



Department of Electrical and Control Eng.



Lab 103-B

Automatic Control

Capacity: 20 Students



In this laboratory students are introduced into the basic principles of mastery of industrial applications. Using instrumentation and measurement equipment's; various areas of analogue automatic control are investigated such as pressure and flow, valve calibration and temperature control. The interfacing of analogue and digital circuit and control principles are also investigated such as computer control of motor speed and transient analysis of control systems using computer interface.



LABORATORY EQUIPMENTS

- Process Control Simulator.
- Temperature Process Trainer T-3.
- Pressure & Flow Process Trainer PF-2.
- Level & Flow Trainer LF-1.
- Computer Control Process Trainer.
- Valve Calibration Trainer.
- Analogue training System.
- F.B Modular Servo System.
- Oscilloscopes.
- Function Generators.
- Programmable Logic Controller "Siemens S-5 100U".
- Digital Multimeters.
- Air Compressors.
- Mini Workshop.



MAJOR EXPERIMENTS

- ✓ Investigation the characteristics of a Pressure Sensor.
- ✓ Investigation the characteristics of a Level Sensor.
- ✓ Investigation the characteristics of a flow Sensor.
- ✓ Investigation the characteristics of a Resistance Temperature Detector.
- ✓ Open Loop Process control investigation and performance assessment.
- ✓ Closed Loop Process control investigation and performance assessment.
- ✓ PID Controller tuning using process simulator.
- ✓ Disturbance Effect and Disturbance Elimination.
- ✓ Operational Amplifier Amplification & Attenuation Circuits.
- ✓ Operational Amplifier Comparator Circuits.
- ✓ Operational Amplifier Differentiator and Integrator Circuits.



The Laboratory Serves the Following Courses

Course No.	Course Title	Semester
EE411	Control System 1	7
EE312	Electrical Measurements 2	5
EE311	Fundamentals of Control	6