

# DIESEL TECH (DT)

## **DT 100 - Introduction to Diesel Technologies** **Units: 2**

This course will provide an overview of diesel technology. An introductory course describing the principles of operation, design, construction and maintenance of Heavy/Medium duty vehicles. Activities include shop safety emphasis, use of service manuals, use of tools and fasteners, general maintenance of cooling systems, lubricating systems; an overview and demonstration of electrical, fuel and ignition systems; an overview and explanation of chassis, steering, suspension and brake systems. Human relations, leadership and work ethics related to the diesel industry will also be covered.

*Transferability: May not transfer towards an NSHE bachelor's degree*

## **DT 101 - Basic Diesel Engines** **Units: 4**

This course introduces the student to basics of diesel fundamentals through the use of lectures, films, visual inspection and demonstrations. The course objective is to build an educational foundation that will support advanced learning in diesel repair, troubleshooting and preventive maintenance. This course satisfies 12 hours of instruction toward completing the embedded math curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A. This course satisfies 15 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

## **DT 102 - Basic Heavy Duty Electrical Systems** **Units: 4**

Foundation course in concepts and theories of Heavy/Medium duty vehicle electrical circuits and components. Emphasis is placed on application of principles to operate electrical meters, scope meters, and other electrical test equipment. Schematic wiring diagrams will be used to interpret circuit operation and formulate diagnostic procedures. This course satisfies 6 hours of instruction toward completing embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A. This course satisfies 20 hours of instruction toward completing the embedded math curriculum requirements, in accordance with Embedded Curriculum Guidelines Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

## **DT 105 - Mobile Heating and Air Conditioning** **Units: 3**

Foundation course in concepts and theories of Heavy/Medium duty vehicle air conditioning and heating systems. Emphasis is placed on application of principles to operate A/C recovery machines, EPA rules and regulations regulating the recovery of refrigerant, testing mobile heating and A/C systems and diagnostics of these systems.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Corequisite/prerequisite: DT 100 and DT 102 (or Auto 111) or instructor permission.*

## **DT 106 - Heavy Duty Transmissions and Power Trains** **Units: 4**

This course introduces and reinforces the theory, operation and service techniques of medium/heavy duty manual transmissions and associated components including clutch and flywheel.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

## **DT 107 - Heavy Duty Automatic Transmissions and Drive Trains** **Units: 4**

This course introduces and reinforces knowledge of heavy duty automatic transmissions and drive trains including study in components, maintenance, diagnostics and repair.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

## **DT 110 - Heavy Duty Electrical Systems** **Units: 3**

This course provides the student with theory, knowledge, information and basic skills for the understanding of electricity and how it pertains to diesel powered equipment. Topics will include starters, charging, electrical controls, power generation and electrical systems. This course satisfies 5 hours toward completing the embedded math curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A. This course satisfies 5 hours toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Corequisite/prerequisite: DT 100 and DT 102 (or Auto 111) or instructor permission.*

## **DT 130 - Heavy Duty Hydraulics** **Units: 3**

Theory of operation and service for heavy duty off-road vehicles and equipment. Topics will include diagnosis and repair of hydraulic pumps, motors, cylinders, and control valves. This course satisfies 10 hours toward completing the embedded math curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A. This course satisfies 5 hours toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

## **DT 198 - Special Topics in Diesel Technology** **Units: 0.5-6**

Various short courses and experimental classes covering a variety of subjects. The course will be variable credit of one-half to six credits depending on the course content and number of hours required. The course may be repeated for up to six credits.

*Transferability: May not transfer towards an NSHE bachelor's degree*

## **DT 201 - Diesel Brakes and Pneumatics** **Units: 3**

This course provides students with introductory level basics on Medium/Heavy Duty Truck Brake systems including study in components, maintenance, diagnostics and repair. This course exceeds the student contact hours required for NATEF/ASE certification and prepares the learner for the ASE Certification Examination in Brake Systems which assures the learner's ability to succeed as an entry-level medium/heavy duty truck technician specialist. This course satisfies 8 hours of instruction toward completing the embedded math curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A. This course satisfies 7 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

**DT 210 - Advanced Diesel Engines**

**Units: 4**

This course provides students with introductory level basics on diesel engines including study in components, maintenance, diagnostics and repair. This course exceeds the student contact hours required for NATEF/ASE certification and prepares the learner for the ASE Certification Examination in Diesel Engines and entry-level employment as an engine technician specialist. This course is repeatable for up to fourteen credits.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Co-requisite/Prerequisite: DT 100, 101 or instructor permission.*

**DT 211 - Light Duty Performance**

**Units: 2**

Course will familiarize the student with specific makes of diesel fuel injection equipment used in a worldwide market. Upon completion of the course, students will be able to troubleshoot and service a variety of diesel powered equipment. This course satisfies 10 hours of instruction toward completing the embedded math curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A. This course satisfies 5 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

**DT 217 - Electronic Diesel Fuel Injection**

**Units: 4**

This course will cover advanced topics in Cummins diesel powered equipment. Specific topics in preventive maintenance, trouble shooting and repair of computer controlled fuel injection systems will be covered.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Co-requisite/Prerequisite: DT 100, 101 and DT 210 or instructor permission.*

**DT 235 - Steering and Suspension**

**Units: 2**

This course provides students with introductory level basics in Medium/Heavy Duty Truck Steering and suspension including study in components, maintenance, diagnosis and repair. This course exceeds the student contact hours required for NATEF/ASE certification and prepares the learner for the ASE Certification Examination in Light/Heavy Duty Truck Steering and Suspension Systems which assures the learner's ability to succeed as an entry-level medium/heavy duty truck technician specialist.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

**DT 250 - Preventive Maintenance**

**Units: 2**

This course provides students with introductory level basics in preventive maintenance including study in components, maintenance, diagnostics and repair. This course satisfies 5 hours of instruction toward completing the embedded math curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A. This course satisfies 7 hours of instruction toward completing the embedded human relations curriculum requirements, in accordance with Embedded Curriculum Guidelines, Option A.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite/corequisite: DT 100 or instructor permission*

**DT 290 - Internship in Diesel Technology**

**Units: 0.5-6**

The purpose of this course is to provide diesel power technology students with the opportunity to supplement course work with practical work experience related to the student's Program Session I classroom and lab experience. The course is an extension to and application of the classroom learning through work experience under immediate supervision of experienced personnel at the industry work site. A qualified faculty member directly supervises the student's internship experience by working closely with the student and the employer through telephone contact, site visitations, student reports and reports from the student's supervisor. Credit is awarded (at a rate of 75 hours of work per credit) for the accomplishment of individualized specific occupational learning objectives written by the employer, student and faculty member; maintenance of time sheets; and final report. Student grades will be assigned as a cooperative effort between the faculty member and the job supervisor. May be repeated for 12 credits.

*Transferability: May not transfer towards an NSHE bachelor's degree*

*Enrollment Requirements: Prerequisite: DT 101, DT 202 and DT 211, with 2.0 average and approval of the instructor.*