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
- 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.
## Course map

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### Topics

- **DAY 1**
  - Welcome, personnel introduction
  - Course overview
  - To get started – operating of Minerals applications
  - System 800xA architecture
  - Plant Explorer / engineering workplace
  - Project framework and Control Builder M

- **DAY 2**
  - Review day 1 AC800M hardware Overview Configuration and test with Control Builder M
  - Project backup Standard libraries, overview and handling Variables and data types

- **DAY 3**
  - Review day 2 Structured data type handling Programming in function block diagram language Programming in structured text language

- **DAY 4**
  - Review day 3 Programming and configuration with control modules Comparison with function blocks Creation of application with control modules

- **DAY 5**
  - Review day 4 Task assignment and memory handling IAC communication Minerals Library Overview of the different object categories and object types

### Time (face-to-face class)

- DAY 1: 9:00 am – 5:00 pm
- DAY 2: 9:00 am – 5:00 pm
- DAY 3: 9:00 am – 5:00 pm
- DAY 4: 9:00 am – 5:00 pm
- DAY 5: 9:00 am – 5:00 pm

### Time (remote session)

- to be defined

### Topics

- **DAY 6**
  - Review day 5 Minerals Library (continues)
  - Variable and application structure
  - Design rules
  - Interlocks
  - Preselections
  - OPC connectivity

- **DAY 7**
  - Review day 6 Operating Minerals workplace layout Process graphics Display navigation Object handling Alarm and event handling Trend handling Process graphics Creation of graphic displays Configuration of graphic elements

- **DAY 8**
  - Review day 7 Process graphics (continues) Use of expression editor Configuration of display navigation Configuration of alarms and events Historical data collection and trend displays Log configuration Creation of trend displays

- **DAY 9**
  - Review day 8 Use of import/export tool Use of backup and restore functions Configuration wizard Operators workplace configuration

- **DAY 10**
  - Review day 9 Workshop engineering: Utilizing Minerals Library, starting from scratch, realizing material transport groups with conveyers, pre-selections and interlocks – implementing and testing

### Time (face-to-face class)

- DAY 6: 9:00 am – 5:00 pm
- DAY 7: 9:00 am – 5:00 pm
- DAY 8: 9:00 am – 5:00 pm
- DAY 9: 9:00 am – 5:00 pm
- DAY 10: 9:00 am – 5:00 pm

### Time (remote session)

- to be defined

Typical course layout (time or sequence may change)