



ACR 106
Welding and Cutting
MASTER COURSE SYLLABUS

****Instructors will provide students with additional course-specific information, including attendance/makeup policies, assignment/test scheduling, and instructor contact information, as necessary and appropriate. ****

Prerequisite(s):

Corequisite(s): ACR 100, ACR 107

Quarter(s) Offered: Spring & Fall

Class Hours: 2

Lab Hours: 5

Credit Hours: 4

Course Description: Introduces welding and cutting procedures used in auto collision repair. Emphasis will be placed on MIG welding techniques. Topics include: MIG welding, Oxyfuel welding, Metal cutting, Resistance welding, unibody welding techniques, Weld removal techniques, Safety procedures and Plasma arc cutting.

Student Learning Outcomes: Upon successful completion of this course, the student should be able to:

MIG WELDING

Classifications

- Identify the three classes of welding.

Setup and operation

- Explain, set up, and properly operate a MIG welding machine.

Techniques and procedures

- Name the six basic welding techniques.
- Demonstrate ability to use MIG welding in application of 6 basic welding techniques.
- Identify basic welding joints and properly make each with MIG welding equipment.

OXYFUEL WELDING

Classifications:

- Identify oxyfuel welding equipment, and 3 flames used.

Set up and operation:

- Demonstrate ability to set up equipment. Light and adjust 3 flames properly.

Techniques and procedures:

- Explain general brazing and soldering techniques.
- Demonstrate ability to use oxyfuel equipment to braze and solder.
- Demonstrate ability to fusion weld with steel rods.

METAL CUTTING TECHNIQUES

Equipment set up:

- Identify cutting equipment. Demonstrate the ability to set up equipment.

Techniques and procedures:

- Light and adjust proper cutting flame properly.
- Demonstrate ability to cut different thickness of metal.
- Identify and properly cut metal with mechanical cutters.

RESISTANCE WELDING

Equipment:

- Identify resistance welding equipment.

Techniques and procedures:

- Determine how and when to use resistance welding. Properly set up and use resistance equipment.

UNIBODY WELDING TECHNIQUES

Metal identification:

- Identify high strength steels. Explain how it is affected by heat ranges.

Temperature sticks:

- Explain why and how to use temperature sticks.

Techniques and procedures:

- Follow proper cutting and welding techniques.

WELD REMOVAL TECHNIQUES

Equipment:

- Identify weld removal equipment.

Techniques and procedures:

- Demonstrate ability to properly remove weld joints, spot welds, braze joints.

SAFETY PROCEDURES

Procedures:

- List safety procedures important to each welding operation.
- Perform all welding and cutting operations using proper safety procedures.

PLASMA ARC CUTTING

Techniques and procedures:

- Demonstrate safe use of plasma equipment, procedures, and operations.

Grading Scale: The grading scale is detailed in the *Catalog and Student Handbook* and listed below for reference. All faculty members follow this scale when assigning grades to reflect a given student's performance in the classroom.

| Grade | Numerical Equivalent | Grade Point |
|-------|----------------------|-------------|
| A/A* | 90-100 | 4 |
| B/B* | 80-89 | 3 |
| C/C* | 70-79 | 2 |
| D/D* | 60-69 | 1 |
| F/F* | 0-59 | 0 |

Effective Summer Quarter 2006, Athens Technical College replaced the S/U grading system used for learning support classes with an A*-F* grading system. The registrar uses an asterisk (A*, B*, C*, D*, F*, W*, WF*, WP*) to designate learning support course grades on transcripts and grade reports because these grades are not components of the quarterly grade point average.

Required Textbook(s), including ISBN:

Title: Auto Body Repair Technology 4th Edition
Author: James E Duffy
Publisher: Thomson-Delmar Learning.
ISBN : 0-7668-6272-0

Supplementary Material(s): See Instructor

Required Equipment/Tools/Resources:

- Note Book w/paper
- Pencil and Pen
- Safety Glasses (Clear w/side shields)
- Leather Work Gloves
- Particle Respirator

Instructional Technologies Employed:

Class Room
Lecture Lab
Live Lab

Attendance: Regular class attendance is important and expected. The college considers both tardiness and early departure from class as forms of absenteeism. Students absent from class for any reason are still responsible for all work missed. Instructors have the right to determine whether work missed can be made up and have the liberty to set reasonable expectations for attendance **based on frequency of class meetings and on the instructional delivery method, subject, type, and level of the class.** Class attendance policies will be clearly stated for students by their respective instructors on separate documents (course outlines/schedules) or appendices to the master syllabus.

