

Course code	Course name	L-T-P-Credits	Year of introduction
AE332	PROCESS CONTROL LAB	0-0-3-1	2016
Prerequisite : AE302 Process control			
Course Objective <ul style="list-style-type: none">• To provide experience on control of various industrial processes using different control paradigms• To provide experience in development of virtual instrumentation systems for industry applications• To introduce few novel control strategies based on artificial neural networks, fuzzy logic, digital control algorithm, etc.			
LIST OF EXPERIMENTS: (Minimum 12 experiments are to be done) <ol style="list-style-type: none">1 .ON-OFF controller with and without neutral zone-level control, flow control2. Temperature control using P, PI, PD, and PID controllers–Study of output response3. Flow control using P, PI, PD, and PID controllers–Study of output response4. Liquid level control using P, PI, PD, and PID controllers–Study of output response5. Pressure control using P, PI, PD, and PID controllers–Study of output response6.Control valve characteristics7. Controller tuning for various processes – using Ziegler-Nichols rule8. Controller tuning for various processes – using Cohen and Coon rule9.Controller Tuning – Simulation10.Block diagram simulation of a complex control system11Study of feed-forward, cascade, and ratio controls12.Data Logger13. PC based control of robotic actions14. Simulation of Artificial Neural Networks –use any software15.Simulation of Heat Exchanger Temperature Control16. Interface of DCS with PLC/SCADA using protocol/fieldbus			
Expected outcome <ul style="list-style-type: none">• The students will be familiar with the concept of process controllers			