

# DIESEL MECHANICS

The Diesel Mechanics program is designed to prepare students for entry-level positions in the medium/heavy-duty vehicle repair industry. The program covers the heavy-duty diesel industry structure, successful career building techniques, shop safety procedures, tools and equipment, electrical systems, air brake systems, diesel engines, fuel systems, air conditioning (HVAC), drivetrains, suspension, hydraulics, and basic maintenance, service, and repair procedures. Students prepare to take the "T" series ASE certification test related to Medium/Heavy Duty Truck Technician.

Students may earn Certificates of Achievement in Diesel Engine Repair and/or Medium and Heavy Duty Vehicle Repair. An Associate in Science degree in Diesel Mechanics Degree is also available; a full-time student can complete the degree in two years (four semesters). Opportunities for diesel truck and trailer repair technicians in Ventura County are typically available at medium/heavy duty vehicle dealerships, truck stops, independent repair facilities, medium/heavy duty equipment sales and repair companies, corporate fleet maintenance and repair facilities, agricultural equipment, bus and transportation companies, government equipment maintenance garages and other fleet operations. These private and public businesses and organizations need technicians to service, maintain, diagnose and repair medium and heavy-duty vehicles and associated equipment. Since many of the medium and heavy-duty vehicles are regulated and monitored for safety and load, technicians working on these vehicles must be competent and well trained. The Diesel Mechanics program is designed to meet the needs of industry.

## DM V10 Diesel Preventive Maintenance 2 Units

*Corequisites:* DM V10L

This course will provide vocational preparation in the theory of the preventive maintenance service procedures for medium and heavy-duty vehicles. The course will also include shop safety, personal safety practices, tools, shop equipment, lubricants, fasteners, and work place practices. Preparation for the ASE T-8 certification examination will be included and certification will be encouraged.

**Grade Modes:** Letter Graded, Credit by exam, license etc.

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## DM V10L Diesel Maintenance Lab 1.5 Units

*Corequisites:* DM V10

This course will provide vocational preparation in the preventive maintenance service procedures for medium and heavy-duty vehicles. Course will also include shop safety, personal safety practices, tools, shop equipment, lubricants, fasteners and work place practices. Preparation for the ASE T-8 certification examination will be included and certification will be encouraged.

**Grade Modes:** Letter Graded

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## DM V11 Introduction to Heavy-Duty Diesel Repair 4 Units

*In-Class Hours:* 35 lecture, 105 laboratory

This is an overview course to familiarize the student with the history, nomenclature, operation, basic shop skills, and construction of modern heavy-duty diesel vehicles. The course will include shop safety, personal safety practices, tools, shop equipment, lubricants, fasteners, and workplace practices. An appreciation of the skills and abilities necessary to maintain heavy-duty diesel vehicles will be discussed.

**Grade Modes:** Letter Graded

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## DM V12 Diesel Electrical/Electronic Systems 4 Units

*In-Class Hours:* 35 lecture, 105 laboratory

This course covers technical, operational, and diagnostic skills needed to understand and repair Diesel electrical/electronic systems. The hands-on portion of the course will use electrical trainer devices and lab vehicles as integral parts of the instruction. It will include charging, starting, and accessories systems. Wiring diagrams and the skills necessary to diagnose electrical/electronic problems will be covered. Preparation for the ASE T-6 (truck electrical/electronics) certification test will be included.

*Advisories/Rec Prep:* DM V11

**Grade Modes:** Letter Graded

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## DM V13 Advanced Diesel Electrical and Electronics 4 Units

*In-Class Hours:* 35 lecture, 105 laboratory

*Prerequisites:* DM V12

This course covers the technical, operational, and diagnostic skills needed to understand and repair diesel electrical/electronic systems. It includes electrical and electronic components, instrumentation, electronic control systems, onboard network and diagnostic systems, and automated and autonomous machine operation. Wiring diagrams and the skills necessary to diagnose electrical/electronic problems will also be covered.

**Grade Modes:** Letter Graded

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## DM V26 Diesel Engines 4 Units

*In-Class Hours:* 35 lecture, 105 laboratory

This course will provide practical training in the operation, inspection, diagnosis, and repair of diesel engines used in medium- and heavy-duty vehicles. Additionally, the use of tools, lubricants, fasteners, and shop equipment will be covered in the course. Preparation for the Automotive Service Excellence Diesel Engines (ASE T2) certification examination will be included.

*Advisories/Rec Prep:* DM V11 and DM V12

**Grade Modes:** Letter Graded

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**DM V28 Diesel Fuel Management Systems 4 Units***In-Class Hours:* 35 lecture, 105 laboratory

This course will provide vocational preparation in the inspection, diagnosis, and repair of diesel fuel management systems used in medium- and heavy-duty vehicles. Systems that will be primarily used in the laboratory are Electronic Unit Injection (EUI), Hydraulic Electronic Unit Injection (HEUI), and High-Pressure Common Fuel Rail (HPCR). Preparation for the ASE T-2 certification examination will be included, and certification will be encouraged.

