COURSE DESCRIPTION

# CHH651A – System 800xA Applications for Minerals Configuration and Operation

**Course goal**
The goal of this course is to learn the operation and configuration of the Extended Automation System 800xA with AC800M controllers and the Control Builder M tool utilizing the Minerals Library.

**Main learning objectives**
The participants will be able to:
- Explain the System 800xA architecture and the function of the different components
- Monitor and control the Minerals process objects
- Navigate in the system and create new objects and aspects using Plant Explorer
- Create a new control project using Plant Explorer and Control Builder M
- Configure the AC800M hardware and corresponding I/Os
- Use the standard libraries and the Minerals Library as well as create project specific libraries
- Design and configure application programs using a variety of IEC 61131-3 languages
- Perform advanced configuration with control modules and structured data types applying the Minerals Library
- Setup the OPC connectivity to AC800M
- Customize and use the operator's workplace and its functions and operate the Minerals Library objects
- Configure process graphic displays and define navigation links
- Manage and configure events and alarms
- Set up the historical data collection and configure trend displays
- Use the import/export tool
- Backup and restore the System 800xA

**Participant profile**
This training is targeted to engineering, planning, advanced operating, commissioning, maintenance and service personnel working in the field of minerals applications.

**Prerequisites**
Participants should know the fundamentals of working with control systems and have basic knowledge of the Windows XP or Windows 7 operating system and of technical English.

**Topics**
- System 800xA architecture
- Plant Explorer, engineering workplace and Control Builder M
- Application and system structures
- Controller AC800M hardware configuration
- Overview of standard libraries
- Variables and data types
- Function block diagram (FBD) and structured text (ST) programming
- Control modules
- Monitoring and testing applications



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- Minerals Library and minerals applications
- Task assignment and memory
- OPC communication
- IAC communication
- Operator workplace
- Operating minerals process objects
- Process graphics
- Events and alarms
- Historical data collection and trend displays
- Import/export tool
- Backup and restore of the System 800xA
- Workshop engineering

**Course type and methods**

This is an instructor-led course with lectures, demonstrations, interactive discussions and practical exercises. At the end of the course a workshop is done. This workshop covers larger exercises consolidating the most important items from the training which the students will need for their future work.

**Duration**

The duration is 10 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.



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## Course map

| | DAY 1 | DAY 2 | DAY 3 | DAY 4 | DAY 5 |
|---|---|---|---|---|---|
| **Topics** | Welcome, personnel introduction<br>Course overview<br>To get started – operating of Minerals applications<br>System 800xA architecture<br>Plant Explorer / engineering workplace<br>Project framework and Control Builder M | Review day 1<br>AC800M hardware<br>- Overview<br>- Configuration and test with Control Builder M<br>Project backup<br>Standard libraries, overview and handling<br>Variables and data types | Review day 2<br>Structured data type handling<br>Programming in function block diagram language<br>Programming in structured text language | Review day 3<br>Programming and configuration with control modules<br>- Comparison with function blocks<br>- Creation of application with control modules | Review day 4<br>Task assignment and memory handling<br>IAC communication<br>Minerals Library<br>- Overview of the different object categories and object types |
| **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 |

| | DAY 6 | DAY 7 | DAY 8 | DAY 9 | DAY 10 |
|---|---|---|---|---|---|
| **Topics** | Review day 5<br>Minerals Library (continues)<br>- Variable and application structure<br>- Design rules<br>- Interlocks<br>- Preselections<br>OPC connectivity | Review day 6<br>Operating<br>- Minerals workplace layout<br>- Process graphics<br>- Display navigation<br>- Object handling<br>- Alarm and event handling<br>- Trend handling<br>Process graphics<br>- Creation of graphic displays<br>- Configuration of graphic elements | Review day 7<br>Process graphics (continues)<br>- Use of expression editor<br>- Configuration of display navigation<br>Configuration of alarms and events<br>Historical data collection and trend displays<br>- Log configuration<br>- Creation of trend displays | Review day 8<br>Use of import/export tool<br>Use of backup and restore functions<br>Configuration wizard<br>Operators workplace configuration | Review day 9<br>Workshop engineering: Utilizing Minerals Library, starting from scratch, realizing material transport groups with conveyers, pre-selections and interlocks – implementing and testing<br>Summary<br>Evaluation<br>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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