XCELERATE TRAINING INSTITUTE

your learning & development partner

MECHANICAL ENGINEERING

Heavy Duty Diesel Engine Treatment, Tools, and Repair Training Course

DURATION	LANGUAGE	FORMAT
5 days	English	Classroom / Online

Upcoming dates

Dates	Venue	Format	Fee
22 – 26 Feb 2027	Live online	Online (live)	€1,200
2 – 6 Aug 2027	Live online	Online (live)	€1,200
6 – 10 Sep 2027	Istanbul	Classroom	€4,800

Register or ask a question

Online: x8ti.com/course/heavy-duty-diesel-engine-treatment-tools-and-repair-…

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Heavy Duty Diesel Engine Treatment, Tools, and Repair Training Course

Introduction

Introduction

Today’s technicians, mechanics, supervisors, and vehicle operators must know the underlying theory of all their vehicles and be able to service and maintain them adequately as well.

What are the special tools used for diesel engine?

The modern vehicle powered by a diesel engine is a complex piece of technology. Its various mechanisms work together to haul freight, and transfer passengers. This can serve the construction and farming industries securely and consistently. It requires highly trained and skilled technicians to keep these complex vehicles in safe and running form. You will learn about the categorical tools required for diesel engines in this Zoe course.

What is a heavy duty diesel engine?

What exactly will our “Heavy Duty Diesel Engine Treatment, Tools, and Repair Course” teach you? This course will provide you with extensive trade knowledge. This included the maintenance and repair of essential drive-line components, diesel engine troubleshooting, and two- and four-cycle engine rebuilding.

This Xcelerate Training Institute course will provide you with comprehensive and professional experience for expert mechanics and technicians specializing in diesel engines.

Learning Objectives

- Register and discuss the steps needed to attain certification in the field of heavy-duty vehicle servicing
- Explain how combustion takes place in diesel engines
- Justify the purpose of air-charging in diesel engines
- Discuss the principle of operation of air charging systems in diesel engines
- Understand the operational features of the fuel injection systems used in HDD
- Deliberate the employment possibilities in the field of heavy-duty vehicle repair
- Form the procedure and requirements for servicing HDD
- Define the HDD basic routine maintenance operations

Training Methodology

- Lectures
- Seminars & Presentations
- Group Discussions
- Assignments
- Case Studies & Functional Exercises

Benefits for Your Organization

- Benefit from training your employees on the definition and importance of mechanical information
- Gain an understanding of different roles played within the Heavy-Duty Diesel Engine Treatment, Tools, and Repair guidelines
- Enable better specification of new and replacement of old elements of an HDD Engine system
- Learn and apply standards in safe operation and monitoring of specific equipment, and their proper maintenance
- Delegates will be able to apply the gained knowledge through this course
- Practice of skills and that will benefit the participants' respective companies
- Maintain better organizational safety records

Benefits for You

- Create career openings and fortify your ability to become part of global industries
- Secure a relevant job anywhere in the world with the right knowledge in Heavy-Duty Diesel Engine Treatment, Tools, and Repair
- Get promoted in your current job in the Heavy-Duty Diesel Engine Treatment, Tools, and Repair field
- Get the specialized skill and understanding needed to do your job with maximum efficiency
- Master the knowledge and techniques to see the future of an effective Heavy-Duty Diesel Engine Treatment, Tools, and Repair process
- Understand the need to use machines optimally
- Contribute in an invaluable way to your organization by assisting machine-related decision making
- Get an opportunity to work through hands-on exercises in detail to gain the skills needed to facilitate a Heavy-Duty Diesel Engine Treatment, Tools, and Repair study
- Gain the skills to plan, manage, facilitate, and scribe for a Heavy-Duty Diesel Engine Treatment, Tools, and Repair project

Target Audience

- Vehicles fleet maintenance engineers and technicians
- Automotive maintenance technicians
- Automotive maintenance engineers
- Fleet maintenance supervisors
- Diesel power generation engineers and technicians
- Diesel plant workers

Course Outline

Heavy-Duty Diesel (HDD) Engines – An Introduction

- Meaning of HDD Engine
- Rating
- Load factor
- Operation Duration
- HDD Engine Glossary of Terms
- International Standards for HDD Engine

- Internal and External Characteristic Performance Curves
- Design Considerations of HDD Engine
- HDD Engine Construction Features and Materials
- HDD Engine Applications

Work Cycle and Combustion in HDD Engines

- Work Cycle
- Diesel Fuel:
- Classification
- Fuel properties
- Fuel tests
- Combustion Process in Diesel Engines
- Compression Ratio
- Combustion Chambers Shapes
- Direct & Indirect Injection Methods
- Homogeneous Charge Compression Ignition (HCCI)
- Air Charging in Heavy-Duty Diesel Engines:
- Mechanical
- Turbo
- Pressure wave
- Turbocharger Configuration
- Combined Two Stage
- Variable Geometry
- Sequential
- Turbocharger Control
- Turbocharger Performance Characteristics

Fuel Injection Systems In HDD Engines

- Types and Principle of Fuel Injection Systems:
- Cummins Systems:
- PT
- CELECT unit injector
- Accumulator
- HPI
- XPI
- Caterpillar Systems:
- HUEI/A
- HUEI/B
- Navistar
- MEUI/A
- MEUI/B

- In-line or Multi-Plungers Systems
- Common Rail Systems
- Fuel Injection Systems – Design and Mechanisms
- Injected Fuel Quantity and Timing – Methods of Control:
- Hydraulic
- Pneumatic
- Electronic
- Diesel Fuel Filtration and Water Separation

Electronic Diesel Control (EDC)

- Advantages of EDC
- EDC Basic Layout and Components
- ECU
- Sensors
- Actuators
- Layout for fuel injection systems
- Open & Closed Loops
- Data Processing
- Controlled Quantities:
- Start
- Drive mode
- Idle speed
- Maximum speed
- Intermediate speed
- Cruise speed
- Injected Fuel Quantity Limits
- Emission Control Systems
- Diesel Oxidation Catalyst (DOC)
- Diesel Particulate Filter (DPF)
- Selective Catalyst Reduction (SCR)
- Urea Injection (UI)
- Exhaust Gas Re-circulation (EGR)
- Closed Crankcase Ventilation (CCV)

Operation and Maintenance Of HDD Engine

- Operation Tips for HDD Engine
- Indicator Lamps
- On-Board Diagnostics
- Fuel Type
- Items to be Noticed
- Tips for Efficient Operation

- Maintenance of Diesel Engines
- Basics of Mechanical Maintenance
- Servicing of Diesel Fuel Injection Systems
- Diesel Engine Tune-up
- Diesel Engine Routine Maintenance Operations
- Diesel Engines Troubleshooting
- Forms of Diesel Engine Components Failure
- Engines Troubleshooting and Fault Rectification
- Testing:
- Injection Pumps
- Injectors
- Fuel Feed Pumps
- Tests for Assessment of Engine Condition

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Registration Form

Heavy Duty Diesel Engine Treatment, Tools, and Repair Training Course

Preferred dates: ..... Venue or online: .....

Duration: 5 days Language: .....

Please complete and email this form to us, or register online. We confirm your place and send the invoice within one working day.

Delegate information

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Official email: ..... Personal email: .....

Company information

Company name: .....

Address: .....

City / country: ..... VAT / tax number: .....

Person responsible for training & development

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Email: .....

Payment

☐ Please invoice me ☐ Please invoice my company

Signature: ..... Date: .....

Call
+491631686678

Email this form
info@x8ti.com

Register online
Open the course page