# Online-Course: IEC 61850 fundamentals, application and testing in digital substations



| 🕐 3 days | 🗨 English | # oCpuc01en |
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Get a thorough introduction to the IEC 61850 standard in a combination of theoretical and online practical sessions. Work in a digital substation environment with IEDs from different vendors and redundant network architecture for station and process bus. Learn how to efficiently test all aspects of IEC 61850 substations, like IEDs, communication services, protection functions and time synchronization with all OMICRON IEC 61850 testing solutions.

## Objectives

> Understand all parts of the IEC 61850 standard and know its applications
> Use the Client/Server, GOOSE and Sampled Values services for power utility automation
> Know the benefits of configuring the substation communication with the help of the Substation Configuration Language (SCL)
> Performing commissioning and functional testing of IEC 61850 based IEDs and systems

## Content

> Basics of IEC 61850
> Data models and services
> Specific communication mappings
> Client/Server communication for SCADA applications
> GOOSE analysis and applications
> Sampled Values on the digital process bus
> Configuration and engineering based on the SCL
> Basic aspects of communication networks
> Analyze IEC 61850 based communication systems
> Hands-on testing of IEC 61850 IEDs and systems in the environment of a fully digital substation

## Solutions

IEDScout, StationScout
GOOSE Configuration Module, Sampled Values Configuration Module, IEC 61850 Client/Server
ISIO 200, DANEO 400
CMC test sets with Ethernet adapter

## Audience

Technical staff from electric utilities or companies involved in project planning, commissioning or maintenance of IEC 61850 systems

## Prerequisites

Basic knowledge of electrical engineering

OMICRON Academy

This course takes place entirely online. From your desk, you participate in sessions with our trainer. Innovative tools and methods allow you to actively participate and interact with both the trainer and the course participants. Subsequently, comprehensive practical parts on our digital substation on protection relays of different manufacturer will enable you to apply the knowledge you have learned during the theoretical sessions. For this, you will connect in small groups directly to our training room via remote access.

**Structure**

> Introduction round
> Theory session
> Practical session
> Lunch break
> Theory session
> Practical session
> Question and Answer session and discussion

A detailed agenda will be provided shortly before the training starts.

**Your Tools**

> Computer/Laptop with Internet access
> Headset
> Webcam
> Cisco Webex access (provided by OMICRON)