

ARIZONA WESTERN COLLEGE  
SYLLABUS

EVT 220 Electric Vehicle Service and Safety

Credit Hours: \_2\_ Lec \_1.5\_ Lab \_1\_

PREREQUISITE: None

COURSE DESCRIPTION

Preparation for safe, high-frequency service and repair of battery-electric and hybrid vehicles, emphasizing electrical safety, routine maintenance, diagnostics, and industry standards aligned with ASE Electrified Propulsion Vehicle (xEV) High-Voltage Electrical Safety Standards.

1. COURSE GOAL

Equip students with the knowledge and hands-on skills necessary to perform common EV services and apply high-voltage safety procedures required for ASE xEV Level Two certification.

2. OUTCOMES

Upon satisfactory completion of this course, students will be able to:

- 2.1 Service 12-V accessory batteries, execute parasitic-draw tests, and verify BMS readiness.
- 2.2 Drain, test, and refill high-voltage coolant circuits, verify isolation sensors, and torque fittings per OEM spec.
- 2.3 Demonstrate knowledge of reduction-gear oil, inspect magnetic drain plugs, and document wear debris.
- 2.4 Inspect and service charging-port mechanisms, clean CCS/NACS pins, and test latch force.
- 2.5 Apply lock-out/tag-out, choose appropriate PPE, and perform absence-of-voltage tests in accordance with ASE Section B general requirements.
- 2.6 Execute OTA software-update procedures and document firmware levels.
- 2.7 Diagnose and replace on-board chargers or DC-DC converters using isolation testers and OEM service information.
- 2.8 Safely identify, understand, and mitigate high-voltage electrical hazards associated with electrified propulsion vehicles (xEVs), thereby establishing and maintaining an electrically safe working environment.
- 2.9 Demonstrate readiness for the ASE xEV certification exam by passing a mock Level Two practical evaluation.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Hands-on Lab

4. LEARNING ACTIVITIES

- 4.1 Service-bay demonstrations
- 4.2 Hands-on lab rotations
- 4.3 Fault-tree case studies
- 4.4 Mock ASE practice exam

5. EVALUATION

- 5.1 Quizzes/Exams
- 5.2 Lab Performance Assessment
- 5.3 Participation

6. STUDENT RESPONSIBILITIES

- 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
- 6.2 Classroom Assignments: Students are responsible for work missed and for completing all work before the next class meeting. Students are responsible for participating in all oral drills and for taking all exams.
- 6.3 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
- 6.4 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
- 6.5 Academic Integrity: Any student participating in acts of academic dishonesty including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
- 6.6 Textbooks and materials: Students are required to bring notebook or looseleaf book, pens, pencils, dictionaries, and purchase textbook required for class.
- 6.7 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for "No Show" reporting during the first 10 days of each semester.  
Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid.  
For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):
  - Submitting an academic assignment
  - Taking an exam, an interactive tutorial or computer-assisted instruction
  - Attending a study group that is assigned by the school
  - Participating in an online discussion about academic matters
  - Initiating contact with a faculty member to ask a question about the academic subject studied in the course