

IED Integration and Automation Training

Course: Using IEC 61850 Training
P-TTRN-0112-00

Duration: 2 days

Overview:

Students are introduced to the IEC 61850 international substation automation standard and to its application in real world situations. During this process, students will learn how IEC 61850 models the data flow from the switchyard through the bay, the station and the network level to the control center. Detailed hands-on examples, centered on relevant application problems, ensure that students become fully familiar with the technical aspects of implementing an IEC 61850 automation project.

Recommended Audience:

The course is intended for engineers and technicians involved in installing, configuring, maintaining or operating substation automation and control systems, using the IEC 61850 standard.

Prerequisites:

There are no specific prerequisites, but students should have a basic knowledge of serial and Ethernet communications technologies as used in automation systems. Moreover, they should have a basic understanding of control system architecture.

Objectives:

At the end of the course, students will be able to:

- Understand the scope, concepts and capabilities of IEC 61850.
- Understand the IEC 61850 substation architecture and the underlying networking technologies.
- Use a data concentrator to integrate legacy and IEC 61850 devices.

Note that focus of the course is on the use of IEC 61850 devices in real substation automation applications, not on the technical implementation of the standard.

Contents:

- Utility data communication systems
 - ISO/OSI Model
 - Proprietary and standard protocols
 - Communications requirements
 - Communications technologies: Ethernet and serial links
- IEC 61850 substation automation
 - Scope and history
 - Structure and format
 - Application services including reading, controls, reporting, and logging
 - Object and device information models
 - Substation Configuration Language (SCL)
 - Peer to peer communication, GSSE and GOOSE
 - Testing and conformance
 - The big picture - other standards and efforts
- Using a data concentrator in IEC 61850 applications
 - Integrating IEC 61850 and legacy devices
 - Reporting data

Conditions:

- Courses run from 8:30 AM to 4:30 PM, for two consecutive days.
- Courses can be held at Cooper Power Systems' Montreal City offices or at client facilities.
- Each participant will receive printed notes and a CD with current software and documentation.
- Courses can be tuned to the special requirements of a group. Greater emphasis can be placed on functions, protocols and devices that are relevant to the group's particular applications.
- Availability of specific field devices to be used for hands-on exercises must be arranged for ahead of time.
- For courses given at its offices, Cooper Power Systems provides the SMP Gateways and computers for the hands-on exercises.

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