



Electrical Maintenance, Testing, Inspection & Risk Assessment

Course Description

To successfully inspect and test electrical equipment, Electrical personnel must first fully understand the technology of the electrical equipment. After the successful start-up and subsequent continued operation, electrical equipment requires periodic inspection and testing

This will ensure the electrical equipment operates correctly so that production is maximized in a safe, cost effective and efficient manner.

Learned skills

- understand maintenance purposes and types.
- understand inspection and testing methods
- Understand the principles of risk assessment and be able to apply these to the formulation of an appropriate policy for the maintenance of electrical equipment.

Topics covered

- Introduction
- Pre Assessment
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Principles of Maintenance

- Preventive Maintenance (PM)
- Predictive Maintenance (PdM)
- Impact of Maintenance
- Maintenance Scheduling For Electrical Equipment

Introduction to Switchgear, Circuit Breaker and Transformer

Switchgear

- Definitions, Ratings, Typical Construction
- Control Power System

Electrical Maintenance of Protective Equipment & Instrument Transformers

- Potential & Current Transformers
- Transformer Differential Protection
- Feeder & Motor Protection

Circuit Breaker

- Construction and Contact Operation
- Manual and Electrical operating Controls
- Safe Operating Methods
- Mechanical Inspections
- Contact Resistance Tests
- Insulation Resistance Tests
- Insulating Gas and Oil Analysis

Transformer Construction

- Tank , Core, Coils, Types and Ratings
- Bushings , Tap Changers , Factory Testing
- Dry, Oil and Liquid Filled Types

Operation

- Theory of Operation, Vector and Connection Diagrams
- Important Electrical Relationships & Formulas

Auxiliary Equipment

- Gas Relays , Fans and Pumps , Gauges , Tap Changer Controls



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Failure Causes

- Detailed analysis of several case histories
- Lightening , Oil Decay , Component Failures
- Internal & External Faults

Testing Practices & Standards

- Oil Analysis , Chemical Analysis , Dissolved Gas Analysis
- Furan, Inhibitor, Power Factor Water and PCB Testing

Electrical Testing

- Insulation Resistance and Polarization Index Tests
- Turns Ratio, Excitation Current and Polarity Testing
- Capacitance and Power Factor Testing
- Winding Resistance Tests

Risk Assessment

- The need and concept of risk assessment
- Review of the existing work procedures
- General risk assessment relating to electrical machinery.
- Identification of deficiencies that relate to electrical safety
- Manpower, Public and Equipment safety
- Risk management, Problems and case studies
- Identification of additional safety measure related labels and signage locations within your facility
- Post Assessment

Duration: 5 - Days