

OHHS Career and Technology Education

AUTOMOTIVE ELECTRICAL & HVAC SYLLABUS



Course Name: Automotive Electrical and Heating/Ventilation/Air Conditioning, CTO173

Prerequisite: Basic Automotive Maintenance

Length: One Trimester, 0.5 credits.

COURSE DESCRIPTION:

In this course, students will learn diagnosing and servicing the battery, diagnosing and repairing the starting system, the charging system, lighting systems, accessory and safety systems. Students will also learn heating and air conditioning operation, diagnosing and repairing heating and engine cooling systems, air conditioning systems, recovery and recharging AC systems, repairing components, and control systems. Automotive Service Excellence (ASE) test prep: A6-Electrical/Electronic Systems; and A7-Heating and Air Conditioning.

COURSE RESOURCES:

- “Automotive Excellence” Volume 1 & 2 and “Mitchell’s On Demand.”

COURSE FEES: None

INSTRUCTIONAL UNITS:

- Explain the fundamentals of electricity, circuits, and their units of measure.
- Apply electrical laws to circuits to troubleshoot and correct electrical problems.
- Explain how networks and serial communication are used in modern vehicles.
- Explain battery composition, construction, and functions within a vehicle.
- Discuss the components and operation of a vehicle’s electrical systems and how to test and repair them.
- Describe how an automotive heating, ventilation, and air-conditioning system works.
- Explain the air-conditioning refrigeration cycle and describe the operation of the expansion valve and orifice tube.
- Learn how to service, diagnose, and repair heating, ventilation, and air-conditioning problems.

MAJOR ASSESSMENTS:

- Safety Test
- Lab Projects

WEIGHTED CATEGORIES:

- 50% Projects (Tests and Projects)
- 25% Daily work/Homework
- 25% Professionalism

BASIC AUTOMOTIVE MAINTENANCE—2

Tests and Projects:

- When in the shop, students are graded upon effort, and cleanliness of shop.
- Assignments and information
 - You must pass all safety test with a 80% within 2 weeks. Your first grade on the safety test will be your grade for the trimester. If you cannot pass the test, you will be confined to book work for the remainder of the grading period.
 - Assignments are student led and assessments will be graded individually.
 - Students will have access to the “Mitchell’s On Demand” website, and are expected to access the site to assist with troubleshooting and repairs.
 - Students will have access to the website at any time from any internet connected computer.
- Students are graded on team and individual projects.
 - Team projects are graded upon vehicle functionality and accuracy of repair.
 - Individual projects are graded upon planning, time management, and functionality of final product.

Daily/Homework:

- This will include in class activities, and group lab projects.

Rules, Policies, and Expectations:

- Respect is key; you respect me and my possessions, and I will do the same to you.
- Cell phones
 - CELL PHONES ARE NOT ALLOWED IN THE SHOP
 - When seen, student will be asked to put away in the classroom
 - If seen more than once, student will be asked to surrender phone
 - If student refuses to cooperate, appropriate administrative action will be taken.
- Tardies
 - First tardy is a warning, second will result in detention
 - Multiple tardies will result in appropriate administrative action
- Students are expected to dress in appropriate professional school attire
 - Must wear protective clothing to abide by safety practices
- Bathrooms; each student will be allowed 5 trips to the bathroom per semester.
- Students are given participation points when in lab.
 - Students are expected to work the entire period, and are expected to help clean up at the end to earn full participation points per day.
- Swearing will not be tolerated; this is a professional atmosphere. If a student is heard swearing, appropriate consequences will be taken.
- Disobedience, laziness, and disregard for safety will not be tolerated. Students will be given one warning. If the undesirable action continues, student will be removed from the classroom and have a talk with the teacher. Depending on severity of infraction, other appropriate disciplinary actions may be taken.
- NO STUDENT WILL BE ALLOWED TO LEAVE THE CLASSROOM OR SHOP UNTIL SAID AREA IS CLEAN TO MY EXPECTATIONS.

Professionalism:

- You will earn 10 points a day for coming to class and working in a professional and productive manner. You will earn
 - Be Here – need to be in the Work Preparation class
 - Be On time – School Policies followed. Student need to be in the classroom when the last bell stops ringing. See General Rules and Expectations for other discipline due to tardiness)
 - Be Prepared– book, assignment, calculator, pen and/or pencil, computer & program(s) username(s) and password(s)

BASIC AUTOMOTIVE MAINTENANCE—3

- Be On Task - working during period, conversations are on topic, phone is put away
- Be Respectful – listen during instruction, use positive comments when speaking with peers, avoid slang when “joking”, speak in low tones with neighbors or teacher only when working, keep desk and computers free of drawing and/or gum, keep questions and comments appropriate during classroom discussion.

GRADING SCALE: Points will be given and a grade based on your percentage of points on units and daily work and tests.

93% +	A	83-86.9%	B	73-76.9%	C	60-66.9%	D
90-92.9%	A-	80-82.9%	B-	70-72.9%	C-	59.9% and Below	F
87-89.9%	B+	77-79.9%	C+	67-69.9%	D+		

LATE WORK POLICY:

- All daily work is due two days after it is assigned, however, it can be turned in late for full credit until the unit test is given. After that, no credit will be given.
- Projects not turned in on time will be accepted for partial credit (75% of grade earned) up to 2 days after the original due date. (Exceptions will be made for Excused Absences)

RE-DO POLICY:

OHHS is an effort based school where we believe all students can learn. We also know that students learn at different rates. Thus, we are implementing a re-do policy that recognizes the needs of individual learners.

- 100% Re-do
 - Assessments (with exception of the Final semester exam)
 - Key Assignments: Evidence that demonstrates mastery of a standard
- Teachers may:
 - Require completion of supporting assignments prior to re-do opportunities for students to show they can meet the standard.
 - ***All assignments must be completed and corrected by the student prior to retaking an exam.***
 - Require students to complete re-do of work outside of class time.
 - ***All re-do work/test retakes will be done during Tutoring/Extra Help times listed below.***
 - Limit the number of re-do opportunities for each assignment.
 - ***Students will have 1 re-do/retake opportunity for each test/project.***
 - Assign zero grades when students choose not to do key assignments and/or assessments to standard.
 - All opportunities for re-do work will come with a deadline as assigned by the teacher.
 - ***Students will have 1 week from when the original Project/Test was scored and returned to the class to complete re-do work or to retake a test.***

PLAGIARISM POLICY (WAYS TO EARN A 0 ON ANY ASSIGNMENT):

OHHS PLAGIARISM POLICY:

- Any student, who knowingly turns in any work that has been done by someone other than himself or herself, and fraudulently represents it as his/her own, shall be considered to have cheated. Cheating also includes: aiding someone else in cheating, the use or preparation of written, pictorial, or other materials not authorized by the instructor during a test or assignment, the use of testing materials obtained previous to the test date, or plagiarism of any kind. Students found cheating will also be subject to an office referral, which could result in a suspension. As an effort based school, students who have plagiarized/cheated must still demonstrate their learning. Thus, students will be given the opportunity to

BASIC AUTOMOTIVE MAINTENANCE—4

complete the work. This will fall under the “Late Work Policy” of the teacher where total possible points may be reduced.

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