TECHNICAL
EDUCATION
ACADEMY

School of Engineering

COURSE PROGRAMME

000066

ELPO009 - Power and Distribution Transformers Operation and Maintenance

Transformer training is crucial since they are the key link in any power distribution system and likely the least understood.



Learn from the Best in the Business!

Course overview

Intermediate level

Why take this course

Transformer training is crucial since they are the key link in any power distribution system and likely the least understood. With an understanding of the construction and maintenance of transformers, you will be able to make informed decisions about the performance and operation of this costly piece of equipment. This transformer training course provides a comprehensive overview of electrical transformers found in the industry. It is targeted to those involved in the installation, operation and maintenance of electrical power systems. The course is a fundamental course covering basic transformers theory, applications, construction, maintenance, and testing.

Who it is for and how it helps

Anyone who works on or near power generation, transmission, or distribution systems should attend this course. Additionally, supervisors, managers, safety personnel, and those responsible for ensuring a safe work environment should attend this course.

What you will learn

- Explain the difference between distribution and power transformers
- Apply efficient maintenance and testing strategies
- Use the on-line monitoring of power transformers
- Understand different maintenance regimes – reactive, preventative and predictive.
- Appreciate the importance of insulating oil testing and analysing the results.
- Explain the causes and consequences of transformer failure
- Know when to refurbish, repair or scrap damaged or failed transformers

Curriculum

Modules 01–03

01 Major Transformer Components and Operation

- Fundamentals of Power and Distribution Transformers
- Transformer Design
- Transformer Impedance
- Transformer Cores, Windings and Terminations
- Tap Changers and Voltage Control
- Cooling methods and Classifications to IEC standards
- Transformer Protection and Control
- Transformer Life Cycle and Degradation Curves

02 Transformer Inspections and Maintenance

- Preventative Maintenance Programmes
- Frequency of Periodic Inspections
- Maintenance Procedures for Insulating Oil
- Maintenance of Transformer Cooling Systems
- Maintenance of Bushings and Insulators
- Maintenance of Transformer Mounted Ancillary Equipment (Temperature Gauges, Oil Level Gauges, Silica Gel Breathers, Overpressure Devices, Buchholz relay)
- Maintenance and inspection of gaskets
- Detection of Leaks and Seepages

03 Test Types and Methods, Interpretation of Results

- Modern Transformer Monitoring Methods
- Continuous On-Line Monitoring
- Transformer Oil Characteristics and the Breakdown Voltage Test
- Turn Ratio Test
- Winding Resistance Test
- Sweep Frequency Response Analysis Test
- Oil Quality Index Test
- Polarisation Index Test
- Tan Delta Test

Curriculum

Modules 04–05

04 Additional Maintenance and Testing of Transformers

- The Importance of Maintenance and Testing
- Online and Offline Partial Discharge Test
- Testing for Moisture in Oil and Insulation
- Thermography
- Transformer Noise Suppression
- Testing Transformer Protection and Controls
- Maintenance Plan and Execution

05 Failures and Preventative Measures

- Causes of Failures
- Types of Failures
- Internal Transformer Defects
- Detection of Internal Defects and Failures
- Transformer Oil Reconditioning
- Insulation Drying
- Gasket and Seal Repairs
- Transformer Major Repairs
- Case Studies and Examples of Failures

Participation and contacts

Joining the programme

Contact the Academy and quote course code 000066 to confirm dates, delivery format, prices and enrolment terms.

Training for your team

Tell us your business goals, the roles and number of participants, and your preferred dates and location. This will help us discuss the right training option.

Preparing for the programme

The published programme does not specify any prerequisites. Contact us before enrolling to confirm how to prepare.

Discuss your training needs

mail@tecedu.org
www.tecedu.academy

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