

Who Should Attend?

Managers, engineers, technicians and system operators requiring a broad understanding of instrumentation, control, and electrical systems in oil and gas facilities.

The Participant Will Learn:

Electrical Power

- ☐ Defining fundamentals parameters for electrical power usage and generation such as voltage levels, self-generate versus purchased power, and basic electrical power management.
- ☐ Developing electrical power demand (load) lists, one-line diagrams, and the selecting and integrating power distribution systems.
- ☐ Identifying electrical power users (for the load list) then evaluating the equipment demand on the power system (such as intermittent or continuous service, and motor starting loads).
- ☐ Using safe practices such as hazardous area classification and circuit protection.

Instrumentation and Control

- ☐ Defining what to measure, why measure a parameter and how to measure.
- ☐ Determining and using the many control strategies, equipment and computer systems common to an oil and gas facility.
- ☐ Identifying equipment and instrument characteristics and using appropriate instrumentation and controls.
- ☐ Defining and integrating components into systems that monitor and locally control the process (and related equipment), safety systems, and the communications and remote control systems use.

All classes available at your location. Contact us today.

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Instrumentation, Controls and Electrical Systems for Facilities Engineers (ICE-21)

Course Outline

Daily schedule is approximate.

DAY 1	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Introduction • Basic DC & AC Circuits, Exercise • Control & electrical systems • Group project • Red Thread Exercise • Develop basic one-line diagram 	<ul style="list-style-type: none"> • Fundamentals of Electricity • Ohms Law and cable voltage drop • Power Distribution • Exercise • Determine System Voltage required
DAY 2	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Power Generation • Emergency Power • Transformers • Motors • Exercise 	<ul style="list-style-type: none"> • Motor Troubleshooting • Exercise • Motor Troubleshooting • Electrical Equipment Protection
DAY 3	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Instrument Index and Database • P&ID Symbols & Exercise • 4-20ma Control Loops • Field Measurement Devices • Exercise • Identify Symbols and Usage 	<ul style="list-style-type: none"> • Introduction to facility instrumentation • Controller Field End Devices • Control Valves • Exercise • Control Valve Sizing
DAY 4	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Control System Basics • Red Thread Exercise 	<ul style="list-style-type: none"> • Programmable Electronic Systems (PLC, DCS, SCADA, and SIS)
DAY 5	<p>CONCEPTS</p> <ul style="list-style-type: none"> • Hazardous Area Classifications • Exercise • Determine Area Classification • Electrical Safety 	<ul style="list-style-type: none"> • Exercise • Electrical Safety Puzzle • Red Thread Exercise • Review

About the Course:

This 5-day course provides an overview of electrical power generation and distribution, process and safety systems instrumentation, and control strategies and configurations. The focus is on application and integration into the process and control of upstream and midstream oil and gas facilities. The material of the course is applicable to field production facilities, pipelines, gas plants, and offshore systems.