



Medium Voltage Cable Testing Training

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COURSE DATES AND TIMES

Medium Voltage Power Cable Testing - Our 12-hour, live online instructor-led Medium Voltage Cable Testing Training course is designed for electrical engineers, technicians, and maintenance specialists involved in testing, installing, maintaining, and troubleshooting medium and high voltage power cables. As critical components of global power distribution systems, MV cables demand rigorous testing to ensure long-term reliability and safety.

This course offers a comprehensive examination of cable construction, system design, and the principles underlying offline cable testing. Students will gain a practical understanding of insulation resistance (DAR/PI), DC hipot, VLF withstand, Tan Delta diagnostics, and Partial Discharge detection. Emphasis is placed on applying these techniques within a condition-based maintenance program to assess cable health and predict future performance.

Students will learn how to properly select test methods, specify equipment, perform tests, collect and trend data, and interpret results to drive informed maintenance decisions. While an overview of all possible cable testing methods is covered, special focus is given to current best practices using VLF and 50/60 Hz power frequency technologies for withstand and diagnostic testing.

By attending this Medium Voltage Cable Testing Training course, participants will:

- Understand the construction, design, and aging processes of MV cable systems.
- Select appropriate testing methods for various cable types and system configurations.
- Learn how to interpret insulation resistance, DC hipot, VLF withstand, Tan Delta, and Partial Discharge tests.
- Learn how to Analyze test results to determine cable health and predict future performance risks.
- Apply testing data to develop condition-based maintenance strategies and optimize asset life.
- Comply with industry standards including IEEE 400, IEEE 400.2, and IEEE 400.3.
- Make better informed decisions regarding cable repair, replacement, or continued service based on data-driven diagnostics.

Note: While this course primarily focuses on medium voltage cables, many of the testing methods apply to high voltage cables rated up to approximately 200 kV.

WHO SHOULD ATTEND

This Medium Voltage Cable Testing Training course is ideal for:

- Electric utility engineering, maintenance, and operations personnel responsible for cable system reliability.
- Industrial, commercial, and institutional electrical engineers, maintenance technicians, and asset managers overseeing MV/HV cable systems.
- Electrical consulting engineers involved in system design, testing programs, or forensic analysis of cable failures.
- Electrical design engineers specifying cable installations, testing protocols, or maintenance strategies.
- Field service technicians and contractors performing cable testing, diagnostics, and maintenance services.
- Reliability engineers and condition-based maintenance planners aiming to optimize cable asset life.

STUDENTS RECEIVE

- 1.2 Continuing Education Unit (CEU) Credits
- 12 Professional Development Hours
- Certificate of Course Completion
- FREE 100-Page Digital Wire And Cable Handbook (Value \$20)
- \$100 Coupon Toward Any Future Electricity Forum Event (Restrictions Apply)
- FREE Magazine Subscription (Value \$25.00)
- Course Materials In PDF Format

COURSE OUTLINE

MV-HV Cable Testing Training - Course Outline

Withstand & Diagnostic Testing

DAY ONE

Introduction: Why Medium Voltage Cable Testing Matters

- Importance of MV/HV cable reliability in power distribution
- Common causes of cable aging and failure
- Commission, Installation, & Acceptance Testing Explained
- The role of testing in predictive maintenance programs

Understanding Cable Systems and Their Vulnerabilities

- Cable design, components, and insulation materials
- Differences between radial, network, and looped systems
- How system design impacts testing approach

Overview of MV-HV Cable Testing Methods

- Purpose and principles of each test method
- Soak Tests, Insulation Resistance (IR) Tests, DC Hipot, AC Hipot
- 50/60 Hz. testing using conventional or Resonant systems
- Very Low Frequency (VLF) testing: 0.10 Hz. – 0.01 Hz AC
- Withstand/Proof and Diagnostic Methods (Tan Delta, Partial Discharge)
- Partial Discharge Testing Techniques
- Tan Delta Testing for Insulation Quality
- Oscillating Wave and other specialty tests

Selecting the Right Test for the Right Job

- What do you want to learn from your testing
- How cable design, length, and voltage rating influence test choice
- Balancing cost, risk, and performance

Technology & Equipment Selection

DAY TWO

High Voltage Testing Methods in Detail

- DC Voltage Withstand & Diagnostic testing
- VLF testing theory and practical application
- Tan Delta testing: interpretation and trending analysis
- Partial Discharge testing types and defect detection
- Understanding 50/60 Hz. & VLF testing standards (IEEE, IEC, etc. 400, IEEE 400.2, IEEE 400.3)

Performing and Analyzing MV Cable Tests

- Step-by-step test execution best practices
- Data collection, trending, and comparative analysis
- Interpreting test results to determine cable condition and future risk

Implementing Condition-Based Maintenance Programs

- Integrating cable test results into maintenance strategies
- When to repair, when to replace: data-driven decision making
- Documentation and compliance reporting

Course Summary: Skills and Knowledge Gained

- Ability to select appropriate cable testing methods
- Understanding and interpreting withstand & diagnostic test results
- Application of testing to optimize asset management and reliability
- Familiarity with IEEE, IEC, and NETA testing standards

Review of Expectations

Questions and Answers

COURSE TIMETABLE

Both days:

Start: 10 am ET

Finish: 4:30 pm ET

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

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