



PCS Service Representatives have years of field experience. In the Instrument Technology course, they share this experience with practicing instrument technicians. Technicians gain the knowledge required to properly install and maintain specific plant measurement and control instrumentation in this customizable course. All instructors are ISA Certified Control Systems Technicians.

FEATURES

This course presents a combination of practical information and hands-on experiences covering proper installation, calibration, and maintenance of electronic instruments. Instrumentation covered may include any and all instruments currently used in your process plant.

Instruments included, but not limited to any make/model:

- Differential Pressure Flowmeters
- Magnetic Flowmeters
- Mass Flowmeters
- Vortex Shedding
- Ultrasonic Flowmeters
- Level Transmitters
- Pressure Transmitters
- Temperature Transmitters
- Valve Positioners

OBJECTIVES

The objective of the Instrumentation Technology course in your plant is to provide technical proficiency among participating plant technicians. It examines techniques for installing electronic instruments, and procedures for configuring and calibrating transmitters, transducers, and controllers.

You will be able to:

- Employ proper safety practices during installation, calibration, and maintenance procedures
- Understand how to connect wiring in an electronic control loop

- Select and operate test equipment to measure electrical properties and calibrate instruments
- Calibrate electronic transmitters and controllers
- Recognize the importance of maintenance in the proper operation of instruments and control systems
- Use manufacturer's guidelines to configure instruments for specific process applications
- Install electronic instruments using manufacturer's guidelines
- Use P&ID, wiring, schematic, and installation detail drawings to install, calibrate, and verify proper operation of instruments

HANDS-ON LABORATORY

Supervised laboratory exercises complement classroom instruction with practical experience. Laboratory sessions may include actual plant walk-through to reinforce lectures.

Laboratory exercises include but are not limited to:

- Calculate and record 'as found' instrument performance data to compare with specifications and identify errors
- Measure and record voltage, current, resistance
- Calculate span and range values for various measurement applications
- Calibrate differential pressure, RTD, thermocouple, and I/P transmitters and transducers
- Configure smart differential pressure, mass flow and temperature transmitters

EXAMPLE SYLLABUS

DAY 1 AM CLASSROOM

- A. INTRODUCTION
 - a. Scope
 - b. Objectives
- B. PERSONNEL AND PLANT SAFETY
- C. INSTRUMENTATION MEASUREMENTS
 - a. Flow
 - b. Pressure
 - c. Level
 - d. Temperature
 - e. pH
 - f. Conductivity
 - g. Operation
 - h. Calibration
 - i. Installation
 - j. Troubleshooting
- D. PROCESS MEASUREMENTS
 - a. Piping
 - b. By-pass Manifold
 - c. Configuration
- E. VALVES
 - a. Calibration
 - b. I/P's
 - c. Positioners

DAY 1 PM LABORATORY

DAY 2 AM CLASSROOM

- A. WALK THROUGH
- B. TROUBLE SHOOT
 - a. Flow/Pressure Transmitters
- C. BYPASS MANIFOLDS
- D. INSTALLATION AND REPLACEMENT TECHNIQUES
- E. LIMIT AND PRESSURE SWITCHES
- F. PIPING

DAY 2 PM LABORATORY

DAY 3 AM CLASSROOM

- A. QUESTIONS PERIOD
- B. CONTROL FUNDAMENTAL
- C. SAMA DIAGRAMS
- D. ISA DIAGRAMS
- E. P & I'S
 - a. Identify locations
 - b. Troubleshoot Field Instrumentation

DAY 3 PM LABORATORY

- A. TROUBLE SHOOT FLOW/PRESSURE TRANSMITTERS
- B. BY-PASS MANIFOLDS
- C. USE OF P&I SYMBOLS
- D. LOOP CHECK
- E. CLOSING QUESTIONS PERIOD

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