



IEC 61850
UNIVERSITY

TIER I & II | 5-DAY COURSE

Fundamentals & Principles of IEC 61850

+

Advanced IEC 61850 Training with Hands-on Digital Substation Workshop



DAYS



HOURS

CLASS-BASED



HOURS

HANDS-ON

- Background Information & Basic Concepts
- Data Models
- Communication Services (GOOSE, Sampled Values, MMS)
- Specification & SCL Top-Down Engineering Processes
- Network Architecture & Time Synchronization
- Advanced Aspects of IEC 61850
- Sampled Values (IEC 61869-9) Hands-On Workshop
- GOOSE Hands-On Workshop
- MMS Hands-On Workshop (Data Model, Reporting, Control Models)
- Testing & Commissioning

Most Popular & Best Value!

Everything in Tier I and Tier II in 5 days. The SV, GOOSE and MMS workshops follow the matching classroom session each day, and participants configure real IEDs, including process bus, from major vendors in our Mobile Digital Substation.

HANDS-ON WITH REAL EQUIPMENT

ABB | Crystal | ERL Phase | GE
Hirschmann | Hitachi | Meinberg | Novatech
Schneider Electric | SEL | Siemens | Typhoon HIL

IDEAL FOR Protection & control engineers • Utility engineers • System integrators • Commissioning specialists

LEARN. CONFIGURE. TEST.



IEC 61850
UNIVERSITY

ENERGY • SAFETY • SUSTAINABILITY



TARGETING TECHNICIANS & OPERATORS | 3-DAY COURSE

Testing & Troubleshooting | Hands-On | 3-Day Training

NEW PROGRAM



DAYS



HOURS

CLASS-BASED



HOURS

HANDS-ON

- Focused on testing and troubleshooting techniques
- Fundamentals of IEC 61850 test and simulation modes in plain terms
- Familiarity with testing tools such as network analyzers and network taps
- Systematic approach to isolating issues to MMS, GOOSE, SV, PTP, network configuration or wiring

Testing & Troubleshooting IEC 61850

Just as physical power systems call for a multimeter, digital substations call for software tools. This course gives field personnel the methods to pinpoint where a problem sits, whether in MMS, GOOSE, SV, PTP, network configuration or wiring. Hands-on workshops present real symptoms and have participants investigate them with the tools used in the field.

TOOLS YOU'LL USE

Work with IEDScout • Test Sets • Network Analyzers • SCL Tools • PTP Diagnostics

IDEAL FOR Technicians • Operators • Maintenance teams • Commissioning personnel • Field support

TEST. DIAGNOSE. RESOLVE.



IEC 61850
UNIVERSITY

TECHNICAL SKILLS | THEORY | PRACTICE



VIRTUALIZED PROTECTION | 2-DAY COURSE

Introduction to vPAC System with Hardware-in-the-Loop (HIL) Testing with Real-Time Simulators



Advanced Hands-on Training on Virtualized Protection and Control System

NEW PROGRAM



DAYS



HOURS
CLASS-BASED



HOURS
HANDS-ON

- vPAC Fundamentals and Principles
- Centralized vs. Virtualized Environments for Protection, Control and Automation
- vPAC Architecture
- The vPAC Alliance and Industry Collaboration
- Testing and Simulation with IEDScout and Test Sets
- IEC 61869-9 Sampled Values and IEEE 1588 PTP Refresher
- Hardware-in-the-Loop (HIL) Testing with Real-Time Simulation
- Developing and Executing Real-Time Simulation Test Scripts

Why vPAC?

Gain a practical understanding of virtual protection and control, from centralized and virtualized architectures to virtualization in the substation. Hands-on sessions use real-time simulators, IEDScout and test sets, including test script development and PTP.

SUPPORTED VENDORS

VIRTUALIZATION SERVERS

Advantech, Dell, Crystal

PTP CLOCK

Microchip GridTime 3000

REAL-TIME SIMULATORS

RTDS, GTNET, Typhoon

NETWORK ANALYZER

Allegro

PROTECTION & CONTROL

ABB SSC600

IDEAL FOR Protection engineers • Automation engineers • Utility planning & standards teams

EXPLORE. SIMULATE. TEST.



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TRAINING • TESTING • CONSULTING



ALL TRAINING OPTIONS

TRAINING TIERS

Tier I: Fundamentals & Principles of IEC 61850

☐ 3 DAYS · 24 hrs class

Tier II: Advanced IEC 61850 with Hands-on Workshop

☐ 3 DAYS · 10 hrs class · 14 hrs hands-on

Tier I & II Combined

MOST POPULAR

☐ 5 DAYS · 24 hrs class · 16 hrs hands-on

Tier III: IEC 61850 Project Realization

☐ 3 DAYS · 6 hrs class · 18 hrs hands-on

SPECIALIZED COURSES

Testing & Troubleshooting

NEW

☐ 3 DAYS · 12 hrs class · 12 hrs hands-on

Virtualized Protection with Real-Time Simulators

NEW

☐ 2 DAYS · 10 hrs class · 6 hrs hands-on

ADD-ON MODULES

DNP3 Basics

1 DAY

Cyber Security

0.5 DAY

DA/DER

1 DAY

**IEC 61850
Specification
Workshop**
3 DAYS

**Ethernet
Networking &
Time Sync**
1 DAY **NEW**

Full course details at 61850university.com/training-options

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IEC 61850

Digital Substations

System Engineering

Testing & Commissioning

Grid Modernization

Distribution Automation

DER

Cybersecurity

LET'S TALK

Ready to build your team's IEC 61850 expertise?



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Practical expertise for the digital substation.