IC 101

● ○ ○ Foundation 60 hours 4 modules · 28 lessons

Measurement Fundamentals: Pressure, Level, Temperature, Flow & Analyzers

How every common plant sensor works, how to install it correctly and how to read what it tells you.

60	4	28	4,000	140	12
HOURS OF TRAINING	MODULES	LESSONS	STUDY CARDS	SCENARIOS	3D SIMULATORS

COURSE OBJECTIVES

By the end of this course you will be able to:

1. Read ISA-5.1 tags, P&IDs and loop diagrams and keep instrument documentation current.
2. Select and install pressure, hydrostatic, differential-pressure, ultrasonic and radar level instruments.
3. Explain magnetic, ultrasonic, vortex, Coriolis and differential-pressure flow measurement and their straight-run requirements.
4. Describe turbidity, chlorine, pH, conductivity, DO and other analyzer principles and their calibration needs.
5. Apply safety and hazardous-area rules when working on instruments.
6. Scale 4–20 mA values and convert between engineering units and signals.
7. Recognize common installation errors that cause bad data.

WHAT YOU WILL LEARN

Documentation & safety
Tags, P&IDs, loop sheets, permits and instrument safety.

Pressure, level & temperature
Hydrostatic, DP and ultrasonic level, RTDs and thermocouples.

Flow measurement
Faraday, transit-time and DP principles, and installation effects.

Water-quality analyzers
Turbidity, chlorine residual, pH, conductivity and DO.

Signals
4–20 mA, HART and the basics of scaling.

Installation quality
Wetted materials, mounting, grounding and sample conditioning.

MAJOR TOPICS COVERED

Module 1	I&C Fundamentals, Safety & Documentation	7 lessons
Module 2	Pressure, Level & Temperature Measurement	7 lessons
Module 3	Flow Measurement	7 lessons
Module 4	Water Quality Analyzers	7 lessons

COURSE HIGHLIGHTS

- **60 hours** of structured, self-paced instruction with active-time tracking.
- **12 interactive 3D simulators** — rotate, explode and cut away real equipment, then change the controls and watch the numbers respond.
- **140 field scenarios** with background, decision points and worked answers.
- **4,000 study cards**, 28 printable checklists and hands-on calculators.
- **Module quizzes** and a completion certificate with a verification code.

WHO IT'S FOR

New and developing I&C technicians, electricians and operators who need to understand and maintain plant instrumentation.

BEFORE YOU START

None. Basic electricity and shop math help. Take this course first in the I&C track.

WHERE TO NEXT

IC 102 — Signals, Final Control Elements & Process Control

Start learning Create a free account at tryetech.com, open **Instrumentation & Controls** and begin with Module 1.