



Auto-Diesel Technology



This comprehensive program was developed for two reasons. First, the program answers industry's demand for well-trained, multi-purpose technicians who can handle a variety of equipment. Second, and perhaps most important, the coursework is designed to provide students with sufficient depth of knowledge and diversity of experience to make them more marketable in today's demanding employment sector. This program combines the Diesel Technology and the Automotive Technology Programs and includes Alternative Fuel, and transport refrigeration.

<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-106	Electrical & Electronic Systems	150	6	9.00
DET-102	Diesel Engines II	150	6	9.00
ADT-102	Truck Brakes and Suspension Systems	150	6	8.50
AUT-108	Engine Performance I	150	6	9.00
AUT-109	Engine Performance II	150	6	9.00
AUT-101	Engine Repair	150	6	8.50
AUT-110	Hybrid Electric Vehicles	150	6	8.50
ADT-106	Drive Train	150	6	8.50
ADT-107	Automotive Steering Suspension & Brakes	150	6	8.50
DET-107	Heating & Air Conditioning	150	6	9.00
DET-108	Preventative Maintenance Inspection	<u>150</u>	<u>6</u>	<u>8.50</u>
		1800	72	104.50

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-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.

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.

ADT-102 Truck Brakes and Suspension Systems

Students will be trained in basic truck brake theory, operation, and terminology. They will learn how to diagnose and repair disc and drum systems and be introduced to air operated brake systems including: primary and secondary air brake system components, inspection, and function. Students will also learn heavy duty steering and alignment, heavy duty suspension and wheels and tires.

AUT-108 Engine Performance I

Using electrical and electronic testing equipment, students will learn theory and principles of engine ignition systems including solid state component operation and test procedures. Computer operation, sensors and actuator function, component testing and diagnosis along with on board diagnostic systems will be introduced. The course will also include multiplexing electronic vehicle systems.



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AUT-109 Engine Performance II

Students will learn proper diagnostic procedures for engine drivability related systems such as air induction, ignition, computer, and fuel injection. On board diagnostics I and on board diagnostics II, theory and operation will be covered, followed by the diagnosis, repair, and measuring of emissions utilizing IM240 standards. The course will conclude with advanced level engine performance testing such as the logical diagnostic procedures used to inspect and test sensors and actuators and vehicle restraint system devices.

AUT-101 Engine Repair

Students will learn the safety principles, tools, and equipment necessary to operate in a safe shop environment. Students will learn the theory, operation, disassembly, and reassembly of an internal combustion engine. Students will also be introduced to the fuel properties of many conventional and alternative fuels used in piston engine application.

AUT-110 Hybrid Electrical Vehicles

Students will become familiar with a comprehensive study of current trends in alternative fuel vehicle designs. They will also learn practical service, diagnosis, and repair procedures on live hybrid vehicles.

ADT-106 Drive Train

Students will be introduced to basic theory and operation of clutch systems and basic component identification. They will then learn troubleshooting, standard transmission functions, and removal and inspection procedures. Students will also understand main and auxiliary gearing, diagnosis of noise vibration and harness concerns, differentials, and third members.

ADT-107 Automotive Steering, Suspension, & Brakes

Principles of operation, inspection, diagnosis, repairing of chassis, steering, and suspension systems are the basis for this course. Students will learn types of suspension, steering linkage, drum brakes and disc brake systems. Students will also become proficient in the use of tire and wheel balancing equipment.

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 Refrigerant Test Certificate 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.

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