



Training Course:
Testing and Maintenance of Power Transformers
(11/0.4 kV)

20 June - 1 July 2027
Cairo (Egypt)

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Training Course code: EN235695 From: 20 June - 1 July 2027 Venue: Cairo (Egypt) - Training Course Fees: 6950 € Euro

Introduction

Power transformers operating at **11/0.4 kV** are essential assets in electrical distribution systems, supplying power to industrial, commercial, and residential loads. Their reliability directly impacts system stability, safety, and operational continuity.

This **10-day advanced training program**, developed by **Global Horizon Training Center**, provides a comprehensive and practical approach to transformer testing, diagnostics, maintenance, and fault analysis. It integrates electrical theory with field practices, enabling participants to effectively manage transformer health and performance.

Participants will gain in-depth expertise in testing techniques, condition monitoring, fault diagnosis, and maintenance planning to ensure long-term transformer reliability.

Course Objectives

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

- Understand transformer construction, operation, and performance
- Perform routine and advanced diagnostic testing
- Analyze transformer faults and degradation mechanisms
- Apply preventive, predictive, and condition-based maintenance
- Interpret test results and assess transformer health
- Ensure compliance with IEC and IEEE standards
- Improve reliability and extend transformer lifespan

Target Audience

- Electrical and Power Engineers
- Maintenance and Reliability Engineers
- Substation and Utility Engineers
- Electrical Technicians and Supervisors
- Industrial plant electrical personnel

Outline

Day 1: Fundamentals of Power Transformers

- Transformer principles and operation
- Construction core, windings, insulation systems
- Transformer types and applications
- Losses, efficiency, and rating

Day 2: Transformer Components and Accessories

- Bushings, tap changers OLTC & off-load
- Cooling systems ONAN, ONAF
- Protection devices Buchholz relay, temperature sensors
- Monitoring systems

Day 3: Routine Electrical Testing

- Winding resistance measurement
- Turns ratio testing TTR
- Insulation resistance IR and polarization index PI
- Core and insulation checks

Day 4: Functional and Performance Testing

- No-load and load tests
- Short circuit and impedance tests
- Voltage regulation and efficiency evaluation
- Test procedures and standards

Day 5: Oil Testing and Insulation Diagnostics

- Transformer oil properties and functions
- Dielectric strength BDV, moisture content, acidity
- Oil sampling and analysis techniques
- Oil treatment and purification

Day 6: Advanced Diagnostic Testing

- Dissolved Gas Analysis DGA
- Partial discharge detection
- Frequency Response Analysis FRA
- Tan Delta and insulation power factor tests

Day 7: Fault Diagnosis and Failure Analysis

- Common transformer faults electrical, thermal, mechanical
- Winding faults and insulation breakdown
- Overheating and hotspot issues
- Case studies of transformer failures

Day 8: Maintenance Strategies and Asset Management

- Preventive, predictive, and condition-based maintenance
- Maintenance scheduling and planning
- Reliability-centered maintenance RCM

- Asset lifecycle management

Day 9: Protection, Safety, and Standards

- Transformer protection schemes
- Safety procedures and risk management
- IEC and IEEE standards
- Compliance and documentation

Day 10: Practical Workshop and Condition Assessment

- Interpreting real test reports
- Transformer health assessment
- Developing maintenance plans
- Group case study and troubleshooting
- Final review and evaluation

Registration form on the Training Course: Testing and Maintenance of Power Transformers (11/0.4 kV)

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Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

Delegate Information

Full Name (Mr / Ms / Dr / Eng):
Position:
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Personal E-Mail:
Official E-Mail:

Company Information

Company Name:
Address:
City / Country:

Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng):
Position:
Telephone / Mobile:
Personal E-Mail:
Official E-Mail:

Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
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