

# Automotive and Light Duty Diesel Technology Program

**1st Year:**      **Automotive Foundation and Safety**  
                      **Engine Repair and Theory**  
                      **Automotive Electricity and Electronics I**  
                      **Manual Driveline and Axles**

The first part of the year is spent with basic personal and shop safety, as well as tools, fasteners and precision measuring equipment. This is followed by the basic operation of the various automotive systems with emphasis placed on engine, lubrication and cooling systems. The second part of the year starts with basic electrical theory and working with battery, starting and charging system diagnosis and repair. Next students are introduced to manual drive lines and the concept of power transmission. All classes are designed to prepare students for careers in the Automotive Industry and include theory, as well as practical hands-on experience in our lab.

**Skill areas include:**

- Safety
- Tools & Shop Equipment
- Vehicle Maintenance
- Engine Theory, Construction & Basic Diagnostics
- Precision Measurement & Fasteners
- Electronics & Electricity -Level I
- Preventative Maintenance Service
- Manual Driveline
- Vocabulary – Industry related

**2nd Year:**      **Automotive Electricity and Electronics II**  
                      **Engine Performance**  
                      **Automatic Transmissions/Transaxles**

The year begins with a review of electricity and electronics I, followed by all the other systems which will include lighting, comfort, security, warning devices, etc. The second part of the year is spent learning the basics of computer controls and the use of scan tools to diagnose and repair drivability problems, with an emphasis on fuel and ignition systems. The students will be introduced to the various emissions systems and the equipment necessary to diagnose and repair them. The students also will be given an overview of diesel engine operation and fuel management as well as turbo and supercharger systems. The students will also be introduced to the concepts of automatic transmissions systems and their maintenance, diagnosis and repair. All classes are designed to prepare students for careers in the Automotive Industry and include theory, as well as practical hands-on experience in our lab. An emphasis is placed on the math, science and reading skills necessary for success in the transportation industry.

**Skill areas include:**

- Electronics & Electricity -Level II
- Engine Performance: Computer Controls & Diagnosis, Emissions Systems
- Vocabulary – Industry related
- Basic Light Duty Diesel Engine Management, and Turbo Systems
- Automatic Transmissions/Transaxle and Hybrid and EV Driveline

# **Automotive and Light Duty Diesel Technology Program**

## **3rd Year:      Automotive Steering, Suspension and Alignment Automotive Brake Systems Automotive Heating and Air Conditioning Systems**

The first part of the year is spent identifying, diagnosing and repairing various types of suspension and steering systems. Vehicle alignments complete the repair process. Next students learn mounting and dismounting of tires, and balancing the assembly. The second part of the year is dedicated to brake systems, their operation, diagnosis and repair procedures, including drum, disc, ABS, TCS, ESC and related subsystems. The final unit is heating and air conditioning systems diagnose, repair, and the environmental rules necessary to be compliant. All classes are designed to prepare students for careers in the Automotive Industry and include theory, as well as practical hands-on experience in our lab. An emphasis is placed on the math, science and reading skills necessary for success in the transportation industry.

### **Skill areas include:**

- Steering & Suspension Systems
- Wheel Alignments
- Tire Mounting and Balancing
- Brake systems, Hydraulics, ABS, TCS, ESC
- Air Conditioning & Heating Systems
- Vocabulary – Industry related

## **4th Year:      Advanced and Independent Study**

The returning fourth year students will be challenged with projects and material geared to increase both their proficiency and depth of understanding of previous areas of study. In addition they will have the opportunity to explore material not cover with the general population during the first three years of study.

Students may work on a curriculum appropriate personal projects with instructor approval.

Eligible students may participate in the Work Study Program, also known as, Cooperative Education (CE). The CE Program offers placement for students at local businesses and industries in the surrounding area. Students participating in the Cooperative Education program will receive academic instruction during the morning at SCVTHS, then spend the remainder of the day working at a paid experience in a supervised jobsite environment.