



Transportation Technology V: Applied Mechanics - Auto Technician Preparation

Full Year

Fairfield Ludlowe High School - Fairfield Warde High School

COURSE DESCRIPTION

This advanced level course offers Seniors an opportunity for leadership experience. Students build their automobile technician skills while working on actual vehicles in preparation for post-secondary educational/ training environments. Students will focus on completely overhauling, repairing, servicing and troubleshooting major automotive systems in a small-team environment. Emphasis is placed on researching system functions and issues, and problem-solving through a methodical practical hands-on process.

COURSE OBJECTIVES

Students will be able to:

- use computer based service information in solving part replacements and repairs.
- explain basic processes and procedures for maintaining a clean, safe and customer-friendly shop.
- interpret repair and work orders, differentiating between parts and labor cost.
- differentiate between flat rate and hourly labor.
- explain what is included in an automobile maintenance schedule
- perform and document maintenance procedures in accordance with the recommendations of the manufacturer.
- follow procedures and practices of various manufacturers regarding repair and maintenance schedules.
- document maintenance procedures in accordance with applicable rules, laws, and regulations.
- use reference books, technical service bulletins, and other documents and materials related to the automotive service industry available in print and through electronic retrieval systems to accurately diagnose and repair vehicles.
- evaluate the advantages and disadvantages of existing, new, and emerging systems and the effects of those systems on the environment.
- complete a work order, including customer information, description of repair.
- analyze leadership in relation to trust, positive attitude, integrity, and willingness to accept key responsibilities in a work situation.
- describe qualities of leadership in a small team setting such as innovation, intuition, adaptation and coachability.
- consider issues related to self, team, community, diversity, environment, and global awareness when leading others.
- identify personal qualities such as self-discipline, self-worth, positive attitude, and integrity that demonstrate positive work behaviors needed to be employable. diagnose and repair specific engines, as necessary.
- perform engine tests to isolate problems as necessary.
- remove, repair and replace an engine, if necessary.
- perform specific engine disassembly and reassembly procedures. diagnose common transaxle and drive axle problems.

-
- diagnose common differential problems.
 - remove and replace Front CV drive axles, as necessary.
 - check, change and repair gaskets on transaxles and differentials, as necessary
 - diagnose problems with light, instrumentation and accessories.
 - read wiring diagrams to install and repair electrical components.
 - troubleshoot and perform electrical repairs on vehicles with problems, as necessary.
 - use solder and solderless connectors to perform wire splicing repairs, as necessary.
 - use a voltmeter to diagnose vehicle electrical problems. perform and document maintenance procedures in accordance with the recommendations of the manufacturer. The components and functions of various systems that are related to engine performance.
 - follow the procedures and practices of various manufacturers regarding repair and maintenance schedules.
 - demonstrate how to properly document maintenance procedures in accordance with applicable rules, laws, and regulations
 - use reference books, technical service bulletins, and other documents and materials related to the automotive service industry available in print and through electronic retrieval systems to accurately diagnose and repair vehicles.
 - evaluate the advantages and disadvantages of existing, new, and emerging systems and the effects of those systems on the environment.
 - diagnosis and repair engines, including but not limited to two- and four-stroke and supporting subsystems
 - perform general engine maintenance, diagnosis, service, and repair in accordance with portable national industry standards. maintain, diagnose, service, and repair lubrication and cooling systems.
 - maintain, diagnose, and repair computerized engine control systems and other engine related systems.
 - demonstrate the function, principles, and operation of electrical and electronic systems using manufacturer and industry standards.
 - maintain, diagnose, and repair electrical systems.
 - Ohm's Law in the diagnosis and repair of electrical systems

UNITS OF STUDY

Unit 1- ASE Certification Research/Safety Review & Service Information and Work Orders

Unit 2 - Interpersonal Skills-Team Leadership

Unit 3 - Engine Diagnostics, Service and Repair and Removal/Installation

Unit 4 - Front Drive Axle and Differential Diagnosis and Repair

Unit 5 - Electrical System and Accessories Diagnosis and Repair

Unit 6- Major Systems Project-Auto Capstone Experience

COURSE POLICIES AND REQUIREMENTS

GRADING: Generally...See district policy ([Policy 6146.1AR](#))

Grading Communication

- Specific grading expectations and practices will be communicated to all students and families at the start of the school year via a consistent format.
- If students or parents have questions about grading practices, they should follow the district's established chain of command structure (see district website) with the first contact being to the teacher and then to the school administration.
- Buildings will send out reminders of the importance of checking students' grades in the Grading Portal with directions.
- Teachers will notify guardians when students fall into the F range after October 1st.

Grade Reporting

- For a processed piece or "chunked" assignment that is part of a larger task, feedback and the grade shall be shared before the next step in the process, so long as students have submitted their work at those checkpoints, on time.
- Grades for summative assessments shall be entered within 10 school days from the date of submission or the date it was due, whichever is later.
- Grades for formative assessments shall be entered within 5 school days from the date of submission or the date it was due, whichever is later, and prior to any subsequent assessment.

Guidelines for Late Work :

- Teachers will accept late work for both summative and formative tasks beyond the due date.
- Teachers will not accept late work beyond the deadline for late work. The deadline is defined as the next class period from the due date of the assignment or the alternative date that the teacher and student may agree upon depending on individual circumstances.
- Teachers may reduce the total points students can achieve as a penalty for late work up to the deadline. Students will earn a zero (0) if the assignment is not submitted or is submitted after the deadline.
- Late work only consists of assignments with an expected due date. Assessments, such as tests, quizzes and in class assignments, must be taken on the scheduled date except in cases of make-up assessments due to an excused absence.

REASSESSMENT GUIDELINES:

Eligibility of assessments	Teachers of the same course will determine which summative assessments are eligible. Students can select any part of a project to reassess. Reassessments may not be allowed one week before the end of a term.
Process	Students have two class periods in which to indicate they would like to take a reassessment. Teachers will make clear to students their preferred method for students to request reassessment (<i>e.g.</i> email or filling out a simple form/spreadsheet).
Frequency	Students will have the opportunity to reassess on two summatives per year but not more than one per term (quarter).
Assessment Format	Based on discussion between the student and teacher, students will revise portions of the original assessment in which they did not show proficiency.
Gradebook impact	Original and reassessment scores will be averaged in the gradebook.

MATERIALS:

- As provided by the course.

EXPECTATIONS OF STUDENTS:

- Be Tech and Learning Ready: Come prepared with all necessary materials, including your charged device and any required software.
- Prioritize Safety: Follow all safety guidelines and procedures, especially when working with tools, equipment, or hazardous materials.
- Participate Actively: Engage in class discussions, ask questions, and contribute to group projects. Actively participate in lab activities by following instructions, working collaboratively, and cleaning up your workspace.
- Respect the Digital Realm: Treat all digital resources and equipment with care. Avoid actions that could harm or disrupt the learning environment.
- Embrace Digital Citizenship: Use technology ethically and responsibly. Be mindful of copyright laws and online etiquette.

EXTRA HELP:

- Students should seek out extra help when needed. The teacher is available for extra help before and after school as well as during prep periods.