



**DETROIT
TRAINING
CENTER**

DIESEL MECHANIC PROGRAM
Two Year Program

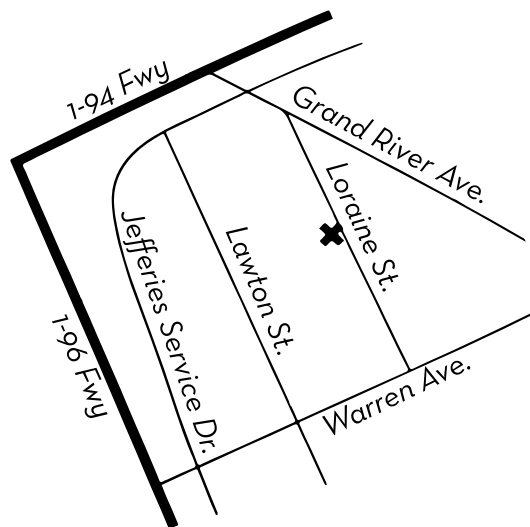




DETROIT TRAINING CENTER

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www.DetroitTraining.com

OUR TRAINING LOCATION



5151 Loraine St.
Detroit, MI 48208

DETROIT TRAINING CENTER

The Detroit Training Center (DTC) specializes in customized, hands-on vocational programs of study, tailored to meet the industry and workforce needs of the City of Detroit.

Established in 2012, DTC was founded on the principles of providing adults with the knowledge, tools, and skills needed to add value to themselves, their families, their communities, and ultimately the American workforce. Through highly qualified leadership, research-based instructional strategies, high academic achievement, and integrates community-based needs, DTC develops graduates who are able to compete on a local, national, and global level.

Our goal is to decrease unemployment and retain residents in Detroit, enabling out students to impact the future revitalization of the city socially and economically. As we begin to train as many residents in these fields as possible, DTC hopes to rebuild and re-skill the Detroit workforce for long-term sustainability; in preparation for the demands of skilled labor that currently exists and for continued employment on projects that are on the horizon for the city.

AT DETROIT TRAINING CENTER, EVERY DAY IS TRAINING DAY!

DIESEL MECHANIC PROGRAM OVERVIEW



Students enrolled in our Diesel Mechanic program will be educated on the basic fundamentals of diesel mechanic operations. This includes engine tune up, repair, service, and troubleshooting on medium and heavy duty trucks, as well as other heavy equipment. Our goal, once students graduate from this program, is that they will go on to becoming experts in their desired, specialized fields.

At the end of the program, students will earn the following certifications/licenses:

First Aid/CPR License
OSHA 10 License

ASE Heavy Duty Certifications:

Diesel Engines Certification
Drive Train Certification
Brakes Certification
Suspension & Steering Certification
Electronic/Electronic Systems Certification

Michigan Heavy Duty Truck Certifications:

Engine Repair - Diesel Certification
Drive Train Certification
Brakes & Braking Systems Certification
Suspension & Steering Systems Certification
Electrical Systems Certification

YEAR ONE SCHEDULE

FALL TERM

DSL 199 Shop Safety
DSL 181 Shop Practices
OSHA 10 Training
First Aid/CPR
DSL Preventative Maintenance
DSL 161 Diesel Engines Theory
DSL 191 Electrical Systems I

WINTER TERM

DSL 162 Engine Repair I
DSL 152 Manual Drive Trains I
Diagnostic Problem Solving
DSL 192 Electrical Systems II
MTH 042 Technical Math

SPRING TERM

DSL 141 HD Steering & Suspension
DSL 153 Manual Drive Trains II
DSL 151 HD Brakes I
DSL 262 Engine Repair II
DSL 192 Electrical Systems II

FALL TERM

DSL 199 Shop Safety

The Shop Safety course will familiarize students with the shop area and its resources. Students will be introduced to machines and power tools that they are most likely to use, while learning how to operate safely. Contents include shop guidelines such as housekeeping and access, shop hazards and methods of controlling exposure, record-keeping, and the use and care of personal protective equipment.

