



Transportation Technology III

Full Year

Fairfield Ludlowe High School - Fairfield Warde High School

COURSE DESCRIPTION

Students will continue the study of Auto Maintenance and Servicing, with a deeper exploration of basic auto maintenance and servicing practices. Students will build on their previous knowledge of basic automobile maintenance and servicing through exploration of more complex systems of the Automobile. Hands-on experience in the Automotive Lab as well as theory of operation will be employed. Additional elements of the course will include the investigation of other forms of transportation and transportation systems.

COURSE OBJECTIVES

Students will be able to:

- demonstrate proper tool use.
- demonstrate proper safety skills.
- use common automotive repair tools properly.
- demonstrate how to use several of the common measuring tools used in auto diagnoses and repair with proper techniques.
- describe different engine design classifications.
- identify the major parts of a typical automotive engine.
- describe the four stroke cycle.
- identify different types of engine design. discuss the purpose and operation of on-board diagnostic systems
- explain the use of scan tools to simplify reading of trouble codes.
- locate the data link connector on most makes and models of cars.
- activate on-board diagnostics and read trouble codes with a scan tool.
- erase diagnostic trouble codes.
- scan for problems in the engine and its support systems.
- use a scan tool to monitor the operation of electrical and electronic components.
- diagnose and repair a vehicle's brake system.
- explain how to service disc and drum brake systems.
- describe procedures for bleeding a brake system
- identify the major parts of an automotive brake system.
- identify the major parts of a typical anti-lock brake system.
- describe the operation of anti-lock brake systems. .
- inspect and maintain a brake system.
- compare disc and drum brakes.
- describe the purpose and operation of traction control and stability control systems.
- identify basic electricity and electronic terms and components.

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- build a simple electronic circuit board.
 - compare voltage, current and resistance.
 - explain the principles of electricity.
 - describe the action of basic electric circuits and devices.
 - describe the principles of magnetism and magnetic fields.
 - apply electrical troubleshooting methods to determine circuit problems
 - identify and describe the function of an automotive ignition system's components
 - use a scan tool to detect abnormal operating conditions.
 - maintain, diagnose, and repair electrical systems
 - measure electrical voltage, resistance and amperage in auto components and systems compare voltage, current and resistance in charging and starting system components
 - diagnose common problems in charging and starting system components
 - replace system components on a vehicle.
 - apply electrical and mechanical troubleshooting methods to determine problems
 - identify the differences between carburetion and fuel injection.
 - describe how a fuel system functions
 - evaluate the condition and operation of a fuel system
 - describe how an emission system functions
 - evaluate the condition and operation of an emission system
 - use a computer scanner to read Diagnostic Trouble Codes explain caster, camber, and toe-in wheel alignment angles. identify factors that cause abnormal tire wear.
 - evaluate the condition of suspension and steering components
 - perform repairs of worn components
 - describe the differences between hybrid and EV systems
 - describe how different systems apply torque to the vehicle's drive train.
 - describe how series-parallel hybrid systems can recharge the HV battery
 - evaluate the advantages various hybrid and EV systems

UNITS OF STUDY

Unit 1 - Safety in the Automobile Repair Facility (2 weeks)

Unit 2 - Engine Fundamentals and Design (2-3 weeks)

Unit 3 - On Board Diagnostics and Troubleshooting (3-4 weeks)

Unit 4 - Brake Servicing, Anti-Lock Brakes, Traction and Stability Control (6-7 weeks)

Unit 5 - Basic Electricity/Electronics (5-6 weeks)

Unit 6 - Ignition Systems & Computer Systems (4-5 weeks)

Unit 7 - Charging Systems & Starting Systems (2-3 weeks)

Unit 8 - Fuel and Emissions Systems (3-4 weeks)

Unit 9 - Fuel Systems (3-4 weeks)

Unit 10 -Steering and Suspension Systems (4-5 week)

Unit 11- Hybrid and EV Systems Exploration (4-5 weeks)

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.