

Practice of Process Control

This course enables English-speaking about operation or maintenance staff of industrial installations, in order to become familiar with the principle of single-loop PID (Proportional Integral Derivative) control as well as with basic control architectures, and to learn how to adjust the PID actions of a controller according to the process characteristics. Participants improve their ability to understand the impact of their actions on process control and to diagnose possible control faults.

Learning objectives :

- Attendees will acquire the base theory of operation of PID feedback control loops, showing on one hand how a process may react to its command signal, and on the other hand how to adapt controller actions to a particular process.
- They will learn how to set, tune, and troubleshoot various types of control loops.

Prerequisites :

Knowledge of instrumentation and of basic mathematical concepts such as integral and derivative, as well as basic physical laws, although not required, would be helpful.

Ways and Means :

- The course provides valuable information via lectures on theoretical concepts, backed-up by direct hands-on training in fully equipped classrooms.
- More than 50 % of the time is dedicated to actually working on various simulated control loops and genuine industrial process control loops.
- A knowledge assessment test followed by its proofreading will be run at the end of the training.

Who should attend ?

- Operation and Maintenance Technicians and Engineers, who are new to process control principles, or who wish to be "cross trained".

Course content :

PID FEEDBACK CONTROL LOOP

- PID control actions.
- Controller structure.
- Controller operating modes.
- Stable and unstable process response.
- Tuning (trial and error, IRA method, Mr Roche's method).
- Controller complementary functions.

PARTICULAR CONTROL STRATEGIES

- Cascade control.
- Feedforward control.
- Override, split-range and ratio control.
- On/off control.

DCS AND PLC CONTROL CAPABILITIES

- Function blocks to be found in DCS and PLC'S.
- Examples of control strategy programming.

CONTROL-LOOP TROUBLESHOOTING

- How to check if a PID controller works properly.
- Diagnosis of process variable continuous cycling, and of permanent error between process variable and set point.

HANDS - ON TRAINING (50 %)

- Wiring, setting and checking digital controllers.
- Tuning P.I.D. control loops on simulated process.
- Tuning and troubleshooting P.I.D. control loops on genuine heat exchangers and other process.

NOTE

This training course is part of a two module training package called «PIPC» : Practice of Instrumentation and Process Control, (PPC p. 35 + PRI p. 34).

INSTRUMENTATION & RÉGULATION

PPC



Duration

37 h over 5 days

Time schedule

monday 9 am. - friday 5 pm.

Skill level

Fundamentals ★★☆☆

Training objective

Acquiring new knowledge

Skills assessment method

Questionnaire with open-ended questions

Numbers of Attendees

Mini : 4 - Maxi : 10

Instructor in charge

Philippe TRICHET

Main Trainer


Philippe TRICHET
This training may be run by another instructor


Sessions & Tuition

Look at our web site :
www.ira.eu

In house sessions can be set-up upon request.

Additional Information

 Senior training instructor, recognised as an expert in his field.

 By the end of the session, a training certificate is delivered with an assessment of acquired skills.

€ Meals are included.

Hands-on Training

