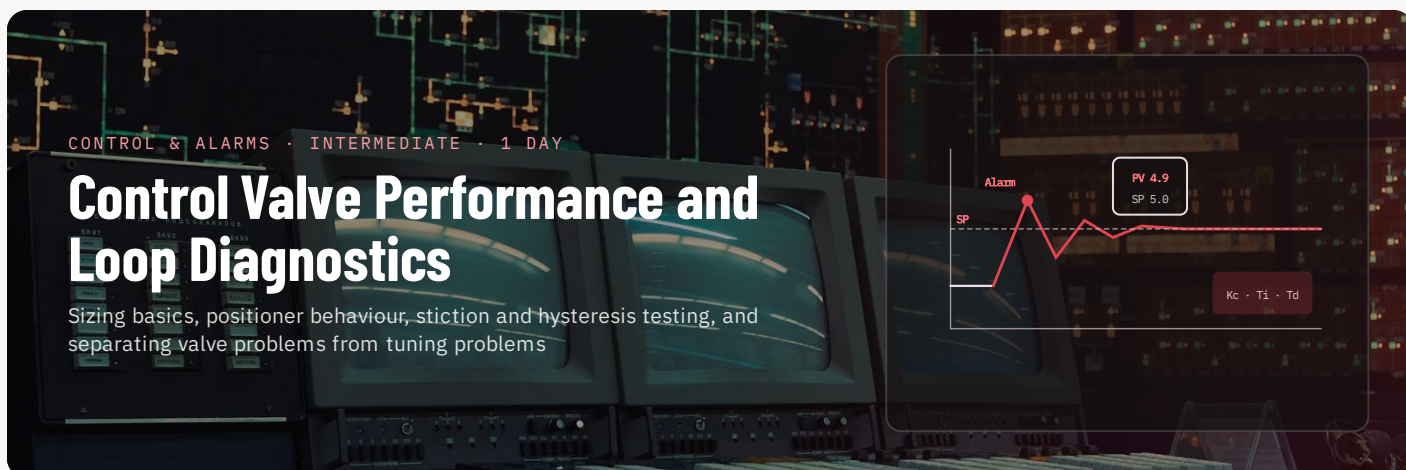




DURATION
1 day

LEVEL
Intermediate

FORMAT
On-site classroom · virtual instructor-led

LANGUAGE
English

MAX. PARTICIPANTS
16

20

valve signatures interpreted

5

diagnostic tests you can run yourself

1

bad-actor list for the unit

◆ Overview

Half the loops blamed on tuning are actually valve problems, and retuning a sticking valve only makes it oscillate more slowly. This course covers what a control valve has to do — capacity, characteristic, rangeability, response — and how to prove from controller output and process variable trends whether it is doing it. Participants learn the field tests defined in ISA-75.25, read positioner and valve signatures, and build a bad-actor list from their own unit's data.

◆ Learning outcomes

- Check a valve sizing calculation for Cv, choked flow, cavitation and noise per IEC 60534
- Match inherent and installed characteristics to the loop and explain why a wrong choice limits tuning
- Run step-response, resolution and dead-band tests to ISA-75.25.01 and interpret the results
- Recognise stiction, hysteresis, backlash and positioner problems on PV/OP plots
- Read smart-positioner diagnostics and decide whether the valve goes to the workshop
- Rank valves for maintenance from loop-assessment data rather than complaints

◆ Who should attend

Instrument and control engineers, valve and instrument technicians, reliability engineers; process engineers who sign valve data sheets

◆ Course outline

MORNING

Valve function and the loop: what the controller sees · sizing basics: Cv, pressure recovery, choked flow, cavitation and flashing (IEC 60534-2-1) · inherent vs installed characteristic and rangeability · actuators, positioners and bench range · noise and trim selection overview

AFTERNOON

Response testing per ISA-75.25.01: step, resolution, dead band, overshoot · stiction and hysteresis on PV-OP plots · smart-positioner diagnostics and valve signatures · separating valve, tuning and process issues · bad-actor ranking on participants' loop data in CeraPID · field checks and maintenance hand-over

◆ Standards referenced

ISA-75.25.01 / ISA-75.25.02 IEC 60534-2-1 / 60534-8
ISA-75.01.01 ISA-5.1 API RP 554

◆ Tools & exercises

Valve diagnostics and stiction detection in CeraPID; participants' own loop data

◆ What's included

- ✓ Course manual and slide pack
- ✓ Software access for the course
- ✓ Post-course Q&A with the instructor
- ✓ Exercise and case-study pack
- ✓ Competency quiz and certificate
- ✓ Templates used in the exercises

PREREQUISITES

Basic instrumentation or loop-tuning experience;
TR-E02 recommended

CERTIFICATION

Certificate of completion

INSTRUCTORS

Practising engineers — TÜV HAZOP Leader, CCPSC and IEC 61511 Functional Safety certified — with 200+ years of cumulative plant experience.

Book this course or build a custom curriculum

On-site at your plant or virtual · in-house groups · competency assessment included

sales@cerasus.ai · +974 5506 2743

Cerasus Technologies QFZ LLC · Ras BuFontas Free Zone · Doha, Qatar