

ARIZONA WESTERN COLLEGE
SYLLABUS

ACR 212 HEAT LOAD CALCULATIONS AND DUCT DESIGN

Credit Hours: 3 Lec 2 Lab 2

PREREQUISITES: ACR 101 and ACR 102

COURSE DESCRIPTION

The procedures for estimating heating/cooling loads and duct designing. Also involved is adequate time for hands-on experience.

1. COURSE GOAL

Upon satisfactory completion of this course, a student will be able to size equipment for HVAC/R systems and design a duct system.

2. OUTCOMES

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

- 2.1 explain the purpose of estimating heating/cooling loads.
- 2.2 demonstrate the ability to calculate heating/cooling loads.
- 2.3 demonstrate the ability to size heating/cooling equipment.
- 2.4 demonstrate the ability to design a duct system.
- 2.5 demonstrate the ability to troubleshoot a problem in a duct system.
- 2.6 demonstrate the ability to install a duct system.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Lab projects
- 3.3 Written and oral exams
- 3.4 Homework assignments
- 3.5 Fieldtrips

4. LEARNING ACTIVITIES

- 4.1 Class and lab policy
- 4.2 Safety practices in the lab and the field
- 4.3 Proper use of technical manuals and service flashes
- 4.4 Drawing and interpreting wiring diagrams
- 4.5 Mastering the proper use of hands & power tools
- 4.6 How to perform as a crew leader or crewmember
- 4.7 Proper handling of equipment

5. EVALUATION

Evaluation is based on the student's ability to perform the objectives identified for the course. Written examinations will be given bi-weekly during this semester. There will be several lab and field projects during the semester.

Grades for the semester will be arrived at as follows:

- 5.1 Written exams will be graded on a point system. The number of points will be based on the number of questions
- 5.2 Homework assignments will be graded on a point system
- 5.3 Lab assignments will be graded based on 4 steps:
 - Step 1. Understanding work to be performed
 - Step 2. Following safe work procedures

Step 3. Ability to perform assigned tasks as per HVAC industry standards

Step 4. Quality & quantity of work performed in the allowed time as determined by the instructor and based on HVAC industry standards

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