

ARIZONA WESTERN COLLEGE
SYLLABUS

ECT 213 COMMERCIAL ELECTRICAL APPLICATIONS LEVEL 1

Credit Hours: 3 Lec 2 Lab 3

PREREQUISITE: None

COURSE DESCRIPTION

Introduction of overcurrent protection and their applications, transformers and capacitors and associated components with regards to troubleshooting, maintenance and testing and identification of hazardous locations and applications of equipment in hazardous areas.

1. COURSE GOALS

- 1.1 Develop the basic knowledge over-current protection and applications.
- 1.2 Provides students with practical knowledge of NEC requirements to troubleshoot and maintain transformers and capacitors.

2. OUTCOMES

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

- 2.1 Classify lighting by type.
- 2.2 Identify special purpose wiring for various lighting applications to include dimming systems.
- 2.3 Identify Class I, II and III locations with respect to the NEC.
- 2.4 Identify sources of ignition, select and install explosion-proof equipment.
- 2.5 Identify types of breakers, fuses, operating capacities and characteristics.
- 2.6 Test and troubleshoot circuit breakers and fuses.
- 2.7 Apply short-circuit calculations.
- 2.8 Identify switchboard and switchgear components.
- 2.9 Identify various transformers, high voltage limiting switches, panel board arrangements and their requirements.
- 2.10 Describe general maintenance, test guidelines for switchboards and switchgears and monitor power distribution systems for ground faults.
- 2.11 Explain operation, construction and transformer connections typical to transformers.
- 2.12 Identify NEC requirements for transformers, capacitors, resistors and reactors.
- 2.13 Identify common transformer problems, then perform testing and maintenance.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Demonstrations
- 3.3 Discussion
- 3.4 Assignments

4. LEARNING ACTIVITIES

- 4.1 Discussion

5. EVALUATION

- 5.1 Examinations

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