Diesel and Heavy Equipment Technician

Program Code 324121

Technical Diploma - Two Years

Offered at the Sturgeon Bay campus. For information: (920) 746-4900. Visit http://www.nwtc.edu/Programs/Diesel/
Toll-free: (800) 422-NWTC, ext. 5444.

Program Description

Prepares students to service and repair diesel powered equipment. Instruction covers repair of engine, engine systems driveline, steering, brakes, hydraulic systems, and chassis components.

Program Outcomes

- Apply hydraulic systems fundamentals.
- Manage chassis, steering, and suspension systems.
- Explain diesel engine systems.
- Explain diesel engine fundamentals.
- Describe the mechanics of track drive systems.
- Perform required preventative maintenance.
- Use welding and machine tools.
- Maintain brake systems.
- Analyze electronic/electrical systems.
- Manage heating - AC systems.
- Comprehend power train systems.
- Interpret schematic drawings.
- Diagnose engine systems.
- Service vehicle systems.

Requirements for Program Entry

- Completed application.
- High school transcript or equivalent (such as an HSED or GED® Transcript).
- NWTC Academic Skills Assessment or equivalent (See Academic Skills Assessment section for details and equivalents).
- Students should have mastered basic math skills. For a description of Basic Math, see the Basic Education section of this catalog.

Accreditation

The NWTC Diesel and Heavy Equipment Technician program is ASE Certified to NATEF (National Automotive Technicians Education Foundation) Standards. Additionally, all instructional staff in the NWTC Diesel and Heavy Equipment Programs are, at a minimum, Master, ASE Certified Technicians.

The NWTC Diesel and Heavy Equipment Technician program is an AED Foundation (Associated Equipment Dealers) Certified Program.

Employment Potential

A graduate of the program will have the potential for employment in the following areas:

Construction Equipment Technician: diagnoses, services, and repairs a variety of construction equipment such as track type tractors, wheel loaders, and back hoe loaders.

Engine Technician: diagnoses and repairs diesel engines.

Farm Equipment Technician: diagnoses, services, and repairs a variety of diesel-powered agricultural equipment.

Fuel Injection Technician: diagnoses, services, and repairs fuel injection systems.

Service Technician: performs preventive maintenance and regularly scheduled maintenance on equipment to keep it in service.

Truck Driver/Diesel Technician: owns or operates a small fleet and wants to perform his/her own regular and preventive maintenance.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Diesel Equipment Mechanic Instructor
- Diesel Shop Owner
- Sales Representative
- Shop Supervisor
- Technical Service Representative
- Truck Fleet Operator

Notes

- Diesel program students will soon be able to enroll in a four-credit Power Generation program enhancement certificate. Please call (920) 746-4919 for more details.
- Diesel program students will have the opportunity to obtain an A, B or C class Commercial Drivers' License (CDL) beginning in the Fall 2008 semester. Please call (920) 746-4916 for more details.

Curriculum

The Diesel and Heavy Equipment Technician Technical Diploma is a two-year, four-semester program offered at the Sturgeon Bay campus. Upon graduation, a student will have completed 64 credits.

First Semester

Catalog No.	Description	Credits
10-103-111	Micro: Windows-Intro	1
10-412-100	Diesel Lab Operations Tech	1
10-412-108	Inte Combust Eng Tech-Intro to	1
10-412-109	Diesel Engine Service-Fundamen	5
10-412-112	Diesel Electrical Systems 1 Te	3
10-602-118	DC Electricity Technology	1
10-804-106	Intro to College Math	3
32-442-352	Welding-Metal Working Proc	2
	Semester Total	**17**

Second Semester

10-412-120	Diesel-Chassis/Susp/Steer Tech	4
10-412-121	Diesel-Brake Systems Technolog	3
10-412-122	Diesel Preventive Maint Techno	4
10-412-123	Diesel-Elect Systems Technolog	3
31-801-385	Communicating-Writing	1
	Semester Total	**15**

Third Semester

10-412-124	Diesel-Electric Eng System Tec	1
10-412-134	Diesel Engine Systems Technolo	4
10-412-136	Diesel-Mobile Hydraulic Sys Te	2
10-412-137	Diesel-Schematic Interpret Tec	2
10-412-138	Diesel-Track Drive Systems Tec	2
10-412-142	Diesel Equip Service/Maint Tec	3
10-419-169	Hydraulics Technology	2
	Semester Total	**16**

Fourth Semester

10-412-140	Diesel Engine Troubleshoot Tec	4
10-412-141	Diesel-Power Trains Technology	5
10-412-145	Diesel-Refrig/AC Technology	3
10-809-197	Contemporary Amer Society	3
31-801-386	Communicating Effectively	1
	Semester Total	**16**
	Total Credits	**64**

This program is fully eligible for financial aid.

Please Note

- Some courses have prerequisites (listed at the end of each course description, if applicable) that need to be taken prior to enrolling in those courses.
- Many courses are offered via our Flexible Learning Options (online, accelerated, ITV, video, weekend, and self-paced) and may be taken in any order as long as prerequisites are met. To find out which program courses are offered through Flexible Learning Options, go to *www.nwtc.edu* or consult a counselor, (920) 498-5444.
- Descriptions of courses not found on this page can be found in the back of this catalog.

