

Instrumentation & Process Control Certification

Applications with CORYS IndissPlus dynamic process simulator

5 days

IR/INPC

Overview

LEVEL

Advanced

PURPOSE

This course provides a good knowledge of instrumentation and control systems and facilitates communication with experts to specify, design, operate and improve control systems.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:
read and understand a P&ID,
select optimal technology for sensors and valves,
increase control loop performance.

WAYS AND MEANS

Practice on mini process skids with industrial equipment.
Use of process dynamic simulators.
Daily quiz to reactivate the key points.

LEARNING ASSESSMENT

Knowledge assessment according IFP Training Certification specific standards.

PREREQUISITES

Engineering degree in the process industries or equivalent professional experience.

WHY AN IFP TRAINING CERTIFICATION?

- An international recognition of your competencies.
- A Advanced Certificate delivered.
- An expertise confirmed in Instrumentation & Process Control Certification.
- Ready-to-use skills.

Agenda

INSTRUMENT LOOPS

Function, constitution, signal types. Tag naming conventions and symbolization on Piping & Instrument Diagrams (P&ID).
Control loop and Safety Instrumented Function (SIF).
Application: control and safety loops identification on P&ID .

0.5 d

SENSORS & TRANSMITTERS

Technologies to measure and detect the pressure, temperature, level, flow and weight.
Working principles and configuration parameters.

1.5 d

Selection criteria according to process needs.

Applications: mini-process skids workshops (pressure, level and flow measurement) .

CONTROL VALVES & ON/OFF VALVES

1 d

Technologies and working principle.

Specification parameters (C_v , trim characteristics, air failure, leak class, etc.).

Failure modes.

Accessories (limit switches, solenoid valves, positioners, etc.).

Applications:

C_v calculation and valve selection process.

Mini-process skids workshops: positioner role.

PROCESS CONTROL

1.25 d

Controller role and performance criteria.

ON/OFF and PID controller.

Controller tuning methodologies.

Conventional control schemes: split-range, cascade, ratio, override, feed forward, decoupling.

Introduction to advanced process control.

Application: loop tuning on a process dynamic simulator.

CONTROL & SAFETY SYSTEMS

0.5 d

Role, architecture and functions of a Distributed Control Systems (DCS). Separation of control and safety systems.

Introduction to Safety Instrumented Systems (SIS). Multiple safety layers principle.

Application: DCS and safety system operation on process skids.

KNOWLEDGE ASSESSMENT

0.25 d

Assessment quiz. Correction.