

Process Control & Instrumentation

COURSE OVERVIEW

This course provides a foundational understanding of how industrial processes are automatically monitored and controlled. The curriculum bridges process theory with practical application, focusing on core control loop components sensors, transmitters, controllers, and final control elements. Key topics include process dynamics, PID controller functions and tuning, and an introduction to advanced control strategies and modern control system architectures. Participants will learn how to measure key process variables such as temperature, pressure, level, and flow, how control decisions are made, and how automated systems maintain safe, efficient, and consistent operations.

WHO SHOULD ATTEND?

This course is ideal for process engineers, instrumentation engineers, chemical engineers, control engineers, plant operators, and maintenance personnel responsible for process monitoring and automation. It is also suitable for project engineers, commissioning teams, and technical professionals seeking to enhance their skills in industrial process control and instrumentation design.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Apply control theory to regulate key process variables such as flow, temperature, level, and pressure.
- Select, configure, and troubleshoot industrial sensors, transmitters, actuators, and control valves.
- Develop and tune control loops for stable and efficient process operation.
- Interpret P&IDs, instrument indexes, and control architecture layouts.
- Implement advanced control methods, including cascade, feedforward, and ratio control.
- Analyze process dynamics and build basic dynamic process models for control design.
- Integrate instrumentation systems with DCS, PLC, and SCADA environments.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- Fundamental principles of process dynamics and control.
- Control loop components, configurations, and tuning techniques.
- Measurement technologies for industrial process variables.
- Instrument selection criteria and calibration methods.
- Control strategies for stable and optimized process operations.
- Troubleshooting techniques for instrumentation and control systems.
- Integration of field devices with automation platforms such as PLCs, DCS, and SCADA.

All our courses are dual-certificate courses. At the end of the training, the delegates will receive two certificates.

1. A GTC end-of-course certificate
2. Continuing Professional Development (CPD) Certificate of completion with earned credits awarded