DSL 181 Shop Practices

This course will train the student to be cognizant of general shop environment practices, including personal safety. The Shop Practices course will also train the student in proper safe tool use.

OSHA 10 Training

This course is intended to introduce students to the basic practices of identifying, reducing, eliminating, and reporting hazards associated with their work. This course provides training for students on the recognition, avoidance, abatement, and prevention of safety and health hazards in the construction industry. In-depth lecture covers fall protection, ladder and scaffold safety, general electrical safety, and general construction safety.

First Aid/CPR

This class is an EMS Safety for Emergency Response approved program for CPR, AED, and First Aid. Instruction will focus on identifying shock, controlled breathing, care for muscles, bone or joint injuries, care for head, neck or back injury. The hands-on portion of the class will cover how to care for conscious and unconscious victims using mannequins and cardiopulmonary resuscitation. Students receive a First Aid/CPR license and the completion of training.

Preventative Maintenance

Students will learn in this course that preventative maintenance is the key to any successful maintenance program for commercial vehicles, and the majority of heavy duty construction equipment. Students will develop an understanding that vehicles are inspected, repaired, and maintained in such a way that defects can be prevented before they surface.

FALL TERM

DSL 161 Diesel Engines Theory

This course will teach students the history, theory of operation, and principles of design of the diesel engine. The course will prepare the student to have a thorough understanding of the principles and operation of the oil-fired, compression-ignition, diesel engine. Students will learn the difference between gas and diesel power, size, and torque.

DSL 191 Electrical Systems

The introductory course will introduce students to basic electrical theory, principles of operation, and component construction. Basic Theory will cover conventional and electron theories of current flow, Ohm's Law, and Kirchhoff's First and Second Law. Complete basic electrical circuits will be studied and constructed. Students will be instructed on the proper usage of digital multi-meters, or DMMs, in the testing of electrical circuits. Lab activities will also be included on live equipment for students to have a real-world experience.

WINTER TERM

DSL 199 Shop Safety

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SPRING TERM

DSL 141 HD Steering & Suspension

The course will prepare the student to diagnose and repair problems with power steering components, truck and trailer suspension systems, steerable tag and drop axles, align and balance wheels, repair or replace gear blades, shock absorbers, steering linkage, walking beams, and air suspensions.

DSL 153 Manual Drive Trains II

The course will prepare the student to have a thorough understanding of the principles and operation of power train components including automotive and industry applications of differentials and gear transmissions. Transmission of torque through the mechanism will be studied in theory and in labs and students will be required to demonstrate the ability to identify modes of failure, disassemble and overhaul various differentials and manual transmission models.

DSL 151 HD Brakes I

The student will learn the principles of operation and the components of hydraulic, compressed air, electric and mechanical braking systems. Self energizing, drum, disc, parking, internal expanding and external band brakes will also be covered. As well as repairs or replaces shoes, pads, drums, hoses, calipers, cylinders, and any heavy-duty air brakes.

DSL 262 Engine Repair II

This course will discuss inlet, exhaust, and emission systems, students will learn about the different injection systems used in modern computerized diesel engines. Students will perform failure analysis and resusability of diesel engine repair and how to troubleshoot equipment. Diagnostics of procedures for mechanical and electronic engine problems will also be covered.

DSL 193 Electrical Systems III

This course will prepare the student to have a thorough understanding of the principles and operation of the more complex electronic and electrical circuits and components used in vehicle chassis. A thorough understanding of the operation and use of the electrical multimeter tester will allow the student to learn to measure circuit and component values, to trace electrical circuits and diagnose and repair circuit and component malfunctions.

