

ARIZONA WESTERN COLLEGE  
SYLLABUS

## AUT 220 AUTOMOTIVE HYBRID FUNDAMENTALS

Credit Hours: 2 Lecture 1.5 Lab .5

PREREQUISITES: AUT 200

COURSE DESCRIPTION

An introduction to automotive hybrid, electric, and fuel cell systems; the benefits of these alternative technologies are explored and the proper safety practices suggested by vehicle manufacturers are identified.

1. COURSE GOAL

This course is designed to provide a foundation for the continuing automotive student in understanding Hybrid, Electric and Fuel-cell vehicles using advanced technological simulation, and live vehicles. Student will also become familiar with the proper safety pre-cautions and maintenance procedures associated with these vehicles.

2. OUTCOMES

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

- 2.1 identify the differences between hybrid, electric and fuel cell vehicles.
- 2.2 explain electrical circuit principles.
- 2.3 describe motor and generator basics.
- 2.4 explain the basics of battery-operated electric vehicles.
- 2.5 explain the basics of hybrid electrical vehicles (HEV).
- 2.6 perform hybrid maintenance and service procedures.
- 2.7 identify fuel cell and other alternative fuel vehicles.
- 2.8 demonstrate proper safety precautions.
- 2.9 fulfill tasks required by National Automotive Technicians Education Foundation (NATEF).

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Demonstrations
- 3.3 Presentations
- 3.4 Class discussion

4. LEARNING ACTIVITIES

- 4.1 Textbook
- 4.2 Presentations
- 4.3 Demonstrations
- 4.4 Laboratory

5. EVALUATION

- 5.1 Lab activities
- 5.2 Exams

6. STUDENT RESPONSIBILITIES

- 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
- 6.2 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 45<sup>th</sup> day of the course will be withdrawn by the instructor.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

- 6.3 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.

- 6.4 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 the AWC's Student Code of Conduct.

- 6.5 Texts and Notebooks – Students are required to obtain the class materials for the course.

- 6.6 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