



**WLDG-1421-ALL**  
**Introduction to Welding Fundamentals**  
**Summer 2021**  
**M-T-W -8:00 am – 11:50 am**

**Instructor:** Dwight Miller, [dmiller@com.edu](mailto:dmiller@com.edu), 409-933-8454

**Communicating with your instructor:** ALL electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means.

**Student hours and location:** MTW-7:30am-8:00am MT-12:00pm-1:00pm-Welding Technology Office

**Required Textbook:**

Welding Principles and Applications (Larry Jeffus)  
(ISBN-13: 978-1-305-49469-5) (ISBN-10: 1-305-49469-5)  
(ISBN-13: 978-1-305-49470-1) (ISBN-10: 1-305-49469-1)  
The Hard back and Lab book is required.

**Textbook Purchasing Statement:** A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

**Course Description**

An introduction to the fundamentals of equipment used in oxy-fuel and arc welding, including welding, and cutting safety, basic oxy-fuel welding and cutting, basic arc welding process.

**Determination of Course Grade/Detailed Grading Formula**

1. The student must meet AWS standards on all workmanship qualifications.
2. 25% of the grade is homework, all homework must be completed to take the exam or it is a 0 on exam, homework must be done outside of class. Any student doing homework in class will have 25 points taken off their exam. 25% written exams, and 50% is skills test

**General Education Core Objectives:** Students successfully completing this course will demonstrate competency in the following Core Objectives:

1. **Social Responsibility:** Demonstrate safety procedures associated with oxy-fuel process
2. **Personal Responsibility:** Demonstrate safety procedures associated with arc welding process
3. **Critical thinking:** Perform basic welds using oxy-fuel and arc welding equipment
4. **Critical thinking:** Identify ferrous and nonferrous metals
5. **Empirical and Quantitative Skills:** Accurately calculate the amperage on a welding machine.

Student Learner Outcome	Maps To Core Objective	Assessed Via This Assignment
Demonstrate safety procedures associated with oxy-fuel process	Social Responsibility	Homework, Written Exams Chapter 7, Lab Manual assignments 2-1, and 7-1 Student will do a safety inspection in the welding lab in front of the instructor.
Demonstrate safety procedures associated with arc welding process	Personal Responsibility	Homework, Written Exams, Chapter 1, Lab Manual assignment 1-2
Perform basic welds using oxy-fuel and arc welding equipment	Critical thinking	Homework, Written Exams, Chapter 7, Lab Assignment 7-3 and Chapter 4 Lab Manual assignment 4-2.
Identify ferrous and nonferrous metals.	Critical thinking	Homework, Written Exams, Chapter 27, Lab Manual Assignment the Welding Quiz. Students will identify the difference between ferrous and non-ferrous metals to instructor.
Accurately calculate the amperage on a welding machine.	Empirical and Quantitative Skills	Homework, Written Exams, Lab Manual Assignments 3-1, 3-2, 3-3, and 3-4

**Grade Appeal Process:** Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook. <[https://build.com.edu/uploads/sitecontent/files/student-services/Student\\_Handbook\\_2019-2020v5.pdf](https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf). *An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor's professional judgment of the quality of the student's work and performance is also not an admissible basis for a grade appeal.* [https://build.com.edu/uploads/sitecontent/files/student-services/Student\\_Handbook\\_2019-2020v5.pdf](https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf)

**Academic Success & Support Services:** College of the Mainland is committed to providing students the necessary support and tools for success in their college career. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

**Attendance Policy:** Attendance will be taken each class period. It is the student's obligation to sign in at the beginning of each class. After three absences the student will receive an Early Alert Referral. After six absences the student may be dropped.

**Withdrawal Policy:** Students may withdraw from this course for any reason prior to the last eligible day for a "W" grade. Before withdrawing students should speak with the instructor and

consult an advisor. Students are only permitted to withdraw six times during their college career by State law. The last day to withdraw is 8-2- 2021.

**Early Alert Program:** The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention is very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

**ADA Statement:** Any student with a documented disability needing academic accommodations is requested to contact Holly Bankston at 409-933-8520 or [hbankston@com.edu](mailto:hbankston@com.edu). The Office of Services for Students with Disabilities is located in the Student Success Center.  
<http://www.com.edu/student-services/counseling.php>

**Counseling Statement:** Any student that is needing counseling services is requested to please contact Holly Bankston in the student success center at 409-933-8520 or [hbankston@com.edu](mailto:hbankston@com.edu). Counseling services are available on campus in the student center for free and students can also email [counseling@com.edu](mailto:counseling@com.edu) to setup their appointment. Appointments are strongly encouraged; however some concerns may be addressed on a walk-in basis.

**COVID-19 Statement:** All students, faculty, and staff are expected to familiarize themselves with materials and information contained on the College of the Mainland's Coronavirus Information site at [www.com.edu/coronavirus](http://www.com.edu/coronavirus). In compliance with Governor Abbott's May 18 Executive Order, face coverings/masks will no longer be required on COM campus. Protocols and college signage are being updated. We will no longer enforce any COM protocol that requires face coverings. We continue to encourage all members of the COM community to distance when possible, use hygiene measures, and get vaccinated to protect against COVID-19. Please visit [com.edu/coronavirus](http://com.edu/coronavirus) for future updates.

**Classroom Conduct Policy:** College of the Mainland requires that students enrolled at COM be familiar with the Standards of Student Conduct, which can be found in the on-line Student Handbook. <http://www.com.edu/student-services/student-handbook.php>. Students should act in a professional manner at all times. Disruptive students will be held accountable according to college policy. Any violations of the Code of Conduct will result in a referral to the Office for student Conduct and may result in dismissal from this class.

