

**CASPER COLLEGE
COURSE SYLLABUS**

COURSE NUMBER & TITLE: WELD 1770-01 Gas Metal Arc Welding (GMAW)

SEMESTER/YEAR: Fall 2015

LECTURE: 1 LABORATORY: 7 CREDIT HOURS: 4.5

CLASS TIME: 8:00 - 11:50 a.m. TTH ROOM: WT 128/141

INSTRUCTOR'S NAME: Darin Miller

INSTRUCTOR'S CONTACT INFORMATION:

Office Location: WT 128/141
Office Phone: 268-2278
EMAIL: dmiller@caspercollege.edu

OFFICE HOURS: See hours posted on office door.

COURSE DESCRIPTION: Provides the student with a technical understanding of Gas Metal Arc Welding (GMAW) equipment, trouble-shooting and adjustments, metal transfer, shielding gases, and welding safety. Will include training in the gas metal arc spray and short circuit transfer, Flux Cored Arc Welding (FCAW), and Innershield.

PREREQUISITE: None

GOAL: Training is provided to develop skills necessary to produce quality welds on mild steel in all positions using both the FCAW and GMAW Processes.

OUTCOMES: For the student to develop the ability, knowledge, and understanding of FCAW and GMAW safety, power sources, weld size and profile, electrode classification and selection, weld preparation and testing, joint geometry, welding positions, and multiple pass bead, fillet, and groove with backing welds in all positions.

Demonstrate effective oral and written communication.

Solve problems using critical thinking and creativity.

Use appropriate technology and information to conduct research.

METHODOLOGY: One (1) hour lecture and seven (7) hours lab per week for 16 weeks.

EVALUATION CRITERIA: The student will be evaluated on quizzes, tests, and lab projects. The quizzes and tests may be either written, practical, or virtual. There will be two (2) written tests with a comprehensive final exam worth 30% of the final grade. Successful completion of 3/8 3G and 4G plate test IAW D1.1 Bu 2a GF required to pass the class.

Grading Scale:

100 - 90 = A
89 - 80 = B
79 - 70 = C
69 - 60 = D
59 - Below = F

Attendance Policy: Attendance is of utmost importance. Unexcused absences in the excess of 4 will result in the loss of one letter grade. Due to the consideration of the instructors and students, you **must** be present at the designated starting class time or you will not be allowed to participate unless prior arrangements with the instructor have been made.

Tool Use: Misuse of shop tools will result in the loss of tool privileges.

REQUIRED TEXT, READINGS, MATERIALS: Welding Principals and Applications, 7th ed. Jeffus

CLASS POLICIES:

Last Date to Change to Audit Status: See current Casper College catalog.

Last Date to Withdraw with a W Grade: See current Casper College catalog.

No cell phones or other electronic devices are allowed in the classroom or laboratories.

SAFETY: Personal and equipment safety standards will be strictly enforced. It is the individual's responsibility to develop and use a safe work attitude.

STUDENT RIGHTS AND RESPONSIBILITIES: Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

Chain of Command: If you have any problems with this class, you should first contact the instructor in order to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take your problem through the appropriate chain of command starting with the department head, then the dean, and lastly the vice president for academic affairs.

Academic Dishonesty - Cheating & Plagiarism: Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct.

Official Means of Communication: Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly.

ADA Accommodations Policy: If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college's Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

CALENDAR OR SCHEDULE INDICATING COURSE CONTENT:

TOPICAL OUTLINE:

1. Introduction to GMAW and FCAW
2. Safety and Health of Welders
- *3. Fillet Weld Lap Joint - Horizontal 2F position (VIS)
4. Installation and Maintenance of Equipment
5. Preselected, Primary and Secondary Adjustable Variables
- Test #1**
- *6. Fillet Weld Lap Joint - Vertical UP 3F position (VIS)
7. Metal Transfer and Shielding Gas
8. Weld Quality Inspection
- *9. Fillet Weld Lap Joint - Overhead 4F position (VIS)
10. Weld Joint Design
- *11. Multi-pass fillet weld 2F, 3F & 4F GMAW, FCAW (VRTEX) 80% or higher required
- *12. Fillet Weld Lap Joint - All position (ETCH)
- *13. Single Vee Groove Weld FCAW - 3G (guided bend)
- Test #2**
14. Electrode Classification and Selection
15. Troubleshooting Common Equipment Failure
- *16. Single Vee Groove Weld FCAW - 4G (guided bend)
- *17. Single Vee Groove Weld – 3G FCAW (VRTEX) 80% or higher required
- *18. Single Vee Groove Weld – 4G FCAW (VRTEX) 80% or higher required
- *19. Single Vee Groove Weld GMAW 3G down open root (guided bend)
- *20. Single Vee Groove Weld 3G GMAW (VRTEX) 80% or higher required

*Graded Lab projects

() Testing Method

Final Exam