Electrical Distribution Network Operation and Control Course

12 – 16 April 2027
Tbilisi

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Training Center

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Ref: 1671_225680 **Date:** 12 – 16 April 2027 **Location:** Tbilisi **Fees:** 5700 Euro

Overview

Electrical Distribution Network Operation and Control Course is a one-week course for distribution engineers, network operations teams, control room personnel, maintenance planners and technical supervisors, who leave with a Distribution Network Operating Plan. The course connects feeder and substation operation, switching control, protection coordination, voltage management, SCADA monitoring, outage restoration and reliability analysis. Participants turn network status and event data into traceable operating decisions. Agile Leaders Training Center develops practical electrical distribution control capability.

Who Should Attend

- Teams responsible for feeder and substation operation
- Teams responsible for control room monitoring and switching
- Teams responsible for protection settings and fault response
- Teams responsible for voltage performance and network reliability
- Teams responsible for maintenance planning and operational records

The course assumes participants interpret electrical diagrams, operating measurements and equipment status and leaves out live switching authorization, vendor certification and country-specific regulation.

Departments and Industries

The course supports departments and industries that operate, monitor or maintain electrical distribution networks.

- Electric utilities and distribution system operations
- Industrial plants and process facilities
- Transport, campus and infrastructure power systems
- Data centers and critical facilities
- Maintenance, protection and control engineering

Learning Objectives

By the end of this course, participants will be able to:

- Analyze distribution network topology and operating states
- Build switching plans with safety and status controls
- Evaluate feeder loading, voltage and reactive power conditions
- Apply protection coordination and fault isolation logic
- Use SCADA and DMS information for outage restoration
- Compare reliability results and prioritize operating actions

Course Agenda

Day 1: Network Architecture and Operating State

- Distribution Single-Line Diagram and Asset Register
- Radial Ring and Meshed Topology Comparison Map
- Feeder Load and Capacity Profile
- Substation Bus and Transformer Operating Sheet
- Network State and Constraint Log

Day 2: Switching and Control

- Switching Plan Sequence and Hold-Point Checklist
- Equipment Status and Interlock Verification Matrix
- SCADA Alarm and Measurement Validation Board
- DMS Network Model and Control Display
- Operator Communication and Control Handover Log

Day 3: Protection, Voltage and Power Flow

- Fault Current Path and Protection Zone Map
- Protection Device Coordination Time-Current Review
- Feeder Voltage Profile and Limit Dashboard
- Reactive Power and Capacitor Control Schedule
- Load Flow Scenario and Constraint Analysis

Day 4: Outages, Restoration and Reliability

- Fault Location Isolation and Service Restoration Logic
- Outage Event Timeline and Cause Register
- Alternate Supply and Network Reconfiguration Matrix
- SAIDI and SAIFI Reliability Performance Sheet
- Operational Risk and Restoration Priority Grid

Day 5: Distribution Network Operations Practice

- Exercise: Validate Network Status and Constraints
- Exercise: Build and Check a Switching Sequence
- Exercise: Diagnose Protection and Voltage Conditions
- Exercise: Restore Supply and Compare Reliability Impact
- Capstone: Distribution Network Operating Plan

Practical Exercises

Suggested activities use utility, industrial, campus and critical-facility distribution scenarios.

- Suggested activity: reconcile a single-line diagram with feeder measurements, equipment status and operating constraints
- Suggested activity: prepare a switching sequence and verify interlocks, hold points and communications
- Suggested activity: diagnose a feeder fault using protection indications, SCADA alarms and network topology
- Suggested activity: compare restoration options using loading, voltage, risk and reliability evidence

FAQs

Who should take electrical distribution network operation training, and what does it assume?

Electrical distribution network operation training suits professionals who interpret single-line diagrams, measurements, alarms and equipment status and already apply basic electrical safety and power-system concepts.

How does electrical distribution operation differ from electrical distribution design training?

Electrical distribution operation focuses on network status, switching, control, faults, restoration and performance, while electrical distribution design training focuses on equipment selection, ratings and planned network configuration.

How do SCADA and DMS support electrical distribution control?

SCADA and DMS support electrical distribution control by organizing measurements, alarms, switch status, network topology and control actions so operators can assess conditions and execute documented decisions.

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Why is protection coordination important in distribution networks?

Protection coordination helps the appropriate device isolate a fault while limiting unnecessary interruption to healthy network sections and preserving a traceable basis for settings and operating response.

How are distribution network reliability results used in operations?

Distribution network reliability results help teams compare interruption frequency and duration, identify recurring exposure and prioritize maintenance, automation and restoration improvements.

Conclusion

Participants take back a Distribution Network Operating Plan containing topology checks, switching controls, loading and voltage analysis, protection logic, restoration options and reliability measures. The plan makes assumptions, constraints and operating priorities visible. It helps engineering, control room and maintenance teams coordinate evidence-based distribution network decisions.