

Class Length: 2 Hours
CEUs: 0.2
PDHs: 2.0

Course Purpose

This course introduces engines and engine technologies used in the design and implementation of standby power generation. Terminology and engine theory will be discussed along with selection criteria, optimization and validation testing. In the alternator section you'll learn how a voltage can be produced by moving a wire through a magnetic field. The main components of an alternator will be described along with the various construction practices used during manufacturing. Wiring differences will also be covered describing the differences between Wye and Delta configurations. Participants who successfully complete this classroom seminar and receive a passing score (at least 80%) on an online assessment, will be able to download and print a "Certificate of Accomplishment" awarding them 2 PDHs and .2 CEUs.

Course Objectives

Upon completion of this seminar, participants will be familiar with engine technologies used to achieve optimum operation in standby power generation. They will also become familiar alternator operation and construction. Specifically, they will be able to:

- Describe the basic operation of an engine
- List and explain different types of fuel injection systems
- Describe the performance effects of turbo-charging
- Explain bi-fuel operation
- Describe Generac's criteria for engine selection and optimization
- Explain different methods for achieving power optimization
- Explain the relationship between torque and RPM for diesel and automotive engines
- Describe BMEP (break mean effective pressure) relative to engine stress
- List and describe the main components of an alternator
- Describe how the interaction of the stator and rotor can produce a voltage
- Explain how frequency is affected by the number of poles and RPM
- Describe the differences between Wye and Delta configurations
- Describe voltage regulator operation

Topical Outline

- Engine Overview
- Engine Selection and Optimization
- Alternator Overview

Who Should Attend

Practicing Design, Sales, and Consulting Engineers, Electricians and Contractors involved in supplying standby power to Commercial, Industrial, Municipal, and Healthcare facilities.

Prerequisites

None, however module sequence is recommended.

Difficulty Level

Intermediate

Be sure to sign up for each of the Professional Development Seminars:

GPS-100 Generator Sizing	GPS-150 Generator UL Listing & NFPA Standards
GPS-110 Generator Switching	GPS-160 Generator Provisioning & Installation
GPS-120 Paralleling Concepts & Implementation	GPS-170 Engines & Alternators
GPS-130 Understanding Generator Reliability	GPS-180 Generator Controls
GPS-140 <i>National Electrical Code (NEC)</i>	GPS-190 Writing Performance-Based Generator Specifications

For more information or to register for a seminar, contact your local Generac dealer.

