

ARIZONA WESTERN COLLEGE  
SYLLABUS

## WLD 124 ARC WELDING PROCESSES AND POWER SOURCES

Credit Hours: 3 Lec 2 Lab 3

PREREQUISITE: MAT 105 eligibility and a reading score of 65 or higher or instructor's signature

COREQUISITE: WLD 106

COURSE DESCRIPTION

Career development as a welding technician, welder, lab technician, engineering aide, sales and service representative, or mid-manager. Emphasis is on the knowledge of "arc" welding processes, theory of Shielded Metal Arc Welding (SMAW), power sources and equipment, base and filler materials, welder and procedure qualification and certification.

1. COURSE GOAL

Develop an understanding of the science, technology and art of welding specific to the SMAW process and related industry.

2. OUTCOMES

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

- 2.1 describe the historical evolution of electric arc welding.
- 2.2 define the historical significance of the electric arc welding process.
- 2.3 demonstrate shielded metal arc welding techniques using weld simulator technology
- 2.4 demonstrate understanding of welding automation applications by setting up automation equipment to perform a preprogrammed weld.
- 2.5 complete an oral presentation explaining SMAW power source technology variables and parameters using weld simulator technology.
- 2.6 define the theory of the electric arc process as it applies to SMAW and related safety precautions.
- 2.7 define the power sources and equipment used in electric arc welding process and applicable electrical principles.
- 2.8 explain the benefits of electric arc welding fabrication using the SMAW process.
- 2.9 explain the selection of base and filler materials for electric arc welding process.
- 2.10 describe the weld procedure qualification and welder certification.
- 2.11 explain the applications for SMAW arc welding in an industrial setting.
- 2.12 describe employment positions available in the welding industry.
- 2.13 demonstrate an understanding of welder certification requirements for industry by completing a guided bend test using weld simulator technology.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Demonstration
- 3.3 Audio-visual presentation
- 3.4 Informal discussion
- 3.5 Field trips
- 3.6 Lab assignments

4. LEARNING ACTIVITIES

- 4.1 Survey of arc processes used in welding

- 4.2 Class discussion
- 4.3 Exercises
- 4.4 Quizzes and exams

5. EVALUATION

- 5.1 Examinations
- 5.2 Student projects and presentations
- 5.3 Student notebook and journal

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