

Practical Process Control Techniques Training Course



This popular 3 day course is a must for people who want to polish up their regulatory control skills and get some hands on experience with loop tuning. The agenda also covers design of Advanced Regulatory Control with an introduction to higher level technologies. Attendees from a range of disciplines (process engineers, instrument/electrical engineers, instrument/DCS technicians, industry consultants and process control engineers) have benefited from the blend of practical techniques explained through the use of real life examples and simulation exercises.

DAY ONE

Process Control context – objectives, benefits, threats, terminology and structure.

Process Responses – types and measurement.

Data analysis – sampling, noise and filtering.

PID feedback control – PID components, equation types and tuning approaches.

Tuning techniques – flow, pressure, temperature and level tuning approaches.

Loop performance and instrument vulnerabilities.

Exercises to focus on:

Response definition and appropriate use of filtering

Use of the free Tune Wizard tuning tool

DAY TWO

Dealing with Deadtime – tuning and model based control.

Cascade control – initialisation and anti-windup issues.

Process non-linearity and how to deal with this.

Constraint control and ratio control.

Dynamic compensation and feedforward control.

Exercises to focus on:

Diagnosing loop performance problems

Issues associated with tuning level loops manually

Design of cascaded loops and solutions to non-linearity

PID loop design and Feedforward control design review

DAY THREE

Alternative level control approaches, Distillation control approaches, Interaction and Decoupling.

Duty control, Use of calculations and pressure compensated temperatures, Use of engineering models and developing an inference, Analyser feedback control, Control scheme design, implementation and maintenance and Operator Needs.

Multivariable Predictive Control and benefits estimation. Other APC Techniques: Neural networks, Fuzzy logic and Expert Systems.

Exercises to focus on:

Issues associated with tuning deadtime loops manually

Design of duty controllers

Level and Pressure Controller tuning techniques

Level and Pressure Controller tuning techniques

Maximum number of attendees: 20



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As part of our consultancy portfolio, Safety Solutions Ltd can offer support across the whole life cycle of a process plant, from hazard identification and risk assessment to alarm management, process safety audits and incident investigation.

Our training courses are also offered as in-house courses with industry specific examples and workshops. For more information about any of our courses please contact Safety Solutions:

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- Fundamentals of Process Safety (5 days)
- Layer of Protection Analysis (2 days)