

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**

- P.I.D. control actions.
- Controller structure.
- Controller operating modes.
- Stable and unstable process response.
- Tuning (trial and error, IRA 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 + PRI).

 **Duration**
5days / 37h


 **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
This training may be run by another instructor (cf p162)

 **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 in IRA restaurant are offered

Hands-on Training