

## **Instrumentation and Control Lab**

**(Room 509)**

Instrumentation involves the use of sensors and measurement devices to gather data about the physical environment, such as temperature, pressure, and motion. Control, on the other hand, involves the use of feedback loops and algorithms to regulate and adjust the behavior of the system based on the sensor data.

Control valves are essential in regulating the flow, pressure, temperature, and level of fluids in various industries such as chemical, petrochemical, oil and gas, power generation, and water and wastewater treatment. They work by modulating the flow of fluid through a pipe or vessel, and they consist of a valve body, a valve trim, and an actuator. Control valves play a critical role in ensuring the optimal performance and safe operation of industrial processes. This Lab consists of a Control Valve Characteristics Kit and kit showing cross section of major type of valves.

P to I and I to P converters are essential signal converters in process control systems. P to I converters convert pressure signals, usually in pneumatic form, into proportional electrical current signals, while I to P converters convert electrical current signals into proportional pneumatic pressure signals. These converters are commonly used in industrial processes where different types of signals are generated and used for control purposes. This lab consists of P to I and I to P converter Kit.

Switches, sensors, and control relays are essential components of process control systems. Switches open or close electrical circuits to control equipment or signal alarms. Sensors detect physical parameters and convert them into electrical signals that controllers can use to monitor and control industrial processes. Control relays are used to control high-power circuits with low-power signals. They enable the control of motors, valves, and other electrical equipment. Together, these components provide the necessary feedback and control signals to controllers, ensuring that industrial processes operate efficiently and safely. This lab consists of sensors , switches and control relay kits.

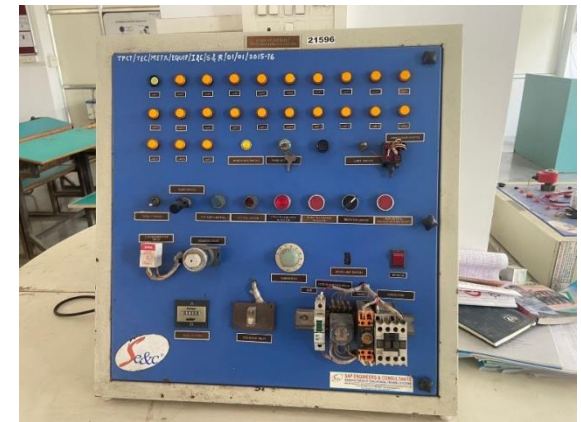
Lab cost-Rs. 2,64,909 /-

Lab Area- 60.61 Sq.m.

## Available Resources Hardware & Software:

Lab is equipped with

- 1) SET UP FOR TYPES OF SWITCHES AND RELAYS
- 2) SET UP FOR CUT SECTION OF VALVE
- 3) SET UP FOR CONTROL VALVE CHARACTERISTICS
- 4) I TO P AND P TO I CONVERTERS
- 5) SET UP FOR DIFFERENT TYPES OF CONTROL RELAYS
- 6) AIR COMPRESSORS



## Laboratory Pics