REQUIRED TOOL LIST

Students are **NOT required to purchase tools from a specific vendor.*

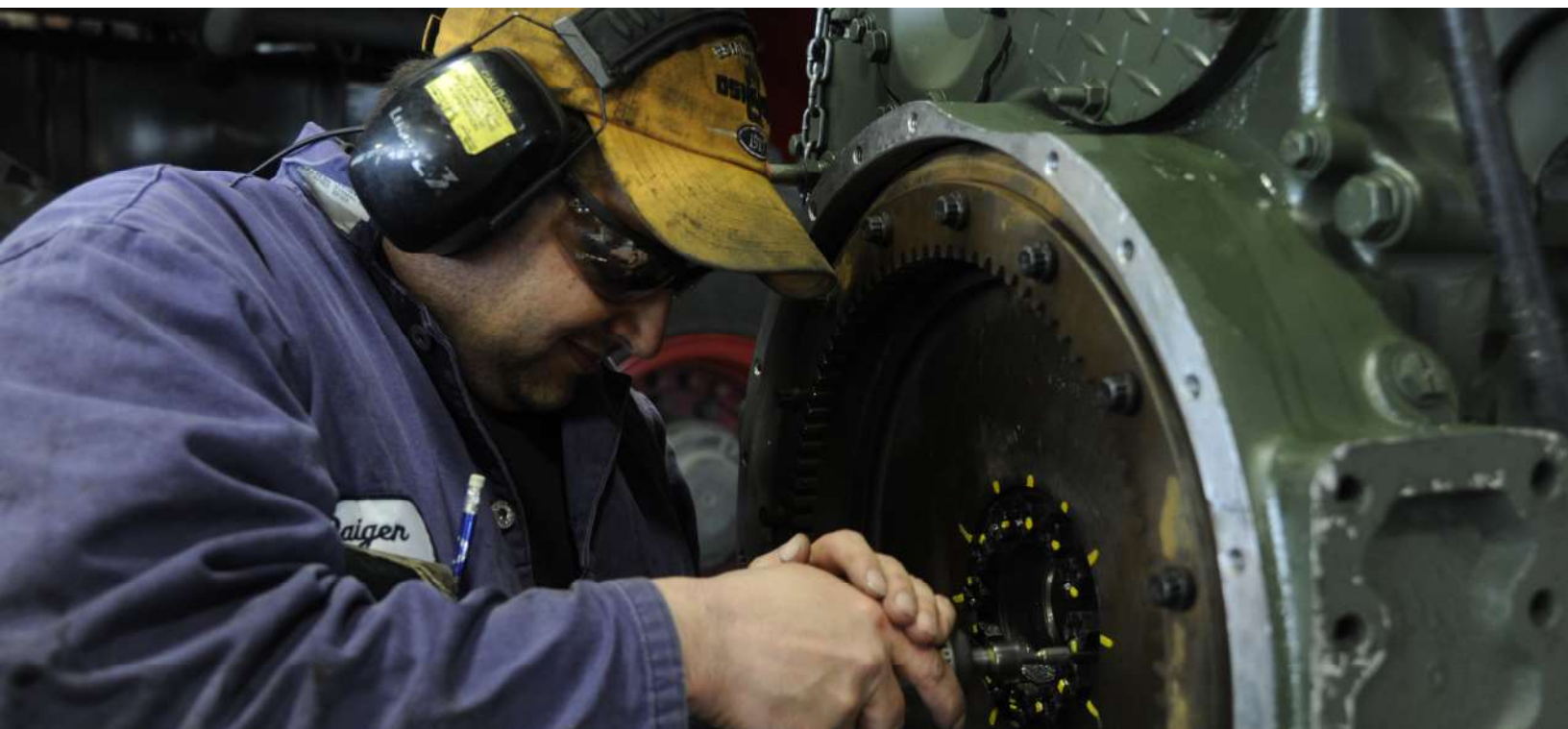
| <i>Quantity</i> | <i>Item</i> |
|-----------------|--|
| 1 | Rubber Tip HD Blow Gun |
| 1 | 5 pc Chisel Set |
| 1 | 6 pc Pin Punch Set |
| 1 | 3 pc XL Brass Drift Punch Set |
| 1 | 4 pc Drift Punch Set |
| 1 | 4 pc Bearing Race Punch Set |
| 1 | 3/16" Center Punch |
| 1 | Screw Extractor Set |
| 1 | 26 Blades Offset Gauge |
| 1 | 3# Hand Drilling Hammer |
| 1 | 4.0 lb Cross Peen Hammer |
| 1 | 16 oz. Ball Peen Hammer |
| 1 | 12 in High Tension Hack Saw |
| 1 | 12-24PT Bi-Metal Hack Saw Blades |
| 1 | 1/2" x 10" (60th) Ratchet |
| 1 | 1/2" x 24" Flex Handle |
| 1 | 13 pc 1/2" Air Impact 6PT Socket Set |
| 1 | 1/2" x 3/8" Standard Impact 6PT Socket |
| 1 | 1/2" x 7/16" Standard Impact 6PT Socket |
| 1 | 1/2" x 9/16" Standard Impact 12PT Socket |
| 1 | 1/2" x 1/2" Standard Impact 12PT Socket |
| 1 | 13 pc 1/2 Metric Impact 6PT Socket Set |
| 1 | 1/2 Impact Universal Joint |
| 1 | 3 pc 1/2 Impact Extension |
| 1 | 3 pc Adjustable Wrench Set |
| 1 | 12PT Standard Combo Wrench Set |
| 1 | 4 pc Long Mod. Combo Wrench Set |
| 1 | 14 pc MM Combo Wrench Set |

