



# Diesel Equipment Technology



This detailed training program is designed to provide students with the necessary skills required to meet the exacting demands of selective employers. This is accomplished by providing students with intensive training in basic diesel engines, fuel injection, electrical systems, chassis and drive trains, and transport refrigeration. Comprehensive diagnostics, troubleshooting and repair for both on- and off-road applications are also provided. A heavy concentration of actual shop experience enables students to better retain the necessary knowledge and skills required in this progressive industry.

<u>Course</u>	<u>Course Title</u>	<u>Clock Hours</u>	<u>Weeks</u>	<u>Quarter Credit Hours</u>
DET-101	Diesel Engines I	150	6	8.50
DET-102	Diesel Engines II	150	6	9.00
DET-103	Drive Train I	150	6	8.50
DET-104	Brakes	150	6	8.50
DET-105	Steering & Suspension	150	6	8.50
DET-106	Electrical & Electronic Systems	150	6	9.00
DET-107	Heating & Air Conditioning	150	6	9.00
DET-108	Preventative Maintenance & Inspection	150	6	9.00
DET-109	Industrial Equipment	150	6	9.00
DET-110	Diesel Electronics and Multiplexing Systems	150	6	8.50
DET-111	Drive Train II	150	6	8.50
DET-112	Diesel Engines III	<u>150</u>	<u>6</u>	<u>8.50</u>
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## **DET-101 Diesel Engines I**

Students will be introduced to the industry by learning safety procedures and guidelines, tools, and equipment. They will study the theory and operation of diesel engines, after which they will learn about cooling and lubricating systems, diagnosing engine concerns, engine disassembly and cleaning procedures, inspection and measuring of engine components, and servicing of cylinder heads and engine blocks.

## **DET-102 Diesel Engines II**

Students will continue to explore the advanced electronics principles and applications of diesel engines. Students will also learn logical diagnostic procedures and review computerized bus networks through advanced level approaches.

## **DET-103 Drive Train I**

Students are introduced to the theory and operation of clutches, manual transmissions, auto-shift systems, drive shafts and and assembly are accomplished through hands on experience.

## **DET-104 Brakes**

Students will be trained in basic hydraulic brake theory and operation. They will learn how to diagnose and repair hydraulic brake systems and will be introduced to complete air-operated brake systems and ABS brake systems.

## **DET-105 Steering & Suspension**

Students will be introduced to the principles, operation, and inspection of chassis components, followed by the diagnosis and repair of steering and suspension systems. Students will also learn wheel alignment procedures.

## **DET-106 Electrical & Electronics Systems**

Students will be introduced to the fundamentals of electricity and electronics. They will use various test equipment and schematics to diagnose and repair electrical circuits. These will include: starting, charging, lighting, accessory, computer, sensor, and actuator circuits as well as electrical/electronic devices.



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## **DET-107 Heating & Air Conditioning**

This course affords students a comprehensive study of HVAC including cab air, and other conditioning systems. The students will also explore over the road refrigerant systems and components. The MACS-609 Refrigerant Test Certification and ESCO Institute-EPA-608 Test Certification is offered in this course as well.

## **DET-108 Preventative Maintenance & Inspection**

Students will learn how to perform preventative maintenance and D.O.T. service and policies. Students will learn how to perform general maintenance on different engine systems and operations. Students will also explore how to adjust brakes, clutches, and suspensions. Oils, lubricants, and coolants will also be covered. Students will also be introduced to Oxyacetylene, MIG and TIG Welding Techniques Equipment and Basic Operation.

## **DET-109 Industrial Equipment**

Students will be introduced to the principles of hydraulic operation. They will learn system components and types of drive systems. They will also learn diagnostic and testing procedures.

## **DET-110 Diesel Electronics and Multiplexing Systems**

Students will learn about multiplexing and how electronic control modules operate the various systems. Key content includes a brief electrical review and using various electrical diagnostic tools to diagnose multiplexed systems. Real-world case studies, working task component boards and on-vehicle diagnostic procedures are used throughout the course for enhanced learning.

## **DET-111 Drive Train II**

This course covers most of the automatic transmissions from your light duty/ medium duty applications up to the heavy duty Allison transmissions in class 8 tractors. Students will be taught the latest troubleshooting techniques using various scan tools. The laboratory component of the course includes disassembly and reassembly of various transmissions.

## **DET-112 Diesel Engines III**

Students will be introduced to specific Cummins Training, Theory and operation of various Cummins engines from ISB to ISX. The students will learn safety, tooling, engine construction details, Cummins specific electrical schematic diagrams, Electronic Data Source (Quickserve on line), troubleshooting and diagnostic procedures using (Insite) PC and scan tools, and emission systems (EGR, SCR, DPF).

Courses applicable to both Diploma or Associate of Applied Science Degree Programs