COURSE DESCRIPTION

CHH610 – Expert Optimizer Fundamentals and Control Strategies

Course goal

The goal of this course is to enable participants to under-stand the most important aspects of the architecture and functionalities of an Expert Optimizer (EO) strategy, so as to apply this knowledge in their daily activity.

Main learning objectives

Upon completion of this course the participants should understand the fundamentals of advanced process control (APC) technologies and their implementation in Expert Optimizer.

Using a “learning by doing” approach the participants should be able to:

- Connect EO via OPC with automation control systems
- Create logs, trends and link process variables to the operator interface
- Use EO client for data input and data analysis
- Understand and parameterize main blocks in EO
- Understand, tune and optimize EO control strategies
- Maintain the system and troubleshoot most common issues

Most importantly, the user will understand how control strategies are built, and how different technologies are combined to produce best results

Participant profile

This training is targeted to automation and process engineers.

Prerequisites

Participants should have knowledge of the process industries plus basic control instrumentation experience. They should also have a good knowledge of MS Windows and fluent technical English.

Topics

- Fundamentals of APC technologies
- Overview and use of the EO tools
- Link EO with automation systems
- Logging of data
- Operator displays and trends
- Starting and stopping the EO toolkit
- User management
- Maintenance and troubleshooting
- Navigate in an EO program
- Main EO strategy building blocks
- Fundamentals of fuzzy logic (FL)
- Implementation of FL in EO
- Fundamentals of Model Predictive Control (MPC)
- Implementation of MPC in EO
- Parameterizing and tuning control strategies
- Overview of EO control strategies for a cement plant

Course type and methods

This is an instructor-led course with interactive classroom discussions and associated practical exercises. Approximately 50% of the course is hands-on lab activities.

Duration

The duration is 5 days:

- 8 hours daily for face-to-face classes
- 5 hours daily for remote sessions

Remarks

This course can be delivered at our Learning Center in Switzerland, at your site or as a remote session.

After you have completed this course, you are qualified to attend our add-on course: Expert Optimizer – Advanced Toolkit Engineering (CHH611)

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Course map

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Topics	Welcome, personnel introduction Course introduction Why advanced process control? Introduction to EO components EO configuration tools OPC connectivity to control system (R/W) Logging data Creating and using trends Creating and using operator displays	Review day 1 Basics of programming Navigating in control strategies Main EO strategy building blocks Fundamentals of fuzzy logic Ruleblocks	Review day 2 Parameterizing and tuning a fuzzy controller Concepts of MPC Parameterizing and tuning a MPC controller	Review day 3 Maintenance and troubleshooting Concepts and structure of a typical EO control strategy Details of EO control strategies part 1	Review day 4 Details of EO control strategies part 2 Questions and asnwers Evaluation Course close
Time (face-to-face class)	9:00 am – 5:00 pm	9:00 am – 5:00 pm	9:00 am – 5:00 pm	9:00 am – 5:00 pm	9:00 am – 5:00 pm
Time (remote session)	to be defined	to be defined	to be defined	to be defined	to be defined

Typical course layout (time or sequence may change)

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