Course Descriptions

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-412-100 DIESEL LAB OPERATIONS TECHNOLOGY ...diesel shop safety, basic equipment operation, rigging and lifting, hand and power precision tools, fasteners and hazard material handling procedures.

10-412-108 INTERNAL COMBUSTION ENGINE TECHNOLOGY - INTRO TO ...basic internal combustion (IC) engine types, IC engine classifications and applications, IC engine theory and operation, IC engine construction and careers in IC engine service and repair.

10-412-109 DIESEL ENGINE SERVICE TECHNOLOGY-FUNDAMENTALS ...diesel engine service procedures; lubrication, cooling, fuel intake and exhaust systems, bearings, seals and basic diesel engine diagnosis.

10-412-112 DIESEL ELECTRICAL SYSTEMS 1 TECHNOLOGY ...will cover but not be limited to: electronic components, electrical safety, storage batteries, charging and starting systems. Knowledge, skills and understanding required for employment in the diesel field.

10-412-120 DIESEL-CHASSIS/SUSP/STEER TECHNOLOGY ...vehicular steering systems, heavy-duty axles, suspension systems, wheels and tires, coupling systems. (Corequisite: 10-412-100, Diesel-Lab Operations Tech)

10-412-121 DIESEL-BRAKE SYSTEMS TECHNOLOGY ...braking systems, drum brake principles, disc brakes, foundation brake systems, air brakes, anti-lock systems. (Corequisite: 10-412-100, Diesel Lab Operations Tech)

10-412-122 DIESEL PREVENTIVE MAINT TECHNOLOGY ...safety terms, maintenance, inspection, lubricants, clutch, brakes, wheels and rims, steering, suspension, electrical, air system, and hydraulic system. (Corequisite: 10-412-100, Diesel Lab Operations Tech)

10-412-123 DIESEL-ELECT SYSTEMS TECHNOLOGY ...will cover but not be limited to: electronic components, electrical safety, storage batteries, charging and starting systems. Knowledge, skills and understanding required for employment in the diesel field. (Prerequisite: 10-412-112, Diesel Electrical Systems 1 Tech)

10-412-124 DIESEL-ELECTRIC ENG SYSTEM TECHNOLOGY ...engine, drive train, chassis, and cab computer systems software.

10-412-134 DIESEL ENGINE SYSTEMS TECHNOLOGY ...shop safety, fuel system components, governors, nozzles, American Bosch systems, Robert Bosch systems, Lucas systems, Stanadyne systems, Cummins systems, Detroit Diesel systems, Caterpiller systems, and testing methods. (Prerequisite: 10-412-109, Diesel Engine Ser Fund Tech)

10-412-136 DIESEL-MOBILE HYDRAULIC SYSTEM TECHNOLOGY ...mobile hydraulics system components safety, principles of operation, diagnosis, and service.

10-412-137 DIESEL-SCHEMATIC INTERPRET TECHNOLOGY ...electronic/hydraulic schematics, applications of schematics, system similarities, components, review of systems operation, practical applications in diagnosing system problems, use of special test equipment/schematics to solve problems. (Prerequisite: 10-412-123, Diesel Electrical Systems Tech II)

10-412-138 DIESEL-TRACK DRIVE SYSTEMS TECHNOLOGY ...track shop safety, track drive component parts, system operation, inspection, system diagnoses, system repair, system service, and system maintenance. (Corequisite: 10-412-100, Diesel-Lab Operations)

10-412-140 DIESEL ENGINE TROUBLESHOOT TECHNOLOGY ...diesel engine troubleshooting steps, major check points when inspecting or operating a diesel engine, causes of poor engine performance and failure, perform engine diagnostic tests, dyno test an engine. (Prerequisite: 10-412-109, Diesel Engine Ser Fund Tech)

10-412-141 DIESEL-POWER TRAINS TECHNOLOGY ...safety, power train components, coupling systems, hydraulic retarders, mechanical transmissions, drive shafts, final drives, gear reduction boxes, planetary gear sets, chain-type final drive, belt drive systems.

10-412-142 DIESEL EQUIP SERVICE/MAINT TECHNOLOGY ...shop safety; service manuals; preventive maintenance forms; federal inspection policy; preventive maintenance for trucks, trailers, engine brakes/retarders, construction, and agricultural equipment; and electronic trouble shooting trees. (Corequisite: 10-412-100, Diesel Lab Operations Tech)

10-412-145 DIESEL-REFRIG/AC TECHNOLOGY ...safety; basics of air conditioning; refrigerants and oil; basic system and its functions; environmental safety practices; inspection, diagnosing, and using service tools. (Corequisite: 10-412-100, Diesel-Lab Operations Tech)

10-419-169 HYDRAULICS TECHNOLOGY ...will cover the following but not be limited to hydraulics principles, system schematics and symbols, pumps, valves, cylinders, motors, accumulators, filters, reservoirs, hydraulic seals, fluids, maintenance, and safety rules.

10-602-118 DC ELECTRICITY TECHNOLOGY ...ohms, amps, voltage, wire repair, series and parallel circuits, meter use, magnetism, **research paper comparing and contrasting A/C and D/C electrical applications.