COURSE DESCRIPTION

CHH611 – Expert Optimizer
Advanced Toolkit Engineering

Course goal
The goal of this course is to enable participants to understand and use the functionalities in Expert Optimizer (EO), so as to apply this knowledge to configure new applications and/or make substantial additions to existent ones.

Main learning objectives
The participants will be able to:
— Navigate in the system and create new objects and aspects
— Use standard and EO blocks
— Design and configure applications using Control Diagram Editor
— Design and configure fuzzy logic and MPC controllers
— Understand, tune and optimize EO control strategies
— Configure and modify EO control strategies
— Find efficient solutions to process optimization challenges by means of the EO tools
— Setup KPI monitoring logs and dashboards

Participant profile
This training is targeted to automation and process engineers responsible for process optimization.

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. Completion of the course “Expert Optimizer – Fundamentals and Control Strategies” (CHH610) is a requirement for students to be accepted on this course.

Topics
— Input and output processing
— Normalization and ruleblocks
— Design a fuzzy controller
— Modelling techniques for Model Predictive Control (MPC)
— MPC controller design in Advanced Process Control (APC) model builder
— Incorporate a MPC control in EO strategies
— Sequential flow chart
— Interrupt actions
— Survey page design and configuration
— KPI monitoring

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.
## Course map

<table>
<thead>
<tr>
<th>Topics</th>
<th>DAY 1</th>
<th>DAY 2</th>
<th>DAY 3</th>
<th>DAY 4</th>
<th>DAY 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome, personnel introduction</td>
<td>Review day 1</td>
<td>Review day 2</td>
<td>Review day 3</td>
<td>Review day 4</td>
<td>Include MPC in EO control strategies</td>
</tr>
<tr>
<td>Course overview</td>
<td>Process graphics</td>
<td>Design a fuzzy controller with standard elements</td>
<td>Process step tests</td>
<td>Configure EO KM integration</td>
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<tr>
<td>Engineering workplace</td>
<td>Survey page design and configuration</td>
<td>Scaling and proportioning</td>
<td>Creating models for MPC</td>
<td>Questions and answers</td>
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<tr>
<td>Object type concept</td>
<td>Input and output processing</td>
<td>Normalization and ruleblocks</td>
<td>Controller design in model builder</td>
<td>Evaluation</td>
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<tr>
<td>Graphical programming in CDE</td>
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<td>Sequential flow chart</td>
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<td>Course close</td>
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<td>Interrupt actions</td>
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<tr>
<td><strong>Time (face-to-face class)</strong></td>
<td>9:00 am – 5:00 pm</td>
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<td>9:00 am – 5:00 pm</td>
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<tr>
<td><strong>Time (remote session)</strong></td>
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Typical course layout (time or sequence may change)