Electrical Inspection and Testing Training

Description

Course Description

To successfully inspect and test electrical equipment, Electrical personnel must first fully understand the technology of the 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.
Delegates are encouraged to raise queries both during and at any time after attending the workshop and are also asked to bring with them any technical issues that they may have.

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Course Objectives

Participants attending this programme will:

Return to their respective organizations equipped with new or refreshed skills to ensure that electrical equipment is inspected, tested and operated in a fashion that ensures reduced costs. On successful completion of this workshop, participants will have:

- A better understanding of inspection and testing methods
- A better understanding of troubleshooting procedures
- An improved capability in the use of test equipment
- A refreshed outlook on reading electrical drawings
- A refreshed awareness of electrical safety concerns

Course Outline

The Technology of Electrical Equipment

- Transformers
- Power supplies (UPS)

- Batteries
- Generators
- Switchgear
- Motor control centers (MCC)
- Disconnect switches
- Neutral ground resistors (NGR)
- Variable frequency/speed drives (VFD/VSD)
- Programmable logic controllers (PLC)
- Power monitoring
- Control relays/timers/switches
- Motor/feeder protective devices
- Motors (AC & DC)
- Miscellaneous equipment – heaters, solenoid valves and electric valve actuators

The Use of Test Equipment

- Digital voltmeter (DVM)
- Oscilloscopes
- Megger
- Frequency meter
- Temperature probes/pyrometers
- Ammeters
- Power meters Load banks
- Digital hydrometers
- Cable fault locators

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Inspection and Testing of Electrical Equipment

- Methods
- Terminology
- Principles
- Special techniques
- Troubleshooting of Electrical Equipment
- Methods
- Terminology
- Principles
- Special techniques
- Case studies/examples
- Single line drawings
- Group exercises

The Necessity for Inspection and Testing

- Common mode failures
- Phase imbalance
- Contact pitting/arcing
- Electronic component failure
- Fusing

- Motor windings/bearings/brushes
- Ballasts
- Excitation circuits
- Battery cells
- Inverters/rectifiers
- Bushings
- Switches
- Control circuits
- Ground faults
- Open session: Case Studies, Questions and Answers

The Interpretation and Use of Drawings and Safety

- Single-line electrical drawings
- Control schematics
- Wiring lists
- P&ID’s
- Logic and standard symbols.
- The Development of a Job Plan
- Identification of the troubleshooting step-by-step sequence
- Procedure preparation
- Documentation
- Safety considerations and training
- A review of Safety Requirements
- Area classifications
- NEC electrical codes

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