Grading Policy and Criteria: Students are graded on each written or lab assignment according to the grading rubric for that assignment. Students are responsible for completing each task and submitting each completed task to an instructor for evaluation. The student's shop grade is determined by averaging the assignment grades using a weighted average. Work which is not completed by the end of the quarter will be averaged as a grade of 0. A final written test is taken after completing all written and lab assignments. The grade for the course is 85% of the shop grade plus 15% of the final test grade.

Work Ethics: To fulfill the responsibility to teach essential workplace ethics, the college evaluates program students on attendance, character, teamwork, appearance, attitude, productivity, organizational skills, communication, cooperation, and respect. Because students are preparing for employment, it is essential that they become accustomed to standards of behavior in the workplace. At the conclusion of the quarter, faculty members assign separate numerical work ethics grades which appear beside the course letter grades on both transcripts and grade reports. The work ethics grading scale is as follows: 3 (Exceeds Expectations), 2 (Meets Expectations), 1 (Needs Improvement), and 0 (Unacceptable).

Academic Honesty: Academic honesty is expected at all times. Any student found to have engaged in academic misconduct such as cheating, plagiarism, or collusion is subject to disciplinary sanctions as outlined in the Student Code of Conduct detailed in the *ATC Catalog and Student Handbook*. The term "plagiarism" includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. The term "collusion" includes, but is not limited to, the unauthorized collaboration with any other person in preparing work offered for academic credit. Students are advised that faculty routinely use **turnitin.com** both to prevent plagiarism and to assist in verifying when/if it has occurred.

Course Withdrawal: Students may withdraw from a course without academic penalty until the midpoint of the quarter (as stated in the Academic Calendar published in the *ATC Catalog and Student Handbook*). By withdrawing before the midpoint of the quarter, the student is automatically assigned a grade of W, which does not affect quarterly or cumulative grade point average. Grades of W will affect satisfactory academic progress for financial aid purposes. **Students who stop attending class(es) without formally withdrawing risk earning a final grade of F, which will appear on the academic transcript.** Refer to the *ATC Catalog and Student Handbook* for further details.

Academic Support Center: The Academic Support Centers of Athens Technical College (ATC) provide free tutoring for enrolled students. Both instructors and peer tutors provide tutoring in almost all subjects offered by the college. Information about the Center is accessible via the ATC website at www.athenstech.edu. To find out the specific services available on the Athens, Greene, and Walton Campuses, please call (706) 583-2839. To contact the Academic Support Center on the Elbert County Campus, please call (706) 213-2129.

Americans with Disabilities Act: Any student who believes he/she is eligible for accommodations in the classroom and/or during testing due to a documented disability is encouraged to contact the Director of Student Support Services at (706) 355-5081, or the

Coordinator of Disability Services at (706) 355-5006, to apply for assistance. It is our goal at Athens Technical College to provide equal access to education for all students.

Cell Phones and Electronic Devices: Students are strictly prohibited from using cell phones and personal electronic devices within college-owned/operated facilities without the explicit permission of a faculty or staff member.

Food/Drinks in Classroom: Food and beverages (other than water) are not allowed in classrooms/labs.

Warranty of Graduates: The Department of Technical and Adult Education warrants every graduate of technical programs in which students may earn technical certificates of credit, diplomas, or associate degrees. The warranty guarantees that graduates demonstrate the knowledge and skills and can perform each competency as identified in the industry-validated standards established for every program of study. If one of our graduates educated under a standard program or his/her employer finds that the graduate is deficient in one or more competencies as defined in the course/program standards, Athens Technical College will retrain the employee at no instructional cost to the employee or the employer. This guarantee is in effect for two years after graduation.

TEACH Act: According to the TEACH Act of 2002, Athens Technical College is obligated to advise you that instructional material included in this course may be subject to copyright protection. As such, you must not share, duplicate, transmit, or store the material of this course beyond the purpose and time frame explicitly stated in the syllabus of your course. If you are not certain whether a particular piece of material is covered by copyright protection, you should contact your instructor and obtain his/her written clarification. Failing to observe copyright protection is a violation of law.