*Advisories/Rec Prep:* DM V11 and DM V12 and DM V26**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**DM V30 Truck and Trailer Brake Systems 4 Units***In-Class Hours:* 35 lecture, 105 laboratory

This course will provide vocational preparation in the operation, inspection, diagnosis, and repair theory for brake systems used on medium and heavy-duty vehicles. The theory, service, and repair of mechanical, hydraulic, and pneumatic brake systems will be covered in the course. Preparation for the ASE T-4 certification examination will be included and certification will be encouraged.

*Advisories/Rec Prep:* DM V11, DM V12**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**DM V34 Truck Suspension and Steering Systems 4 Units***In-Class Hours:* 35 lecture, 105 laboratory*Prerequisites:* DM V30

This course will cover the operation, inspection, diagnosis, and repair for suspensions and steering systems used on medium and heavy-duty vehicles. The theory, service, and repair of rims, tires, frames, axles, and alignment will also be covered in the course. Preparation for the ASE T-5 Suspensions certification examination will be included and certification will be encouraged.

*Advisories/Rec Prep:* DM V11 and DM V12**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**DM V40 Heating, Ventilation, and Air Conditioning (HVAC) and Preventive Maintenance 4 Units***In-Class Hours:* 35 lecture, 105 laboratory

This course will provide vocational preparation in the theory of the operation, inspection, diagnosis, and repair of heating, ventilation, and air conditioning systems used in medium and heavy-duty vehicles. This course will also provide vocational preparation in the preventive maintenance service procedures for medium and heavy-duty vehicles. Preparation for the ASE T-7 and T-8 certification examinations will be included and certifications will be encouraged.

*Advisories/Rec Prep:* DM V11 and DM V12**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**DM V42 Hydraulic Systems 4 Units***In-Class Hours:* 35 lecture, 105 laboratory

This course will cover the theory, application, component parts, diagnosis, service, and repair procedures of Hydraulic Systems used on medium and heavy-duty vehicles. Hydraulic Systems inspection, service, and maintenance procedures will be discussed.

*Advisories/Rec Prep:* DM V11 and DM V12**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**DM V42L Hydraulic Systems Laboratory 1 Unit***Corequisites:* DM V42

This course will cover the Hydraulic systems inspection, diagnosis, service, and repair procedures for medium and heavy-duty vehicles.

*Advisories/Rec Prep:* DM V10 and DM V10L and DM V12 and DM V12L and DM V26 and DM V26L and DM V28 and DM V28L and DM V30 and DM V30L and DM V34 and DM V34L**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**DM V44 Drivetrain - Medium- and Heavy-Duty Vehicles 4 Units***In-Class Hours:* 35 lecture, 105 laboratory

This course will provide vocational preparation in the theory of the operation, inspection, diagnosis, and repair of drivetrains used in medium and heavy-duty vehicles. The course will include clutches, manual transmissions, automated transmissions, driveshafts, differentials, and axles. Preparation for the ASE T-3 certification examination will be included and certification will be encouraged.

*Advisories/Rec Prep:* DM V11 and DM V12**Grade Modes:** Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None

**DM V96 Diesel Internship 1-4 Units**

*In-Class Hours:* 75-300 paid cooperative

*Prerequisites:* Successful completion of a minimum of 9.5 units of DM courses in a specific Diesel Program

This course offers students who are employed in the field an opportunity to expand their work experience related to their field of study. Students are accepted as a result of consultation with a designated faculty member in the discipline and the acceptance of an approved work proposal. This is a paid occupational work experience course, where 1 unit of credit is earned for every 75 hours of paid internship. A maximum of 4 units can be completed in a semester, and no more than 16 units can be earned in total.

*Advisories/Rec Prep:* A minimum of 9.5 units from the following courses:

DM V10 and DM V10L, DM V12 and DM V12L, DM V26 and DM V26L, DM V28 and DM V28L, DM V30 and DM V30L, DM V34 and DM V34L, DM V40 and DM V40L, DM V42 and DM V42L, DM V44 and DM V44L

*Enrollment Limitations:* Instructor approval is required and the student must have been hired for a specific intern period within the field of study prior to enrollment into the course.

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Course may be repeated up to a maximum of 16 units of credit.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

- Diesel Mechanics, Associate in Science (<http://catalog.vcccd.edu/ventura/programs-courses/diesel-mechanics/diesel-mechanics-as/>)
- Diesel Engine Repair, Certificate of Achievement (<http://catalog.vcccd.edu/ventura/programs-courses/diesel-mechanics/diesel-engine-repair-coa/>)
- Medium and Heavy Duty Vehicle Repair, Certificate of Achievement (<http://catalog.vcccd.edu/ventura/programs-courses/diesel-mechanics/medium-heavy-duty-vehicle-repair-coa/>)