Diesel Engine Generator Operation, Maintenance and Troubleshooting

Energy Milestones Corporation

Advancing Professionals to the next level

Energy Milestones is proud to be accredited, partner and associated with the following association bodies:

info@energymilestones.com

energymilestones.com

Diesel Engine Generator Operation, Maintenance and Troubleshooting

Overview

An Excellent knowledge of basic operation principles, layout requirements, associated components and maintenance practices for diesel power plants.

Course Objectives

You will gain valuable know-how related to diesel generating plants on:

- **Combustion processes and engine operation principles**
- **Types and applications**
- **Fuel and lube oil requirements**
- **ISO ratings and terminologies**
- **Engine components and their functions**
- **Generator principles and construction**
- **Plant layout requirements for single and multiple units**
- **Associated control panels and operation**
- **Testing and commissioning procedures**
- **Plant performance troubleshooting techniques**
- **Good maintenance practice**

Course Content

1 . Diesel Technology & Classification

- Historical background and engine types
- Main systems: lubrication, cooling, fuel, and air starting
- Turbocharger vs. supercharger

2. Introduction to Power Generation

- Types of plants: diesel, gas turbine, steam turbine, combined cycle
- Combustion characteristics, advantages, disadvantages, and applications

info@energymilestones.com
energymilestones.com

Diesel Engine Generator Operation, Maintenance and Troubleshooting

Course Content

3. Basic Engine Design & Ratings

- Ratings, design features, performance, efficiency
- Engine layouts, cycles, direct/indirect injection

4 . Fuel Oil Systems

- Diesel fuel types and properties
- Injection systems and configurations

5. Lube Oil Systems

- Functions, properties, and contaminants
- Oil analysis, troubleshooting, and common oil-related failures

6. Electric Generators

- Operating principles, main components
- Generator types, insulation, thermal deterioration, and design considerations

7. Generator Sets

- Sizing, load definitions, faults, protections
- Synchronising basics, governors, and load management

8. Diesel Engine Maintenance

- Inspection, cleaning, replacement, and sampling procedures
- Fuel, oil, and air system maintenance tasks

9. Installation

- Foundations, vibration, noise, ventilation, cooling, exhaust, fuel, starting systems

10. Synchronisation

- Conditions, types, load shedding, governors, and applications

11. Troubleshooting

- Techniques for identifying and resolving operational issues

info@energymilestones.com
energymilestones.com

Diesel Engine Generator Operation, Maintenance and Troubleshooting

Targeted Audience

This course is designed for Mechanical, Instrumentation and control, Consulting, Electrical, Project, Maintenance, Power system control Engineers, Building Services designers, Systems Planners and Managers, as well as Electrical and Instrumentation Technicians.

Course Methodology

Facilitated by an experienced professional trainer, this training course will be conducted as a highly interactive workshop session. A variety of training methodologies and facilitation techniques will be employed before and during the course, as applicable. These methods are aimed at enhancing individual and group interaction while maximising learning. Some of these methods are:

- Online Pre-post Test
- Colourful Visual Aids
- Gamification
- Self-Assessment Instruments
- Simulations
- Case Studies
- Videos
- Group Exercises & Discussions
- Role plays
- Indoor & Outdoor games