TECHNICAL
EDUCATION
ACADEMY

School of Engineering

COURSE PROGRAMME

000523

VEND008 - Caterpillar and FG Wilson Diesel Generators

In today's ever-evolving energy landscape, the role of reliable and efficient power generation systems is crucial for both businesses and society.



Learn from the Best in the Business!

Course overview

Duration: 5 days / 40 hours · Intermediate level

Why take this course

In today's ever-evolving energy landscape, the role of reliable and efficient power generation systems is crucial for both businesses and society. This is where our 5-day advanced training program on power generation using Caterpillar and FG Wilson generators comes into play.

The course consists of comprehensive modules covering a wide range of topics. This includes understanding advanced power generation technologies and in-depth study of engine systems and components. Beyond technical aspects, the program also covers Original Equipment Manufacturer (OEM) maintenance processes and industry best practices, enabling participants to optimize the performance and longevity of these complex power generation systems.

Upon completing this rigorous training, participants will not only gain a deep understanding of the current state of power generation but will also receive a certificate of completion, attesting to their advanced skills and knowledge. In a sector where precision and reliability are paramount, this training program provides professionals with the competencies necessary for success.

Who it is for and how it helps

This intensive course is designed for a diverse audience, ranging from mechanical and electrical engineers to operations managers and field service technicians, offering an in-depth study of the technical and operational aspects of Caterpillar and FG Wilson generators, covering models from 350 to 1200 kVA.

• Mechanical Engineers: Specialists responsible for the mechanical aspects of generator sets, including cooling systems, fuel systems, and intake systems.

• Electrical Engineers: Experts focused on the electrical aspects of power generation, including control systems, sensor management, and alternators.

• Technicians: Individuals responsible for hands-on tasks such as adjustment, testing, and troubleshooting of generator systems.

• Operations Managers: Professionals overseeing the overall operation of power generation systems, benefiting from a deep understanding of technical specifications and best practices.

• Field Service Engineers: Specialists frequently working on-site who must understand both theoretical and practical aspects of generator operation for effective troubleshooting and maintenance.

• Maintenance Supervisors: Individuals responsible for the regular maintenance and servicing of generators.

• Energy Consultants: Professionals advising companies or governments on energy solutions, including backup and emergency power supply.

Course overview — continued

• OEM Representatives: Individuals working directly for original equipment manufacturers like Caterpillar or FG Wilson, who can benefit from in-depth technical knowledge to support customers.

• System Integrators: Experts involved in integrating these generators into broader systems and infrastructures.

What you will learn

- Understand advanced concepts in power generation
- Interpret technical specifications of Caterpillar and FG Wilson generators
- Identify engine systems and components
- Distinguish sub-components and operating modes
- Perform engine adjustments related to valve clearance, fuel, and timing
- Manage sensors and data collection
- Utilize manufacturer software for diagnostics and adjustments
- Learn key alternator systems, including AVR, exciter, rectifier, and main alternator
- Understand and apply power regulation and AVR functions
- Execute advanced testing protocols for engine and alternator systems
- Effectively troubleshoot mechanical and electrical issues
- Implement OEM maintenance processes and recommendations
- Apply condition monitoring techniques for preventive maintenance

Curriculum

Modules 01–06

01 Introduction to Advanced Diesel Power Generation

- Introduction to Advanced Diesel Power Generation

02 Technical and Technological Characteristics of Caterpillar and FG Wilson

- Technical and Technological Characteristics of Caterpillar and FG Wilson

03 Main and Auxiliary Engine Systems

- Diesel engines
- Key components of a diesel engine
- Cylinder head and valves
- Fuel system
- Lubrication system
- Cooling system
- Exhaust/intake system
- Basic principles of diesel engine operation

04 Valve Adjustment and Injector Maintenance

- Valve adjustment in FG Wilson generators
- When to perform valve adjustments?
- Importance of regular injector checks in diesel engines

05 Sensor Management and Data Collection

- Sensor management and data collection
- Role of the RPM sensor in diesel generators
- Role of the temperature sensor in diesel generators
- Role of the pressure sensor in diesel generators

06 Advanced Generator Description

- Advanced Generator Description

Curriculum

Modules 07–09

07 Power Regulation and AVR Functions

- Power Regulation and AVR Functions

08 OEM Maintenance Processes and Recommendations

- OEM Maintenance Processes and Recommendations

09 Troubleshooting CAT and FG Wilson Diesel Generator Systems by Symptoms

- Troubleshooting CAT and FG Wilson Diesel Generator Systems by Symptoms

Programme instructor



Aydin Majidov

A seasoned Mechanical Engineer and maintenance specialist with extensive experience in the maintenance, overhaul, and repair of diesel generators, with particular expertise in Caterpillar and FG Wilson equipment. Holds a Bachelor of Science in Mechanical Engineering from Azerbaijan State Oil and Industrial University and has built a strong professional foundation through both academic training and hands-on experience in demanding industrial environments, including offshore oil and gas operations.

Holds the role of Maintenance Specialist with BP in Azerbaijan, where responsibilities include leading major overhaul and preventive maintenance initiatives, mentoring maintenance technicians, defining scopes of work for large equipment repairs, and supporting the integration of maintenance activities into computerized maintenance management systems (CMMS). This role draws on strong expertise in rotating equipment and a proven ability to implement practical, cost-effective maintenance strategies, including for critical offshore systems such as fire water pumps.

Previously worked as a Senior Mechanical Engineer, managing the overhaul and maintenance of critical equipment including diesel generators and fire water pumps for both offshore and onshore BP-operated projects. Additional responsibilities included warranty administration and the preparation of technical documentation, reflecting a strong commitment to quality, compliance, and technical accuracy.

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Participant ratings

Programme evaluation based on participant feedback

Overall programme rating — 5.0 / 5

Clarity of learning objectives	**4.8 / 5**
Confidence in applying knowledge and skills	**5.0 / 5**
Achievement of learning objectives	**5.0 / 5**
Relevance of content to job tasks	**5.0 / 5**
Suitability of difficulty for the level of preparation	**5.0 / 5**
Increase in knowledge	**4.8 / 5**
Skills development	**4.8 / 5**
Willingness to recommend the programme to colleagues	**4.8 / 5**

5 responses

Joining the programme

Contact the Academy and quote course code 000523 to confirm dates, delivery format, prices and enrolment terms.

Training for your team

Tell us your business goals, the roles and number of participants, and your preferred dates and location. This will help us discuss the right training option.

Preparing for the programme

The published programme does not specify any prerequisites. Contact us before enrolling to confirm how to prepare.

Discuss your training needs

mail@tecedu.org
www.tecedu.academy

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