# T315F
# System 800xA with AC 800M
# Engineering, Part 1 – Function Designer

## 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 Function Designer as the engineering tool. Note that this course is split in two parts and the follow-up course is T315H for the Human System Interface (HSI) configuration.

## Learning 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
- 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
- Setup the OPC connectivity to AC800M
- Analyze the controller diagnostics and optimize the CPU load / memory usage
- Create function diagrams, allocate them and generate the controller code
- Display and change values in online mode
- Analyze the work methodology using project specific templates
- Generate the MMS cross communication and describe the communication for various protocols
- Create simple sequences using SPL
- Parameterize signal objects and allocate them

## Participant profile

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

## Prerequisites

Students shall know the fundamentals of working with Control Systems and have basic knowledge of Windows XP and networking technologies.

## Topics

- System 800xA architecture
- Engineering Workplace / Plant Explorer
- Project and application structures
- AC 800M hardware
- Project backup
- Libraries
- OPC connectivity
- Task assignment and memory
- Variables and data types
- Function Designer concepts
- Engineering with Function Designer
- Function Designer templates
- Sequential Programming Language (SPL)
- Communication
- User defined object types (optional)

## 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 activities.

## Course duration

The duration is 5 days.

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## Course outline

### Day 1

- Course overview
- System 800xA architecture
- Engineering Workplace / Plant Explorer
- Project and application structures
- AC 800M hardware

### Day 2

- AC 800M hardware
- Project backup
- Libraries
- OPC connectivity
- Task assignment and memory
- Variables and data types

### Day 3

- Function Designer concepts
- Engineering with Function Designer

### Day 4

- Engineering with Function Designer
- Function Designer templates
- Sequential Programming Language (SPL)

### Day 5

- Sequential Programming Language (SPL)
- Communication
- User defined object types
  (optional)

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