Generator Excitation Systems

Design, Commissioning, Operation, Maintenance, Performance Analysis, Testing, Tuning, Repair & Troubleshooting

31 Jul - 04 Aug 2017, Kuala Lumpur
Introduction

This GLOMACS Generator Excitation systems training seminar has been developed for the participants to learn new skills associated with Generator systems and refresh their previous skills and training, to further advancement of knowledge.

The successful operation of any Generating Systems ultimately depends on how well the inspection, testing, maintenance and troubleshooting functions are carried out. Well-developed procedures and planning will in the long run result in reduced costs, equipment down time, parts requirements and troubleshooting complexity.

This training seminar will highlight:

- Power Generator systems
- Test equipment and testing techniques
- Information required to understand Generator system operation
- Fault finding techniques and inspection
- Standards associated with Generator systems
- Replacement of components
- Safe working practices
- Synchronisation issues

Delegates are encouraged to participate by active involvement in group discussions, practical exercises and sharing experiences.

Objectives

At the end of this training course, you will learn to:

- Elaborate on different types of power systems
- Discuss different types of technical information
- Examine different types of test equipment used with power systems
- Explore different types of switch gear associated with Generator systems
- Identify Excitation techniques for Generators
- Describe troubleshooting techniques used with Generator and Excitation systems

Training Methodology

In this Electrical Engineering training course, each participant will receive a copy of the comprehensive training seminar notes. The presenter will outline and discuss the topics using computer displays, CD displays and videotapes. The training course is designed to have an interactive format to maximize delegate participation. Questions and answers are encouraged throughout and at the daily sessions.

Case studies and examples will be discussed in problem solving workshop sessions. This gives participants the opportunity to discuss with other delegates and the presenter their specific problems and appropriate solutions. Only minimum note taking is encouraged to ensure maximum delegate attention during the training course.

Organisational Impact

The training seminar will allow delegates to learn new skills to improve efficiency and technical competence of Engineering teams.

It will also allow delegates to do the following:

- Current practices onsite can be reviewed (and changed) to bring the workplace up to current standards.
- Engineers and Technicians can gain knowledge to apply in their individual work roles so that they can understand current procedures and practices, should their work role not be a fully ‘hands-on’ role.
- Updating of technical skills and Standards from previous learning.
- Technicians, Engineers and Managers will be able to apply current work practices, for compliance with legislation.
- All candidates will be made aware of upcoming changes to practices and legislation, so that they can be pro-active in their work roles and implement the changes quickly and efficiently.
- Candidates can progress onto further Power related training seminars, which Glomacs can provide.

Personal Impact

On successful completion of this training programme, delegates will be able to:

- Develop a structured approach to the operation, inspection, testing and troubleshooting of electrical generating equipment plus provide solutions for various electrical generator problems
- Maintain a continuing understanding of test equipment used for electrical inspection and servicing
- Better understand the design, functionality and failure modes of electrical generating equipment and their control systems
- Provide examples of successful operating, inspecting and troubleshooting techniques and hands-on experience plus case studies and group problem solving exercises
- Utilize single-line diagrams and schematics for troubleshooting
- Better understand standard work practices plus develop job plans, which assist in successful inspection and troubleshooting
- Refresh the delegate’s knowledge of electrical safety

Who Should Attend?

This training programme is suitable to a wide range of professionals but will greatly benefit:

- Electrical Engineers
- Electrical Supervisors
- Electrical Technicians
DAY 1

Definitions, Interpretation and Use of Drawings, Maintenance Planning and The Use of Test Equipment

- Generator systems (AC) and equipment
- Generator systems (DC) and equipment
- Operation, inspection, testing, control, maintenance and troubleshooting
- Control systems
- Single-line electrical drawings
- Control schematics, Wiring lists
- P&ID’s
- Logic and standard symbols
- Developing schedules and procedures
- Define operation requirements for parts and labor
- Define maintenance requirements for parts and labor
- Regular, preventative, predictive and emergency maintenance
- Digital voltmeter (DVM)
- Oscilloscopes
- Megger
- Frequency meter
- Temperature probes/pyrometers
- Ammeters
- Power meters
- Load banks
- Digital hydrometers
- Cable fault locators

DAY 2

The Technology of Generators

- Principles of electrical generation (AC, DC and Emergency)
- Power supplies (battery chargers, rectifiers, inverters)
- Batteries
- Generator Drivers (gas/steam/water turbine, diesel/gas engine)
- Governors (control systems)
- Programmable logic controllers (PLC)
- Synchronization
- Power grid and network considerations

DAY 3

The Technology of Generators and Inspection and Testing of Generators

- Increasing or decreasing the voltage (transformers)
- Neutral ground resistors (NGR)
- Switchgear
- Motor control centers (MCC)
- Disconnect switches
- Power monitoring
- Control relays/timers switches
- Generator protective devices
- Methods
- Terminology

DAY 4

Troubleshooting of Generators, Development of a Job Plan and Review of Safety Requirements

- Methods
- Terminology
- Principles
- Special techniques
- Case studies/examples
- Single line drawings
- Group exercises
- Identification of the troubleshooting step-by-step sequence
- Procedure preparation
- Documentation
- Follow-up
- Safety considerations and training
- Area classifications
- NEC electrical codes
- Safety information

DAY 5

The Identification and Repair of Problems/Failures

- Common mode failures
- Phase imbalance
- Contact pitting/arching
- Electronic component failure
- Fusing
- Generator windings/bearings/brushes
- Excitation circuits
- Battery cells
- Inverters/rectifiers/battery chargers
- Bushings
- Switches
- Control circuits
- Ground faults
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<th>Code</th>
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<td>Kuala Lumpur</td>
<td>$5,500</td>
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CERTIFICATION
Successful participants will receive GLOMACS’ Certificate of Completion

4 WAYS TO REGISTER
Tel: +971 (04) 425 0700
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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.
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