Course code	Course Name	L-T-P-Credits	Year of Introduction
CH431	PROCESS CONTROL LAB	0-0-3-1	2016

Prerequisite : CH302 Process Dynamics and Control

Course Objectives

- To study experimentally the dynamics of various systems and analyze common control systems

List of Exercises / Experiments (Minimum of 12 mandatory)

1. Calibration of thermocouple
2. Dynamics of thermocouple
3. Dynamics of thermometer
4. Dynamics of thermometer with thermo well
5. Dynamics of manometer
6. Dynamics of liquid level system - single tank
7. Dynamics of liquid level system - non-interacting tanks in series
8. Dynamics of liquid level system - interacting tanks in series
9. Control of level process system
10. Control of flow process system
11. Dynamics of mixing process
12. Control of temperature process system
13. Control of pressure process system
14. Comparative study of P, PI and PID controllers for temperature process system
15. Study of Electro-pneumatic converter
16. Control valve characteristics
17. Any other experiments related to process control applicable in chemical engineering field

Expected Outcome

At the end of the course the students will be able to:

i. Determine the dynamics and dynamic parameters of temperature, level and pressure systems
ii. Compare different types of controllers such as P,PI and PID
iii. Determine the characteristics of control valve

References:

1. Albert C.L. & Coggen D.A., Fundamentals of Industrial Control, ISA
2. Ceaglske N.H., Automatic Process Control for Chemical Engineers
3. Coughanewr D.P., Process System Analysis & Control, McGraw Hill
4. Eckman D.P., Principles of Industrial Process Control
5. Harriot P., Process Control, Tata McGraw Hill
6. Stephanopoulose G., Chemical Process Control- An Introduction to Theory & Practice, Prentice Hall of India
7. Tsai T.H., Lane J.W. & Lom C.S., Modern Control Techniques for the Processing Industries, Marcel Dekker