ABB UNIVERSITY COURSE DESCRIPTION

T315C
System 800xA with AC800M Engineering, Part 1- Control Builder

Course goal
The goal of this course is to learn the engineering of a complete control project using the Extended Automation System 800xA with AC 800M controllers and Control Builder as the engineering tool.

Course objectives
Upon completion of this course the participants will be able to:

- Explain the System 800xA architecture and the function of the different components
- Navigate in the system and create new Objects / Aspects
- Create a new control project and plan the structure of application programs based on a P&ID and a Functional Specification
- Configure the AC 800M hardware and corresponding I/O's
- Handle the standard libraries provided by ABB and develop project specific libraries
- Design and configure application diagrams by using a variety of IEC 61131-3 languages
- Define tasks and describe the assignment rules
- Analyze the controller diagnostics and optimize the CPU load / memory usage
- Configure user defined object types
- Setup communication using various protocols
- Setup the OPC connectivity to AC 800M

Main topics

- System 800xA architecture
- Engineering Workplace/Plant Explorer
- Project and application structures
- AC 800M hardware
- Libraries
- Variables and data types
- Function Block Diagram
- Diagrams
- Structured Text
- Task assignment and memory
- Control Modules
- User defined object types
- Sequential Function Charts (SFC)
- Communication
- OPC connectivity
- Project backup and ACM

Student Profile
This training is targeted to system and application engineers, commissioning and maintenance personnel, service engineers and system integrators.

Prerequisites
Students should have fundamental working knowledge of control systems, Windows/Windows server and networking technologies.

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

Duration
The duration is 5 days

Course Outline

Day 1	Day 2	Day 3	Day 4	Day 5
Course overview System 800xa architecture Engineering workplace/plant explorer Project and application structures	Ac800m hardware Libraries Variables and data types function block diagram	Diagrams Structured text Task assignment and memory Control modules	User defined object types Sequential function chart (SFC)	Communication Opc connectivity Project backup

ABB (China) Ltd.

ABB University Beijing Center
Post Code: 100015
Universal Plaza, 10 Jiuxianqiao Lu, Chaoyang District
Beijing, P.R. China
Phone: +86 10 84566688/64233141
E-Mail: abb-university.china@cn.abb.com
https://new.abb.com/service/abb-university/china

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ABB UNIVERSITY COURSE DESCRIPTION

T315H
System 800xA with AC800M Engineering, Part 2 – Human System interface

Course goal
The goal of this course is to learn the engineering of a complete control project using the Extended Automation System 800xA with AC 800M controllers and Control Builder as the engineering tool. Note that this course is split in two parts and the pre-course is T315F or T315C for the controller configuration.

Student Profile
This training is targeted to system and application engineers, commissioning and maintenance personnel, service engineers and system integrators.

Prerequisites
Students should have fundamental working knowledge of control systems, Windows/Windows server and networking technologies.

Course objectives
Upon completion of this course the participants will be able to:

- Build up a plant model in the Functional and Location Structure
- Configure and modify graphic displays, graphic elements and faceplates
- Manage and configure alarm and events
- Set up the historical data collection and configure trend displays
- Create and customize an operator workplace
- Configure user accounts and describe how access rights work
- Backup and restore System 800xA data
- Use the import / export tool
- Create simple reports using MS Excel Data Access
- Use bulk data handling
- CAD Drawing and VideoNet
- Describe the NLS principles

Main topics

- Plant module
- Graphic displays
- Graphic elements
- Faceplates
- Alarm and events
- Historical data collection
- Trend displays
- Operator Workplace
- Security
- Import and export
- Simple reports
- Document manager
- National Language Support (NLS)
- Bulk data handling
- CAD Drawing and VideoNet
- High Performance Graphic Displays

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

Duration
The duration is 5 days

Course Outline

Day 1	Day 2	Day 3	Day 4	Day 5
Course overview Plant modeling Graphic displays Graphic elements	Faceplates Historical data collection Trend displays	Alarm and events Operator workplace Security	Import and export Simple reports	Document manager National language support (NLS) Bulk data handling CAD Drawing and VideoNet

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ABB University Beijing Center
Post Code: 100015
Universal Plaza, 10 Jiuxianqiao Lu, Chaoyang District
Beijing, P.R. China
Phone: +86 10 84566688/64233141
E-Mail: abb-university.china@cn.abb.com
https://new.abb.com/service/abb-university/china

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ABB UNIVERSITY COURSE DESCRIPTION

T309
System 800xA Safety – AC 800M High Integrity Configuration and Maintenance

Course goal
The goal of this course is to learn the configuration and maintenance of the Extended Automation System 800xA with AC 800M High Integrity controller.

Prerequisites
Students should have attended the course T315C "Engineering with Control Builder" and T315H "Engineering with HIS" or have knowledge and experience associated with the content of this course. The required knowledge should be verified via the user assessment T710-01e "Engineering using AC 800M". Basic knowledge of safety implemented systems is an advantage.

Course objectives
Upon completion of this course the participants will be able to:

- Describe the requirements for a SIL certified application and explain the different SIL levels
- Use the Safety manual as important document
- Describe the function of the AC 800M High Integrity components
- Configure the AC 800M HI controller with the corresponding I/O's
- Set up safety relevant controller settings and explain the execution in the controller
- Maintain and troubleshoot an HI controller, incl. firmware online upgrades
- Configure SIL2 / SIL3 applications by using standard libraries and describe the purpose of VMT and CTA applications
- Modify applications taking into account safety relevant topics
- Configure the access management
- Create communications between SIL applications
- Create Fire & Gas application by using the FireGas Lib and Supervision Lib (optional)
- Configure Partial Stroke testing
- Set up and exchange redundant HI controllers

Participant Profile
This training is targeted to system and application engineers, commissioning and maintenance personnel, service engineers and system integrators.

Main topics

- Course introduction
- (Functional safety introduction)
- Safety standards
- (SIL levels)
- AC 800M High Integrity hardware
- Hardware configuration
- Controller settings
- SIL marked applications for: Emergency Shutdowns / Burners
- Access management (modify parameters, download applications etc.)
- Communication between SIL applications
- Fire & Gas application and Partial Stroke testing
- Maintenance and troubleshooting
- Redundancy
- Safety manual

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

Duration
The duration is 4 days

Course Outline			
Day 1	Day 2	Day 3	Day 4
Course overview Safety standards AC 800M High Integrity hardware Hardware configuration	Controller settings SIL marked applications	SIL marked applications Access management Communication between SIL applications	Fire & Gas application and Partial Stroke testing Maintenance and troubleshooting Redundancy

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Post Code: 100015
Universal Plaza, 10 Jiuxianqiao Lu, Chaoyang District
Beijing, P.R. China
Phone: +86 10 84566688/64233141
E-Mail: abb-university.china@cn.abb.com
https://new.abb.com/service/abb-university/china

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