



Instrumentation & Controls

Process Instrumentation Selection and Installation

Course Introduction

The **Process Instrumentation Selection and Installation** course provides participants with a comprehensive understanding of selecting the right instrumentation for industrial applications and ensuring proper installation for optimal performance. This course covers key aspects of instrumentation, including types, selection criteria, installation best practices, calibration, and troubleshooting. By the end of the training, participants will be equipped with the knowledge and skills to enhance process efficiency, safety, and reliability through proper instrumentation selection and setup.

Target Audience

- Engineers involved in process instrumentation and control
- Technicians responsible for installation and maintenance
- Maintenance personnel ensuring instrumentation reliability
- Automation specialists handling process control systems
- Compliance officers overseeing regulatory requirements

Learning Objectives

- Understand the **fundamentals of process instrumentation** and its role in industrial applications.
- Identify **different types of instrumentation** (pressure, temperature, flow, level, etc.) and their applications.
- Apply **selection criteria** for choosing the right instrument based on process requirements.
- Learn best practices for **instrumentation installation and integration**.

- Understand **wiring, signal transmission, and communication protocols**.
- Gain knowledge of **instrument calibration and validation** techniques.
- Troubleshoot **common instrumentation issues** and ensure long-term reliability.
- Implement **safety considerations and compliance requirements** for instrumentation systems.

Course Outline

• 01 Day One

Module 1: Introduction to Process Instrumentation

- Overview of process instrumentation in industrial applications
- Importance of accurate measurement and control
- Types of instruments and their classifications

Module 2: Types of Process Instrumentation

- **Flow measurement devices** (orifice plates, venturi meters, magnetic, ultrasonic, Coriolis, etc.)
- **Pressure measurement instruments** (gauges, transmitters, differential pressure)
- **Temperature measurement** (thermocouples, RTDs, infrared sensors)
- **Level measurement** (radar, ultrasonic, float, capacitance)

• 02 Day Two

Module 3: Instrument Selection Criteria

- Factors affecting instrument selection (process conditions, accuracy, reliability, cost)
- Compatibility with process fluids, temperature, and pressure ranges
- Communication protocols (4-20mA, HART, Modbus, Foundation Fieldbus)

• 03 Day Three

Module 4: Installation Best Practices

- Installation guidelines for different types of instruments
- Wiring and grounding considerations
- Signal transmission and protection against interference

- Integration with **DCS, SCADA, and PLC** systems

- **04 Day Four**

Module 5: Calibration and Validation of Instruments

- Importance of calibration in process control
- Calibration techniques for different instruments
- Validation and performance verification

Module 6: Troubleshooting and Maintenance

- Common instrumentation faults and how to diagnose them
- Preventive maintenance strategies
- Ensuring long-term performance and reliability

- **05 Day Five**

Module 7: Safety Considerations and Compliance

- Safety standards in instrumentation selection and installation
- Hazardous area classifications and explosion-proof instruments
- Regulatory requirements and industry standards (IEC, ISA, ANSI, API)

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 1, 2025	June 5, 2025	5 days	4250.00 \$	Morocco - Casablanca
July 14, 2025	July 18, 2025	5 days	4950.00 \$	England - London
Nov. 24, 2025	Nov. 28, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Jan. 26, 2025	Jan. 30, 2025	5 days	4250.00 \$	KSA - Riyadh

