

Who Should Attend?

Facilities and Project Engineers as well as newly graduated Electrical, Controls and Instrument Engineers who need to improve their basic understanding of instrumentation and control systems within oil and gas facilities.

The Participant Will Learn:

- Field measurement devices including level, pressure, temperature and flow
- Final elements and actuators including control loops, control valves, shutdown valves, actuators, transducers
- Pressure relief and pressure regulation
- How to document instrumentation including tag numbers, P&IDs, loop and logic diagrams
- Process control basics with emphasis on control loops, types, strategies, and loop tuning
- How programmable logic controllers operate as well as their advantages, application, functionality, architecture, and programming
- Supervisory Control and Data Acquisition (SCADA) Systems to include telemetry, RTUs, internet and web based
- Distributed Control Systems (DCS) including Fieldbus and Profibus
- Risk mitigation, technologies, and architecture of Safety Instrumented Systems (SIS)
- Best practices for hazardous areas and equipment selection which will include area classification, NEC, IEC, equipment protection, selection, certification, location, and ingress

All classes available at your location. Contact us today.

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Instrumentation and Control Fundamentals for Facilities Engineers (IC-3)

Course Outline

Daily schedule is approximate.

DAY 1	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Introduction • P&ID Symbols & Exercise 	<ul style="list-style-type: none"> • 4-20ma Control Loops • Red Thread Exercise
DAY 2	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Field Measurement • Accuracy, Field Measurement • Level Devices • Field Measurement • Temperature Devices 	<ul style="list-style-type: none"> • Field Measurement • Pressure Devices • Field Measurement • Flow Devices
DAY 3	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Field Measurement Alarm and Shutdown Devices • Instrument Index and Database • Red Thread Exercise • Controller Output Devices 	<ul style="list-style-type: none"> • Control Valves • Control Valve Sizing • Pressure Regulation • Pressure Relief
DAY 4	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Control System Basics • Control Loop Tuning • Programmable Electronic Systems (PLC, DCS, SCADA, and SIS0) 	<ul style="list-style-type: none"> • SCADA Overview • SIS Overview • Red Thread Exercise • PLC Overview, DCS Overview
DAY 5	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Hazardous Area Classifications • Red Thread Exercise • Review and Summary 	

About the Course:

This course applies fundamental instrumentation and control engineering principles to oil and gas facilities design and operation. It is designed for Facilities Engineers with or without a background in instrumentation or control engineering. The course is also designed to accelerate the development of new facilities Instrumentation and Control Engineers. Through the use of individual and group problem solving, attendees will learn about field measurement devices, final elements and actuators, pressure relief and regulation, documentation, programmable logic controllers, power supplies, SCADA, DCS, SIS, hazardous areas, and installation methods. Participants will gain a better understanding of instrumentation and control components and systems and will gain a greater appreciation for instrumentation and control engineering.