

WEIDMANN TRANSFORMER TESTING AND DIAGNOSTICS TRAINING

IMPROVE KNOWLEDGE IN KEY AREAS

Weidmann Knowledge focuses on education and training programs that offer clients the opportunity to increase their own knowledge that can be utilized and implemented within their own organisations as part of wider training and development initiatives.

Weidmann training includes the important, up-to-date knowledge needed by engineers and technicians involved in the day-to-day operation, diagnostic and maintenance of High Voltage electrical apparatus. Several training modules are offered as a complete training package or individual modules can be assembled in various ways to address your specific needs.

COURSES

Module 1: Transformers – Basic Construction

- Introduction
- Core
- Windings
- Liquid Insulation
- Solid Insulation
- Tank
- Questions and Answers

Module 2: Transformers – Accessories

- Introduction
- Bushing Types and Construction
- De-energized Tap Changer (DETC)
- Load Tap Changer (LTC)
- Cooling Equipment
- Reading a Nameplate
- Questions and Answers

Module 3: Transformers Failure Modes

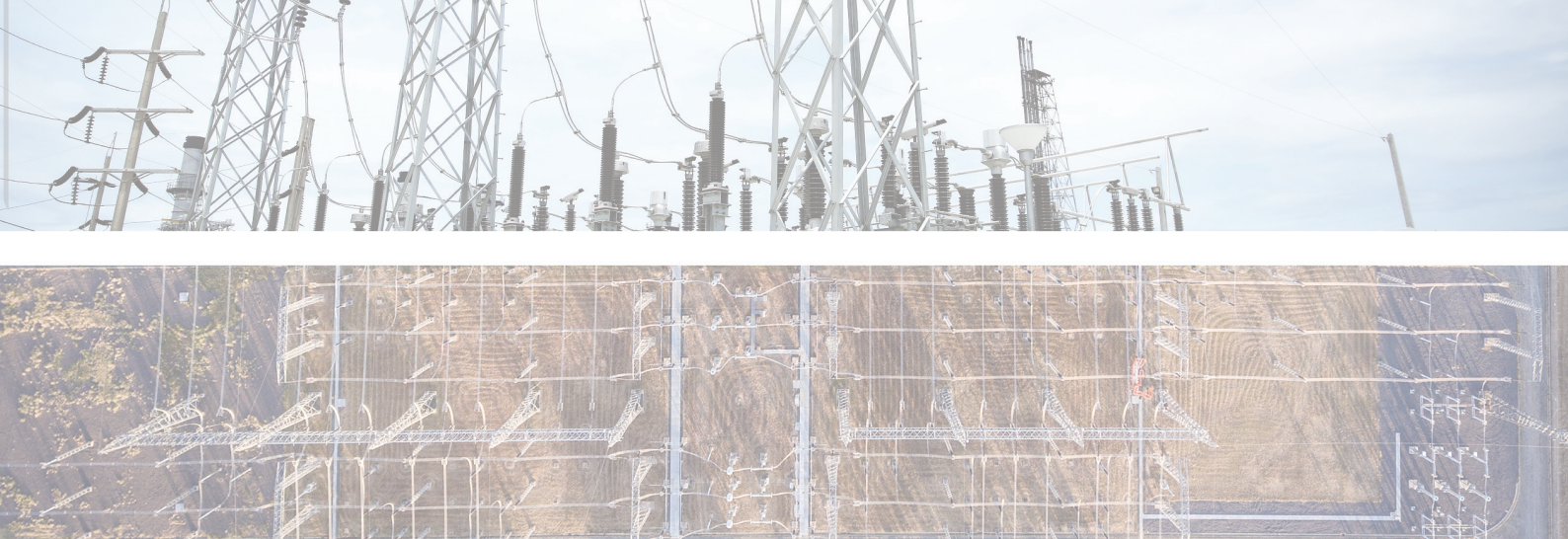
- Introduction
- Insulation Aging
- Dielectric Failures
- Thermal Failures
- Mechanical Failures
- Factory Acceptance Tests
- Questions and Answers



Module 4: Field Electrical Tests

- Introduction
- Testing Strategies
- Safety Precautions
- Basic Transformer Tests
 - Turns Ratio
 - Power Factor, standard
 - Power Factor, variable voltage and variable frequency
 - Excitation Current
 - Leakage Reactance
 - DC Insulation Resistance
 - Winding Resistance
- Advanced Transformer Tests
 - Dielectric Frequency (DFR)
 - Sweep Frequency Response
 - Analysis (SFRA)
 - Frequency Response Stray Losses (FRSL)
 - Partial Discharge
- Bushing Tests
 - Power Factor, standard and Tip-Up
 - Power factor, Capacitance
 - Hot Collar Test
- Case Studies
- Questions and Answers

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Module 5: Dissolved Gas Analysis

- Introduction
- DGA Methods for Fault Determination (IEEE C57.104-2008)
- DGA Methods for Fault Determination (IEEE C57.104-2019)
- Fault Identification Methods
 - Key Gas
 - Roger's Ratios
 - Duval Triangle
 - Carbon Oxide Ratio
- Case Studies
- Questions and Answers

Module 6: Insulating Liquid Quality Tests

- Introduction
- Liquid Insulation Quality Tests
 - Moisture
 - Interfacial Tension
 - Acid Number (Neutralization)
 - Dielectric Breakdown
 - Power Factor
 - Density
 - Oxidation Inhibitor
- Non-Routine Liquid Quality Tests
 - Corrosive Sulphur
 - PCBs
 - Dissolved Metals
- Solid Insulation Quality Tests
 - Furans
 - Methanol
- Questions and Answers

Module 7: Condition – Based Maintenance Strategies

- Introduction
- Monitoring Strategies – Risk Management
- Liquid Insulation Sampling Frequency
- Off-Line Testing Frequency
- Cooling Equipment
- On-Line Monitoring
 - Gauges and Sensors
 - Infra-red Scans
 - Temperature Monitoring
 - DGA Monitoring
 - Bushing Monitoring
- Case Studies
- Questions and Answers



Each module is 2 hours



Training can be provided online or on-site