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|---|---|
| 1 | 20 MM Combo Wrench |
| 1 | 21 MM Combo Wrench |
| 1 | 22 MM Combo Wrench |
| 1 | PPE: Safety Glasses w/ clear lens |
| 1 | 1/2" Air Impact Wrench Set |
| 1 | 12" HD Pipe Wrench |
| 1 | 18" HD Pipe Wrench |
| 1 | 12" Groove Joint Pliers |
| 1 | 16" Groove Joint Pliers |
| 1 | 8 pc Screwdriver Set Org |
| 1 | 7 1/2" Diagonal Cutter |
| 1 | 8" Straight Needlenose Pliers |
| 1 | 7" Vise Grip |
| 1 | 7" Vise Grip w/o CTR |
| 1 | Wire Crimping Tool |
| 1 | 10" Vice Grip |
| 1 | 1" x 25' Center Point Pro Tape |
| 1 | Magnetic Retrieving Tool 5# |
| 1 | Pocket Scriber |
| 1 | 4 pc HD Hook/Pick Set |
| 1 | 0-1 in. Micrometer |
| 1 | Dual Scale Dial Caliper |
| 1 | Circuit Tester w/ 5ft Cord |
| 1 | 1-1/2 Bolster Handle Scraper |
| 1 | Twin Task 2D Titanium Flashlight |
| 1 | 13 pc Ball Plus Set #56193 Allen Wrench Set |
| 1 | 9 pc Metric Ball Plus Allen Wrench Set |
| 1 | 4 pc Lady Foot Pry Bar Set |
| 1 | 30 in. Jimmy Bar |
| 1 | 20 pc Bit Driver Set |

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| 1 | Snap Ring Pliers .047 O degrees |
| 1 | Snap Ring Pliers .070 O degrees |
| 1 | Lock Ring Pliers |
| 1 | Seal Puller |
| 1 | Dual Chuck Tire Gauge |
| 1 | 1/4" Straight Dual Air Chuck |
| 1 | 1/4, 3/8, 12 pc Torx Driver |
| 1 | 3/8 8 (60-tooth) Teardrop Ratchet |
| 1 | 1/2 F to 3/8 M Chrome Adapter |
| 1 | 1/2 x 3/4 Male Impact Adapter |
| 1 | 1/2 x 7/16 deep impact socket 6 pt |
| 1 | 1/2 x 1-3/16 deep impact socket 6 pt |
| 1 | 12" drive 12 pc. Impact deep socket set |
| 1 | 4-pc. Flarenut wrench set |
| 1 | Lg Swivel Oil Filter Wrench |
| 1 | 4-5/16 - 4-3/4 Oil Filter Wrench |
| 1 | Battery Tool |
| 1 | Roll away 40" Lockable Tool Chest (Box) or |
| 1 | Roll away 26" Lockable Tool Chest (Box) |
| 1 | Tire Gauge |
| 1 | Micrometer |
| 1 | Pry Bar Set: 8", 12", 18", & 24" |
| 1-2 | PPE: overalls (clean & repaired) |
| 1-2 | PPE: Approved Safety Footwear (No Tennis shoes or open footwear allowed) |

Total costs from a major national vendor employing a student discount ranged from \$2.869-\$2,969

* NOTES: Students may purchase quality tools from any reputable vendor. Please see the Program assistant for a list of available vendors providing student costs and offering student discounts. The costs of this list of tools depends on the personal selection of tool chests does not include any PPE (Personal Protective Equipment).



