GENERATORS: OPERATIONS, MAINTENANCE, CONTROL, TESTING AND TROUBLESHOOTING

COURSE OVERVIEW

This comprehensive 5-day training course is designed to provide participants with in-depth knowledge and hands-on skills for operating, maintaining, controlling, testing, and troubleshooting generators across various applications. It covers essential concepts in generator design, electrical and mechanical operations, control systems, diagnostics, and industry best practices. Participants will explore different types of generators including diesel, gas, and hybrid units, and will learn how to ensure operational efficiency, safety, and reliability through real-world case studies and hands-on exercises.

DATES, VENUES AND FEES

07 – 11 December 2025 - Dubai

(5 Days)

Fees US$ 4500

Note: Fee is per participant + 5% VAT (if applicable).
Groups from the same company can enjoy a **discounted** price.

WHO SHOULD ATTEND?

This course is appropriate for a wide range of professionals but not limited to:

- Electrical and Mechanical Engineers
- Maintenance and Operations Technicians
- Plant Supervisors and Technicians
- Facility and Utility Managers
- Power Generation Operators
- Technical Inspectors and QA/QC Engineers
- Professionals involved in generator procurement, testing, or auditing

CONTACT US NOW

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Block 2B, 1st Floor, Office 134, Knowledge Park, Dubai, UAE
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ACCREDITATION

This training course is certified by CPD.

The CPD Certification Service is the leading independent CPD accreditation institution operating across industry sectors to complement the Continuing Professional Development policies of professional institutes and academic bodies. The CPD Certification Service provides support, advice, and recognised independent CPD accreditation compatible with global CPD principles. CPD is the term used to describe the learning activities professionals engage in to develop and enhance their abilities and keep skills and knowledge up to date. CPD Units are only awarded to programmes after each programme is scrutinised to ensure integrity and quality according to CPD standards and benchmarks.

COURSE CERTIFICATE

MSTC certificate will be issued to all attendees completing a minimum of 80% of the total tuition hours of the course.

CPD internationally recognized certificate will be issued for all participants who will meet the course requirements.
CPD certificates will be issued within a month of the successful completion of the course.

TRAINING METHODOLOGY

- Expert-led sessions with dynamic visual aids
- Comprehensive course manual to support practical application and reinforcement
- Interactive discussions addressing participants' real-world projects and challenges
- Insightful case studies and proven best practices to enhance learning

LEARNING OBJECTIVES

By the end of this course, participants should be able to:

- Understand the working principles and components of different types of generators.
- Operate generators efficiently under various load and environmental conditions.
- Interpret control systems and automation associated with generator operations.
- Perform routine and preventive maintenance to ensure longevity and reliability.
- Conduct essential tests such as insulation, load, and performance testing.
- Diagnose and troubleshoot common generator issues both electrically and mechanically.
- Implement safety procedures and industry standards during generator operation and maintenance.

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COURSE OUTLINE

DAY 1

Generator Fundamentals and Safety

- Pre test
- Overview of generator types (diesel, gas, hybrid)
- Basic principles of generator operation
- Generator components and configurations
- Power ratings, load types, and applications
- Safety practices and electrical hazards
- Lockout/Tagout (LOTO), arc flash, and personal protective equipment (PPE)
- Exercise

DAY 2

Generator Operations and Control Systems

- Start-up and shutdown procedures
- Synchronization and paralleling basics
- Load management and control
- Digital control systems (AVRs, PLCs, HMI, SCADA)
- Protection systems and alarms
- Monitoring performance parameters and diagnostics
- Exercise

DAY 3

Maintenance Strategies and Procedures

- Preventive vs predictive maintenance
- Lubrication, cooling, fuel, and air systems maintenance
- Battery care and charging systems
- Brush and brushless alternators
- Record-keeping and maintenance scheduling
- Exercise

DAY 4

Generator Testing and Inspection

- Electrical testing: insulation resistance, winding resistance
- Load bank testing (resistive/reactive)
- Functional and performance testing
- Visual inspections and thermographic analysis
- Acceptance criteria and interpreting test results
- Exercise

DAY 5

Troubleshooting Techniques and Case Studies

- Common faults: failure to start, voltage/frequency instability, overheating, abnormal noise
- Troubleshooting methodology and tools
- Root cause analysis techniques
- Emergency response and corrective actions
- Case studies: Real-world troubleshooting scenarios
- Final review, discussion, and wrap-up
- Post test

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