XCELERATE TRAINING INSTITUTE

your learning & development partner

MECHANICAL ENGINEERING

# Diesel Engine Mechanic Training Course

| DURATION | LANGUAGE | FORMAT |
|---|---|---|
| 5 days | English | Classroom / Online |

## Upcoming dates

| Dates | Venue | Format | Fee |
|---|---|---|---|
| 15 – 19 ???? 2027 | Live online | Online (live) | €1?200 |
| 26 – 30 ????? 2027 | Kuala Lumpur | Classroom | €4?800 |
| 27 ?????? – 1 ?????? 2027 | Live online | Online (live) | €1?200 |

### Register or ask a question

Online: x8ti.com/course/diesel-engine-mechanic-training-course-2/

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# Diesel Engine Mechanic Training Course

## Introduction

Introduction

In today's world, a diesel engine mechanic's role is not limited to its basic tasks anymore. Today, diesel engine mechanics are expected to install, repair, and maintain all components of an internal combustion diesel engine. This training program allows you to train for one of the world's most highly demanded careers. Delegates will study the difference between the 4 stroke and 2 stroke engine cycles, strategies for diesel engine maintenance, the fuel injection system, and thermodynamic cycles.

What makes this "Certified Diesel Engine Mechanic Course" relevant to you? The best part about this training program is that it is beneficial to participants with no previous diesel mechanic experience, those who have had similar jobs, and even those who are currently working as diesel engine mechanics.

This Xcelerate Training Institute course will empower you with knowledge on basic diesel engine operations right up to automated truck management systems.

Learning Objectives

- Recognize the role of a diesel repair technician and the many career opportunities available
- Identify common tools and safety procedures utilized in the repair of heavy-duty vehicles
- List the basic functions of a diesel engine and its major mechanisms
- Define the operation of the cooling and lubrication system of a normal diesel engine
- Identify the procedures followed in the inspection and renewal of a typical diesel engine
- Rationalize the job of a mechanical fuel injection system, the fuel-delivery system, and the features of various diesel fuels
- Learn the basics of electrical and electronic engine control systems
- Study the basic operation and repair of heavy-duty truck steering and suspension systems, along with service and repair of vehicle wheels and tires
- Identify the function and operation of heating, ventilation, and air conditioning systems used on heavy-duty trucks
- Classify the safety protocols and maintenance measures for trucks and trailers

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, along with the different roles played within the Diesel Engine guidelines

- Optimize handling of tools, equipment, and materials while maintaining the organization HDD engines
- Improve operational HDD engines and their integrity and performance
- Minimize equipment failures by enhancing your ability to risk analyses on HDD engines
- Enable better specification of new and replacement of old elements of a piping system
- Maintain better organizational safety records

Benefits for You

- Create career opportunities and strengthen your ability to move across worldwide industries like oil and gas, automobile, production, construction, aeronautics, etc.
- Secure a relevant Engineer's job anywhere in the world with the right knowledge as a Certified Diesel Engine Mechanic
- Get promoted in your current job in the Diesel Engine Mechanics field
- Get the professional skill and knowledge required to perform your job with optimum efficiency and accuracy
- Master the knowledge and techniques to see the future of an effective Diesel Engine Process
- Learn how to do a good job with your machines and why it is important to do so
- Make a valuable contribution to your organization by being in a position to determine if you should implement a program at your site, or better understand an existing program
- Get an opportunity to work through hands-on exercises in detail to gain the skills needed to facilitate a Diesel Engine study
- Gain the skills to plan, manage, facilitate, and scribe for a Diesel Engine project

Target Audience

- Automotive maintenance engineers
- Vehicles fleet maintenance engineers and technicians
- Diesel power generation plants operators and supervisors
- Fleet maintenance supervisors
- Automotive maintenance technicians

Course Outline

INTRODUCTION TO HEAVY-DUTY DIESEL (HDD) ENGINES

- HDD engines:
- 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 and the characteristic curves of HDD engines
- Diesel fuel
- The 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
- Turbocharger configuration
- Turbocharger control
- Turbocharger performance characteristics

FUEL INJECTION SYSTEMS IN HDD ENGINES

- Types and principles of operating fuel injection systems:
- Cummins systems
- Caterpillar systems
- In-line or multi-plunger systems
- Common rail systems
- HDD engines fuel injection systems
- Methods to control injected fuel quantity and timing
- Diesel fuel filtration and water separation

ELECTRONIC DIESEL CONTROL (EDC)

- Advantages of EDC
- EDC basic layout and components:
- ECU
- Sensors
- Actuators
- Layout for various types of fuel injection systems
- Open loops, Closed loops & data processing
- Controlled quantities
- Start
- Drive mode
- Idle speed
- Maximum speed
- Intermediate speeds
- 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 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

TROUBLESHOOTING DIESEL ENGINES

- Forms of diesel engine components failure
- Engines troubleshooting and fault rectification
- Testing injection pumps, injectors, fuel feed pumps
- Testing engine condition

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# Registration Form

## Diesel Engine Mechanic 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 | Email this form | Register online |
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