YEAR TWO SCHEDULE

FALL TERM

DSL 196 Electronics Diagnostics & Emission Control Systems
DSL 251 HD Brakes II
DSL 184 Fluid Mechanics
DSL 176 Mobile Air/Heating Systems
Reporting & Logging

WINTER TERM

DSL 263 Advanced Engine Technology
DSL 275 HD Equipment II
DSL 280 OJT Class Project
DSL 175 HD Equipment Lab
WLD 111 Basic Arc & Gas

SPRING TERM

Customer Service & Business Etiquette
Soft Skills Training
OJT Class Project
DSL 200 Pre-Employment Seminar

FALL TERM

DSL 196 Electronic Diagnostics & Emission Control Systems

In this course students will be educated on the fundamentals of the diagnostics of an electronic vehicle management system, testing and adjustments, as well as testing of fuel management. Students will also learn, in regards to emission, how to do the testing and repair to ensure proper engine performance and compliance.

DSL 251 HD Brakes II

The course will introduce the student to the principles of operation and components of an anti-lock braking system, or ABS, and how it is electronically managed. Electronic braking systems, or EBS, will also be studied. The air brake servicing module of this course will teach the student how to perform basic maintenance, complete foundation brake inspection, overhaul and air brake system testing.

DSL 194 Fluid Mechanics

Fluid Mechanics is an interactive course that will teach students how to perform proper hydraulic maintenance procedures with the understanding of theory knowledge of application of fluid mechanics. Students will learn how to troubleshoot and repair open and closed systems, and will be able to explain basic hydraulic principles and applications.

DSL 176 Mobile Air/Heating Systems

This course will examine the basic theory and operation of heavy duty air conditioning and heating systems. Students learn the major components of heavy duty heating and air conditioning systems and its components. Students will examine auxiliary heating and cooling devices, APU's and how to troubleshoot and repair mobile HVAC systems.

Reporting & Logging

Students will learn how to properly report all defects noticed during initial inspection and teardown to capture the cost of parts and labor hours. In addition to this course, students will log all hours for teardown and labor, both direct and indirect time, as well as the cost for best value.

WINTER TERM

DSL 263 Advanced Engine Technology

This course will provide the student with the proper training to diagnose and solve complex issues on diesel engines. This means intensive instruction will be engine control systems, fuel delivery and emissions on today's modern diesel engines

DSL 275 HD Equipment Repair II

This course will provide an in-depth overview on power-shift transmissions, hydro static drive systems, final drive systems, hydraulic steering systems and controls. This course will explain the theories and principles behind these systems, and will discuss how to perform repairs on these systems.

DSL 280 OJT Class Project

Students will be required to work with local employers for a total of 120 hours. This program is intended to provide students with experience in a heavy-duty diesel work environment to enhance student learning. If work is not available off campus, then the Diesel Technology department will arrange for similar work projects on campus so that the students will receive the required credit hours without penalty.

DSL 175 HD Equipment Lab

This course will provide students with an overview of heavy duty equipment systems, including operations clutch systems, mechanical transmissions, and brake systems. Students will also receive hands on training in shop practices, preventive maintenance, and real world experience in a controlled environment.

WLD 111 Basic Arc & Gas Welding

Provides the students with a technical understanding of shielded metal arc welding, arc welding power supplies, electrode classifications, oxy-fuel welding and cutting, torch brazing, Joint types, preparation and fit-up, and welding safety. Also provides training to make quality fillet and square groove welds in the flat position on various thickness of mild steel, using the (SMAW), (OFW), and (TB) processes.

