

ARIZONA WESTERN COLLEGE
SYLLABUS

ECT 110 AC/DC CIRCUITS

Credit Hours: 4 Lec 3 Lab 2

PREREQUISITE: ECT 105

COURSE DESCRIPTION

Introduction to direct current (DC) and alternating current (AC) theory, Ohm's Law, and series, parallel, and combination circuits.

1. COURSE GOAL

Gain knowledge of advanced practical and theoretical training in basic electrical circuits.

2. OUTCOMES

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

- 2.1 discuss common electrical quantities and perform Ohm's Law calculations.
- 2.2 demonstrate circuit analysis calculations of voltage, current, resistance, and power in series, parallel, and combination circuits.
- 2.3 determine a resistor's value by its color code.
- 2.4 demonstrate proper usage of a digital multimeter (DMM) in the measuring of voltage, current, and resistance.
- 2.5 demonstrate proper measurement of voltage and period with an oscilloscope and convert a period measurement to a frequency.
- 2.6 define an inductor, inductance, inductive reactance, a capacitor, capacitance, and capacitive reactance.
- 2.7 identify resistive (R), inductive (L), and capacitive (C) circuits and perform circuit analysis calculations.
- 2.8 perform calculations to correct the power factor of single-phase and three-phase circuits.
- 2.9 determine the type and size of a conductor for a given load and identify the correct conductor color code for a given voltage.
- 2.10 demonstrate selecting and sizing a raceway.
- 2.11 identify types of single-phase and three-phase transformers; perform voltage and current calculations.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Lab activities
- 3.3 Presentations
- 3.4 Demonstration

4. LEARNING ACTIVITIES

- 4.1 Assignments
- 4.2 Lab participation

5. EVALUATION

- 5.1 Exams and quizzes
- 5.2 Written assignments
- 5.3 Lab assignments
- 5.4 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 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 Students who are not attending as of the 45th day of the course may be withdrawn by the instructor.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.
- 6.3 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 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