CONCEPT

Distribution Network Operation and Control: Outage Management, FLISR and Reliability

25 – 29 April 2027
Riyadh - KAFD district five-star



Distribution Network Operation and Control: Outage Management, FLISR and Reliability

Ref: 970_21922 **Date:** 25 – 29 April 2027 **Location:** Riyadh - KAFD district five-star **Fees:** 20000 SAR

Introduction:

Distribution network operation and control is a 1-week course for distribution control engineers, network operators and field supervisors that produces a Feeder Area Restoration and Reliability Improvement Plan. Many distribution utilities still restore supply by trial switching, with outage calls, crew movements and control room decisions held in separate systems, so customer minutes lost keep rising after every storm or cable failure. Participants already switch, dispatch or supervise MV and LV feeders, and the course trains them through control desk simulations of faults, outages and load transfers on a case network. The subject is taught at CoreConcept Training Center.

Course Objectives:

- Operate MV and LV feeders in their normal and abnormal configurations, keeping open points, tie switches and feeder loading within limits
- Use SCADA, DMS and OMS functions in a distribution control centre to monitor, switch, predict faulted devices and track outages
- Prepare and issue switching orders for planned outages, load transfers and network reconfiguration with correct sequence and confirmation
- Locate, isolate and restore faulted feeder sections by manual sectionalising and automated FLISR schemes
- Coordinate crew dispatch, restoration priorities and customer outage messages during unplanned and planned interruptions
- Calculate SAIDI, SAIFI and CAIDI from outage records and select reliability improvement actions for worst-served feeders

Target Audience:

- Control engineers responsible for real-time switching and supervision of MV distribution feeders
- Network operators responsible for SCADA monitoring, alarm handling and outage logging on distribution systems
- Field supervisors responsible for switching crews, fault patrols and on-site restoration of supply
- Outage coordinators responsible for planned interruption notices, crew scheduling and customer updates
- Reliability and operations analysts responsible for interruption records and feeder performance reporting

Course Outline:

Day 1: Distribution Network Structure and Operating Configurations

- MV Feeder Topologies with Radial, Open Ring and Interconnected Layouts
- Normally Open Points and Tie Switch Placement on Feeders
- LV Network Arrangements from Distribution Transformer to Customer Service
- Operational Diagram Conventions, Device Labels and Status Indication
- Feeder Loading, Voltage and Abnormal Configuration Current-State Review

Day 2: Distribution Control Centre, SCADA and ADMS Functions

- Control Room Roles, Shift Handover Logs and Desk Responsibilities
- SCADA Telemetry, Alarm Priorities and Remote Switch Control
- DMS Connectivity Model, State Estimation and Load Flow Views
- OMS Trouble Call Grouping and Faulted Device Prediction
- ADMS Integration of SCADA, DMS, OMS and GIS Data

Day 3: Switching Orders, Planned Outages and Load Transfer

- Switching Order Sequence Writing from the Operational Diagram
- Confirmation Messages and Switching Log Entries Between Control and Field
- Planned Outage Notice Preparation and Affected Customer Lists
- Crew Dispatch Priorities, Mobile Work Orders and Arrival Estimates
- Load Transfer Checks Across Tie Points Before Closing Loops

Day 4: Faults, Protection Basics, FLISR and Reliability Indices

- Distribution Fault Types and Their Relay and Recloser Signatures
- Overcurrent, Earth Fault and Recloser Coordination Basics for Operators
- Manual Fault Location by Sectionalising and Fault Passage Indicators
- Centralised and Decentralised FLISR Schemes with Remote Switches
- IEEE 1366 SAIDI, SAIFI and CAIDI Calculation from Outage Records

Day 5: Control Desk Simulation and Feeder Area Restoration Plan

- Simulated Cable Fault on a Case Feeder with Staged Restoration
- Simulated Storm Event with OMS Prioritisation and Customer Messaging
- Distributed Generation Behaviour During Faults, Reconnection and Voltage Rise
- Worst-Served Feeder Ranking and Automation, Tie and Recloser Improvement Options
- Feeder Area Restoration and Reliability Improvement Plan Completion

Skills You Will Gain:

- Feeder Configuration Management
- Distribution SCADA Operation
- Switching Order Preparation
- Fault Location and Sectionalising
- FLISR Scheme Supervision
- Outage Communication Coordination
- Reliability Index Calculation
- Distributed Generation Awareness

Why Attend This Course:

- Deliver a Feeder Area Restoration and Reliability Improvement Plan to the distribution operations manager for the next reliability review
- Decide which tie point, recloser or automated switch will restore the most customers first after a feeder fault
- Avoid repeated trial closures onto faults, overloaded backfeeds and missed customer notices during outages
- Brief control room and field colleagues on a common switching order format and restoration sequence

Conclusion:

Once participants return, the distribution operations manager can use the Feeder Area Restoration and Reliability Improvement Plan to agree restoration sequences for the case feeders and to choose where the next automated switches, reclosers or tie points will be installed. The control room can adopt the switching order format and outage messaging steps in daily work. After the first major fault or storm handled under the plan, the unit should review restoration times, customer interruption counts and switching errors against the plan and update it.