SPRING TERM

Customer Service & Business Etiquette

Students will learn important information about interacting with customers and solving customer problems. The course will focus on people and documentation skills with some real life examples presented for the students to work through. The class will also feature a discussion about proper interaction with coworkers and managers, and how to properly address issues.

Soft Skills Training

Soft Skills Training focuses on helping students get hired, stay employed, and obtain raises over time. All students will be taught how to update their resume and search for a job. If not currently signed up with an employer, students will fill out actual applications as a part of the class. Students will work on interviewing skills and practice their skills in mock interviews.

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Students will be required to work with local employers for a total of 120 hours. This program is intended to provide students with experience in a heavy-duty diesel work environment to enhance student learning. If work is not available off campus, then the Diesel Technology department will arrange for similar work projects on campus so that the students will receive the required credit hours without penalty.

DSL 200 Pre-Employment Seminar

This course will help prepare students on working with Heavy Equipment employers. Students will review their applications, learn how to prepare for the interview, and learn how to read and interpret physical and verbal behavior.

REQUIRED TOOL LIST

Students are **NOT required to purchase tools from a specific vendor.*

| <i>Quantity</i> | <i>Item</i> |
|-----------------|--|
| 1 | Digital Multimeter Fluke Model 87 |
| 1 | 3/8 in Drive 12-point Socket Set-Metric |
| 1 | 3/8 drive 6-point Socket Set-SAE1 |
| 1 | 3/8 drive Wobble Extensions |
| 1 | 1/2 drive Socket Set 3/8" to 1" 12-point |
| 1 | 1/2 drive Socket Set-10mm to 24mm 6-point |
| 1 | 1/2 drive Impact Sockets 3/8" to 1" 12-point |
| 1 | 1/2 drive Universal Impact Socket Set 1/2" to 1" |
| 1 | 3/8 drive recess Torx Socket Set E6 to E16 |
| 1 | 3/8 drive Torque Wrench 10-100Flbs |
| 1 | 1/2 drive Torque Wrench 25-250Flbs |
| 1 | Double-Box Halfmoon Wrench Set 7/16 to 15/16 |
| 1 | 10 pc. SAE Nut Driver Set 1/8" to 5/8" |
| 1 | 5 pc. Scraper Set |
| 1 | 3/8 drive Air Impact Wrench 150 to 250Flbs |
| 1 | 3/8" Reversible Air Drill |
| 1 | 1/2" Reversible Air Drill |
| 1 | Die Grinder |
| 1 | Angle Die Grinder Kit |
| 1 | Air Hammer |
| 1 | 4 pc. Air Hammer Accessory Kit |
| 1 | Battery Cable Cutter |
| 1 | Battery Hydrometer |
| 1 | Thermometer-0 to 220 degree or similar |
| 1 | AC Fin Straightener |
| 1 | 29 pc. Drill Bit Set 1/16" to 1/2" |

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| 1 | 25 pc. Set Multi-Spline Screw Extractors |
| 1 | 5 1/2 lb. Dead-Blow Hammer |
| 1 | Refractometer |
| 1 | Clutch Adjustable Wrench |
| 1 | Brake Spring Pliers |
| 1 | Scratch Awl |
| 1 | 1" Inspection Mirror |
| 1 | Flexible 22" Spring Claw Mechanical Fingers pick-up Tool |
| 1 | Remote Starter Switch |
| 1 | 4 pc. Green File Set (Half-Round, Mill Bastard |
| 1 | Round Bastard, Slim Taper) |
| 1 | General Purpose Gauge .006 to .022 |
| 1 | SAE Thread Gauge |
| 1 | Metric Thread Gauge |
| 1 | 1/4" dr 3-pc locking extension set |
| 1 | 1/4" 4-1/2" short ratchet wrench |
| 1 | 1/4" dr 10-pc SAE socket set |
| 1 | 1/4" dr 14-pc metric socket set 6 pt |
| 1 | Hearing Protection Plugs or Ear Muffs |
| 1 | Full Face Shield - Clear |
| 1 | 12" Tri-Square |
| 1 | Scientific Calculator (handheld) |

Total costs from a major national vendor employing a student discount equaled \$2,387

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