Cost Effective Strategies for the Maintenance of Electrical Power Systems

16 - 27 Sep 2018, Dubai
Introduction

Electrical equipment is an expensive investment for the electrical industry. The equipment needs to be operated safely to achieve a maximum return on the initial investment.

This requires the equipment to be:
- Maintained in a safe manner
- Operated within an effective management system

The training seminar focuses mainly on maintaining electrical equipment for a cost effective solution.

The seminar is split into two modules:

MODULE I - Troubleshooting and Maintenance of Electrical Equipment
MODULE II - Fault Finding Techniques on an Electrical Power System

Each module is structured and can be taken as a stand-alone course; however, delegates will maximise their benefits by taking Module 1 and 2 back-to-back as a two-week seminar.

Objectives

This training seminar is designed to increase the troubleshooting and fault finding diagnostic skills of engineering teams of a modern power system.

Training Methodology

The goals of each participant are discussed to ensure their needs are fulfilled, as far as possible. Questions are encouraged throughout, particularly at the daily wrap up sessions. This provides opportunities for participants to discuss specific issues and, if possible, find appropriate solutions. General discussions are employed to highlight particular points and to illustrate particular conditions.

Personal Impact

On successful completion of this training seminar, delegates will understand:
- The need for routine inspection, adequate maintenance of equipment and accurate record keeping
- Methods of maintenance management, using safe systems of work
- How to co-ordinate maintenance activities for best utilisation of time and resources, while ensuring safety is not compromised
- Switchgear maintenance requirements and troubleshooting techniques
- Transformer maintenance requirements and troubleshooting techniques
- Cable installation and troubleshooting techniques
- The use of non-intrusive condition monitoring methods

Organisational Impact

The training seminar will allow delegates to interact and gain shared experiences of others along with:
- An understanding for the need for routine inspection and maintenance
- Troubleshooting techniques on various pieces of electrical equipment
- Safe working practices being stressed and observed
- Risk reduction methods investigated

Who Should Attend?

- Electrical Professionals
- Electrical Engineers
- Electrical Supervisors
- Technicians
- Professionals responsible for the operation and maintenance techniques
**Seminar Outline**

**MODULE I**

**Troubleshooting and Maintenance on Electrical Equipment**

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**DAY 1**

**Introductions and Safety**
- Pre course assessment
- Goals and discussion
- Types of fault and factors affecting fault levels
- Maintenance of electrical equipment
- Managing maintenance
- Safety
- Balanced and unbalanced faults
- Safe working practices
- Safe isolation procedure’s

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**DAY 2**

**Maintenance of Electrical Equipment**
- Review of Day 1
- Electrical systems and components
- Fault identification
- Circuit breakers and capacities
- Earthing introduction
- Network earthing
- Earthing systems
- Earth bonding

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**DAY 3**

**Maintenance Engineering**
- Review of Day 2
- Predictive Maintenance
- Preventative Maintenance
- Reactive Maintenance and Troubleshooting

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**DAY 4**

**Electrical Equipment: Troubleshooting and Maintenance**
- Condition monitoring
- Electrical Testing for Troubleshooting
- Transformer maintenance
- Generator maintenance

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**DAY 5**

**Cabling**
- Review of Day 4
- Cable fault locating
- External influences
- Compatibility of equipment
- SCADA (supervisory control and data acquisition)
- Post course assessment
DAY 6

Introductions and Safety
- Pre course assessment
- Goals and discussion
- Safety precautions when fault finding
- Issues around live working
- Test equipment
- Personal Safety
- Fault finding ‘Method A’ for all generators separately exciting with a battery
- Self excited control system test ‘method B’ fault symptoms and remedies at no load

DAY 7

Protective Systems of Electrical Equipment
- Review of Day 6
- External influences
- Compatibility of electrical equipment
- Maintainability of electrical equipment
- Concepts of protective system protection
- Power system protection equipment
- Statutory requirements for safe working practices when fault finding
- Electrical systems and components
- Fault identification
- Protective devices and capacities
- The purpose of the earth

DAY 8

Maintenance Engineering
- Review of Day 7
- The possible reduction/requirement of fault finding by the use of Predictive Maintenance

DAY 9

Switchgear
- Review of Day 8
- Competence of Engineers carrying out maintenance activities
- Competence of Engineers carrying out fault finding activities
- Overview of switchgear fault finding and testing
- Overview of transformer fault finding and testing
- Properties and deterioration of insulating oils in an Electric power transformer
- Thermal imaging
- HV cable insulation testing and fault finding

DAY 10

Test Equipment and Protection
- Review of Day 9
- LV test equipment
- HV test equipment
- Differential protection
- Required Documentation
- Post course assessment
REGISTRATION DETAILS

LAST NAME:________________________________________
FIRST NAME:_______________________________________
DESIGNATION:_____________________________________
COMPANY: ________________________________________
ADDRESS: ________________________________________
                                                                                     
CITY:______________________________________________
COUNTRY: ________________________________________
TELEPHONE:______________________________________
MOBILE: __________________________________________
FAX:________________________________________________
EMAIL:_____________________________________________

AUTHORISATION DETAILS

AUTHORISED BY:___________________________________
                                                                                     
DESIGNATION:_____________________________________
COMPANY: ________________________________________
ADDRESS: ________________________________________
                                                                                     
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PAYMENT DETAILS

☐ Please invoice my company
☐ Cheque payable to GLOMACS
☐ Please invoice me

CERTIFICATION

Successful participants will receive GLOMACS’ Certificate of Completion

TERMS AND CONDITIONS

- Fees – Each fee is inclusive of Documentation, Lunch and refreshments served during the entire seminar.
- Mode of Payment – The delegate has the option to pay the course fee directly or request to send an invoice to his/her company/ sponsor. Credit card and cheque payments are both acceptable.
- Cancellation / Substitution – Request for seminar cancellation must be made in writing & received three (3) weeks prior to the seminar date. A US$ 250.00 processing fee will be charged per delegate for each cancellation. Thereafter, we regret that we are unable to refund any fees due, although in such cases we would be happy to welcome a colleague who would substitute for you.
- Hotel Accommodation – is not included in the course fee. A reduced corporate rate and a limited number of rooms may be available for attendees wishing to stay at the hotel venue. Requests for hotel reservations should be made at least three (3) weeks prior to the commencement of the seminar. All hotel accommodation is strictly subject to availability and terms and conditions imposed by the hotel will apply.
- Attendance Certificate – a certificate of attendance will only be awarded to those delegates who successfully completed/ attended the entire seminar including the awarding of applicable Continuing Professional Education Units/Hours.
- Force Majeure – any circumstances beyond the control of the Company may necessitate postponement, change of seminar venue or substitution of assigned Instructor. The Company reserves the right to exercise this clause and implement such amendments.
- Fair Access / Equal Opportunities – In the provision of its services as a world-class Training Provider, the Company is committed to provide fair access / equal opportunities throughout the delivery of its courses and assessment leading to the completion of training seminars, or 3rd party qualifications/certifications.