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Distribution Automation Training

Contact us Today for a FREE quotation to deliver this course at your company's location.

<https://www.electricityforum.com/onsite-training-rfq>

The deployment of distributed generation, energy storage, and electric vehicle charging technologies is creating a paradigm shift of the way distribution networks are planned, operated, and analyzed. Distribution system engineers are now required to perform wide variety of complicated studies ranging from planning analyses to expert simulations supporting operations, including interconnection assessments for emerging technologies such as distributed generation, energy storage, and charging stations of electric vehicles.

This Distribution Automation Training course provides students with hands-on training using CYME distribution system software tool (CYMDIST) in order to analyze evolving distribution systems. CYMDIST is a powerful tool used by most power utilities and consultant firms in Canada and worldwide to model power distribution systems. The software is superior in addressing the simulation needs for capacity, contingency, power quality, protection, reliability, and optimization analyses in evolving distribution systems.

This 2-Day Distribution Automation Training Workshop explores how to implement the fundamentals laid out in our Smart Distribution Automation Course (www.electricityforum.com/electrical-training/distribution-automation) fundamentals using EATON CYMDIST software.

CYMDIST is the distribution automation system analysis base package of the CYME software. It bundles all the modeling and analysis tools required to perform various types of simulations involved in electric distribution system planning. The calculation engines support balanced or unbalanced distribution models that are built with any combination of phases and operated in radial, looped or meshed configurations.

The following analyses are included in the CYMDIST package:

- Unbalanced Load Flow
- Load Allocation And Estimation
- Fault Analysis
 - Short-Circuit/Fault Flow
 - Fault Locator
 - Series And Simultaneous Fault
 - Voltage Sag
- Load Balancing
- Optimal Capacitor Placement And Sizing
- Motor Starting
- Batch Analysis

Accurate modeling and representation

The modeling capabilities of the network editor of the CYME software include the detailed representation of all portions of a distribution network, including the MV primary system, the LV secondary system (radial or meshed) as well as the subtransmission system.

STUDENTS RECEIVE

The Distribution Automation Training course is designed to help participants using the software effectively. After participating in this course, participants will be able to:

- Learn how to collect and assemble distribution network data e.g., single line diagram

- and equipment specifications
- Build the model of distribution systems using the software GUI
 - Explore the functionalities and studies that can be conducted using CYMDIST
 - Conduct several planning analyses, interconnection assessment, and design studies in evolving power distribution systems with distributed generation
 - Learn how to analyze and interpret the simulation results obtained from the software

COURSE OUTLINE

Distribution Automation Training

Instructor:

Hany Farag, PhD, PEng, SMIEEE,

CYMDIST Workshop

By attending the Distribution Automation Training workshop day, participants will receive a Full version of CYMDIST software for their use during the workshop. They will have hands-on training to use EATON CYMDIST software in order to conduct the following studies:

DAY ONE

1. Distribution Power Flow (DPF) Analysis

- Single Line Diagram Of Balanced And Unbalanced Distribution Systems
- Build The Model Using The Graphical User Interface (Network Editor)
- Define The Input Parameters Of Each Component

- Run The Simulation And Conduct The Following Analysis:
- Voltage Drop
- Feeders Loading
- Power Losses
- Unbalanced Factor
- Abnormal Conditions

2. Volt/Var Optimization

- Single Line Diagram Of The Test System
- Define The Input And Control Parameters Of Volt/Var Devices
- Run The VoltVar Simulation Model
- Obtain The Optimal Configuration(S) Of LTCs, Shunt Capacitors, And Line Regulators To:
 - Reduce The System Losses
 - Improve The Voltage Profile
 - Peak Shaving
 - Optimal Allocation Of Line Voltage Regulators
 - Optimal Capacitor Placement And Sizing

3. Distributed Generation Studies

- Integration Capacity Analysis
- Calculate The Maximum Capacity Of DG That Can Be Installed At Each Point
- DG Impact Evaluation
- Voltage Rise
- Reverse Power Flow
- System Losses

DAY TWO

4. Network Configuration Optimization

- Reconfigure A Radial Distribution Network To An Optimal Topology Through:
- Load Transfers
- DG Transfers
- Objectives Are Loss Reduction, Balancing Of Feeders Lengths, And Mitigate Violations
- Find The Optimal Switching Plan For Power Restoration

5. Reliability Assessment Studies

- Compute Reliability Indices For The Overall Systems And Individual Customers:
- Determine The Optimal Allocation Of Automatic Reclosers
- Study The Impacts Of Contingencies On The Distribution System

6. Harmonic and Transient Stability Analysis

- Evaluate The Impacts Of Non-Linear Loads And DGs On The System Harmonics
- Find Mitigation Methods To Harmonic Issues In Distribution Systems
- Simulate The Dynamic Behaviour Of Distribution Systems With DG Under The Following Events
- Fault Application
- Large Motor Starting
- Islanding

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