



Professional, Workforce, Career and Executive Education

Course Name

Standby Generator Maintenance Operations

Training Dates: See calendar at: www.capttech.edu.jm/calendar.php

Cost: \$40,000.00

Certification: CAPTECH and NCTVET

Course Description

This comprehensive course will cover many practical examples, and will be interactive for learners to gain a broad overall understanding of standby generator maintenance. As part of the assessment requirement, learners will complete job related practical assignment to be completed within 6 weeks after course completion. The target group include plant electricians, facility supervisors, engineering support personnel or anyone who works in a facility where an emergency power supply is required.

Outcome

Upon successful completion of this course participants will:

- Understand specific purpose, requirements and recommendations for the maintenance of generator systems
- Understand how and when to successfully test onsite generator equipment
- Understand the protection and transfer of electrical power
- Understand Mechanical and electrical systems and components
- Understand how to troubleshoot using a logical, systematic approach to isolate and repair generator problems
- Understand generator testing and interpretation of results
- Understand troubleshooting and corrective maintenance principles and practices

Assessment

Assessment is delivered in the form of a multiple-choice test and learners will undertake a job related practical assignment to be submitted within 6 weeks after course completion.

Outline

Importance of Standby Generators and Characteristics of Diesel Systems

- The Purpose of Standby Generators and their applications
- Generator Types and Construction
- Introduction to Diesel as Prime Movers
- Diesel System Components
- Diesel Systems and Terminology
- Compression Ratio
- Bore
- Stroke
- Combustion Chamber
- Diesel Generator Operation

Testing and Commissioning Procedure for Diesel Generator

- Safety Principles and Practices
- Types of tests to be performed on generators
- Purpose of test
- Scope
- Description
- Interfaces
- Test Instrument, Tools, Equipment and Calibration
- Parameters to check before starting a generator
- Start procedure
- Parameters to check after starting a generator
- Stop procedure

Electrical Fundamentals and Terminology

- Calculate Max Current
- AC vs. DC
- Real vs. Apparent Power

AC Generators (Alternators)

- Brushless
- Zigzag
- Exciter
- Voltage Regulator

Alternator Loading

- Transient Voltages
- Recovery Time
- Startup Current

- Generator Sizing
- UPS Systems Fundamentals

Generator Grounding

Portable vs. Mobile Generators

Bonding vs. Grounding

Setting up a Grounding System

Protection and Transfer of Electrical Power

- Generator Connection One-Line Diagrams
- Circuit Breakers
- Switchgear
- Transfer Switches
- Parallel Operation
- Open vs. Closed Transition
- Load Bank
- Wet-Stacking

Generator Controls and Engine Protection

- Most common control boards
- How to read and navigate control boards
- Governors
- Voltage Regulator
- PID Loops
- Load Sharing

Mechanical Systems

- Prime Movers
- Fuel Systems
- Cooling Systems
- Exhaust Systems
- Vibration Attenuation
- Sound Attenuation
- Engine Starting Systems
- Load Banks
- Emissions Control

Troubleshooting and Corrective Maintenance of Generators

- Application of Recommended Generator Maintenance Safety Practices
- Developing a Generator Inspection and Servicing Schedule
- Logging
- Common Generator Problems
- Electrical Testing of Generators