2. Characteristics of Lead and Lag compensator 3. Frequency response Specifications 4. Frequency response characteristics 5. Time response of second order System 6. Characteristics of Synchros 7. Speed control of Stepper Motor 8. Speed control of DC Servo Motor 9. Root Locus & Bode plot from a Transfer Function 10. Design & simulation of P, PI and PID Controllers 11. AC Servo motor speed-torque characteristics 12. Time response of first and second order System 13. Temperature controller System. | |