THE ELECTRICITY FORUM
Content Community Connection

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Predictive Maintenance Training

Contact us Today for a FREE quotation to deliver this course at your company?s location.

https://www.electricityforum.com/onsite-training-rfq

This predictive maintenance training course covers the suggested field tests and inspections that are available to assess the suitability for continued service and reliability of electrical power distribution equipment and systems. The purpose of NETA specifications is to assure that tested electrical equipment and systems are operational and within applicable standards and manufacturer's tolerances and that the equipment and systems are suitable for continued service.

This predictive maintenance training course will also deal with the important subject of troubleshooting electrical systems and choosing the proper preventive maintenance testing equipment and procedures.

This course is designed to give students up-to-date status on all your electrical assets – and head off costly repairs before they make tough times tougher – this predictive maintenance training course is cost-efficient and easy to understand. This course will teach students how to perform an all-points audit of their electrical distribution system, applying the best practices and latest technology to keep assets operational.

Increase Your Knowledge

Focus on electrical maintenance standards, procedures and solutions to electrical predictive maintenance and testing problems. These forums will also deal with specific issues relating to electrical testing and troubleshooting procedures and equipment selection.

WHO SHOULD ATTEND

This course is a must for electrical engineers, electrical maintenance personnel, plant electricians, electrical contractors, power specialists, maintenance managers, consultants and technologists responsible for the design, construction, installation, inspection, operation, or maintenance of electrical systems, electrical technicians, inspectors, safety personnel and other employees responsible for the operation and maintenance of electrical systems in a commercial, industrial, institutional or utility setting.

STUDENTS RECEIVE

- FREE 100-Page Digital Electrical Maintenance Handbook (Value $20)
- $100 Coupon Toward any Future Electricity Forum Event (Restrictions Apply)
- 1.4 Continuing Education Unit (CEU) Credits
- FREE Magazine Subscription (Value $25.00)
- Course Materials in Paper Format

COURSE OUTLINE

DAY ONE

INTRODUCTION

- Instructor introduction and background

- Overview of NETA Organization
- Certification of Testing Technicians
- Certification Test Examples

UNDERSTANDING ELECTRICAL POWER SYSTEMS

- Basic Electrical Theory & Commonly Used Formulae
- Time-Current Characteristics
- Electrical Definitions and Acronyms
- Coordination studies & Short Circuit Studies
- IEEE Device numbers
- Electrical Drawing Symbols
- Single line & 3 line drawings & AC/DC Trip & Control Schematics

TEST EQUIPMENT OVERVIEW

- Insulation Resistance Test Sets (Hipot, Meggar, VLF)
- Contact resistance Testing (Ducter)
- Power Factor Sets (Cap Bridge, Doble)
- Transformer Sets (Winding Resistance, TTR)
- Relay Test sets and AC Current Sources

NETA MAINTENANCE TESTING

- Review NETA’s Maintenance Testing Specifications
- Maintenance testing frequency guidelines

NETA POWER SYSTEM EQUIPMENT MAINTENANCE

- NETA’s ANSI Standards for Transformer maintenance

- NETA Critical Switchgear maintenance

POWER SYSTEM SAFETY

- Review NFPA 70E Standard for Electrical Safety in the Workplace
- General Categories of Electrical Hazards
- Statistics on Workplace Incidents
- Arc Flash Considerations & Incident energy calculations
- Personal Protective Equipment
- Flash Hazard Analysis and Implementation
- Solutions to limit your risk
- Proper Use of Safety Equipment

WRAP UP

- NETA Maintenance Intervals
- Review Quiz
- Questions and Answers

DAY TWO

SAFETY AND MAINTENANCE: MEDIUM AND HV EQUIPMENT

Main objective will be to discuss and demonstrate methods and typical results used for trouble shooting and evaluating electrical systems. Attendees will be shown methods of trouble shooting various systems and evaluating the findings. A basic understanding of insulation systems used in electrical equipment LV (up to 600 volt) and MV (up to 35KV). Delegates will be introduced to basic systems and tools which will aid in the detection, evaluation and recommendations for potential problems encountered in typical electrical

systems.

- Troubleshooting Aids
- Active Metering
- Potable Metering
- IED Protection and Metering devices
- Trouble Shooting Techniques
- Insulation Resistance Tests
- DC
- AC
- Contact Resistance Tests
- Other Methods

SAFETY AND MAINTENANCE: MEDIUM AND HV EQUIPMENT

INFRARED THERMOGRAPHY AND PREDICTIVE MAINTENANCE

Predictive electrical maintenance professionals utilize infrared thermal imaging cameras with integrated temperature measurement capabilities to allow them to make accurate assessments about the operating condition of electrical equipment targets. Significant temperature rise above normal operating parameters, that will compromise component reliability, plant productivity and personnel safety, can be determined with confidence via thermal imaging cameras . Plus, temperature measurements collected and archived over time via thermal imaging cameras may be used to create an historical operating timeline – making the plant’s predictive maintenance program even more accurate and cost effective. With the help of simple analysis tools, thermographers can determine priorities for their predictive maintenance programs.

ELECTRICAL MEASUREMENT SAFETY: REDUCE THE LEVEL OF RISK TO YOURSELF AND IN YOUR WORK ENVIRONMENT

Taking measurement on electrical circuits can be made less hazardous by using test equipment the correct way. Electrical measurement tools like digital multimeters, electrical testers, oscilloscopes, current clamps and even test leads must be properly rated for the intended task.

In this seminar, attendees will learn current safety issues and discuss IEC61010-1 as it applies to our high energy, low voltage environment. Arc Flash reduction will be discussed as it is implicated in the NFPA 70E standard. Safe electrical measurement practices will be included as a review for everyone that makes measurements on electrical systems.

Presentation focus includes:

- Review examples and case study of safety incidents
- Understand common multimeter safety issues
- Learn about international safety specifications
- Understand over voltage categories and voltage withstands

CHOOSING THE CORRECT ELECTRICAL MAINTENANCE METERING METHOD AND TOOL

This innovative, hands-on presentation will present a wide range of basic electrical maintenance troubleshooting methods and a complete explanation and demonstration of how to choose the right meter for your testing needs. This is based upon troubleshooting techniques and common circuit problems. Larry Schultz will discuss voltage drop testing and series checking using a variety of voltmeters and do the same testing with an ohmmeter. The presentation will include a section on using an ammeter for preventive maintenance testing, which explains in detail the right and wrong way to use an ammeter.

PREVENTATIVE MAINTENANCE OF PROTECTIVE RELAYS

Preventative maintenance is a recommended practice for all electrical products to ensure system uptime and protection of assets. This presentation focuses on how to best manage the maintenance of your protection relays for generation, power distribution, motors, and switchgear to ensure the safe and reliable protection of your electrical equipment. Topics covered will include maintenance intervals, testing practices, and calibration.

COURSE TIMETABLE

Both days:

Start: 8:00 a.m.
Coffee break: 10:00 a.m.
Lunch: 12:00 noon
Finish: 4:30 p.m.