**Academic Dishonesty:** Any student who has been found to have been academically dishonest due to cheating, or collusion on an assignment may receive a grade of zero for the assignment and may be given an F for the course and reported to the college for disciplinary action.

**Student Concerns:** If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact Welding Coordinator Victor Woods at 409-933-8321 email address [vwoods@com.edu](mailto:vwoods@com.edu).

**Plagiarism:** Plagiarism is using someone else's words or ideas and claiming them as your own. Plagiarism is a very serious offense. Plagiarism includes paraphrasing someone else's words without giving proper citation, copying directly from a website and pasting it into your paper, using someone else's words without quotation marks. Any assignment containing any plagiarized

material will receive a **grade of zero** and the student will be referred to the Office of Student Conduct for the appropriate discipline action. [www.plagiarism.org](http://www.plagiarism.org)

**Make-Up Policy:**

Make-up exam dates are specified in the course outline schedule below, it is the student obligation to make sure he or she arranges for a makeup exam.

**Academic Dishonesty:** Any incident of academic policy will be dealt with in accordance with college policy and the Student Handbook. Academic dishonesty – such as cheating on exams is an extremely serious offense and will result in a **grade of zero** on that exam and the student will be referred to the Office of Student Conduct for the appropriate discipline action.

**Determination of Course Grade/Detailed Grading Formula/Grading Scale:**

65-69 Plus student must complete Lab Objectives 1- 8 =D

70-79 Plus student must complete Lab Objectives 1-9 =C

80-89 Plus student must complete Lab Objectives 1-10=B

90-100 Plus student must complete Lab Objectives 1-11=A

**FILLET SMAW(STICK) Checklist**

	Needs Improvement	Standards Met
<b>Root Pass</b>		
Root Pass – 1/4 – 3/8”		
Continuous Welding Bead – straight uniform beads		
Weld porosity/undercut – no excess undercut, no porosity		
Cold Lap – need to run at proper temperature		
Weld Tie In (Restarts) – uniform with no undercut, cold wire		
Flat – 1/8 max convexity weld bead, no concave weld bead.		
<b>Root Pass – 1/4 – 3/8” wide</b>		
Continuous Welding Bead – straight uniform beads		
Weld porosity/undercut – no excess undercut, no porosity		
Cold Lap – need to run at proper temperature		
Weld Tie In (Restarts) – uniform with no undercut, cold wire		
Flat – 1/8 max convexity weld bead, no concave weld bead.		
Cover Pass – 1/4 – 5/16 wide, no cold wire		
2 stringer bead caps		

**Course outline:**

<b>Week#</b>	<b>Day/Date</b>	<b>Topic</b>	<b>Reading Assignments &amp; Homework Due Dates</b>
1	M 6-7-21	Run, Hide, Fight Intro + Syllabus + Expectations + Explain Grading % + Welding Safety Rules and Welding Equipment	Chapter 2
	T 6-8-21	Welding Lecture 2 Hours lab	Chapter 2 Welding Safety key terms 1-5
	W 6-9-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 2 Welding Safety key terms 13-20
2	M 6-14-21	Welding Lecture 2 Hours lab	Chapter 2 Welding Safety key terms 21-29
	T 6-15-21	Welding Lecture 2 hours lab	Chapter 2 review questions 1-20
	W 6-16-21	Welding Lecture 2 hours lab	Chapter 2 review questions 21-35
3	M 6-21-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 2 review questions 36-52
	T 6-22-21	Class review and Exam on Chapter 2- Students have 7 DAYS to make-up test.	Exam Ch-2- due
	W 6-23-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 1 Welding Safety key terms 1-10
4	M 6-28-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 1 Welding Safety key terms 11-21
	T 6-29-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 1 review questions 1-10
	W 6-30-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 1 review questions 11-16
5	M 7-5-21	College Closed- Independence Day Observed	Chapter 1 review questions 17-27
	T 7-6-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 1 review questions 17-27
	W 7-7-21	Class review and Exam on Chapter 1- Students have 7 DAYS to make-up test.	Exam Ch-1- due
6	M 7-12-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 3 Welding Safety key terms 1-8
	T 7-13-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 3 Welding Safety key terms 9-16
	W 7-14-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 3 review questions 1-10
7	M 7-19-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 3 review questions 11-30
	T 7-20-21	Class review and Exam on Chapter 3- Students have 7 DAYS to make-up test.	Exam Ch-3- due
	W 7-21-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 8 Welding Safety key terms 1-7
8.	M 7-26-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 8 Welding Safety key terms 8-14
	T 7-27-21	Welding Lecture - welding simulator training 2 Hours Lab	Chapter 8 review questions 1-25

	W 7-28-21	Class review and Exam on Chapter 8- Students have 7 DAYS to make-up test.	Exam Ch-8- due
9.	M 8-2-21	Students will work on lab work	
	W 8-3-21	Students will work on lab work	
	T 8-4-21	Students will work on lab work	
10	M 8-9-21	Students will work on lab work	
	T 8-10-21	Students will work on lab work	
	W 8-11-21	Students will work on lab work	

3. The student must pass the safety test.
4. Student first written exam is due the second week of class.
5. Student second written exam is due the third week of class.
6. Student third written exam is due the fourth week of class.
7. Student fourth written exam is due the fifth week of class.
8. The student must meet AWS standards on all workmanship qualifications.
9. 25% of the grade is homework, all homework must be completed to take the exam or it is a 0 on exam, 25% written exams, and 50% is skills test.

The lab assignments are a major part of the course outline each student will progress at their own pace. However, each student must pass at least number 9 lab assignment to pass the class at a minimum requirement to A.W.S. Standards. Minimum standard is a student is expected to do a minimum of 10 “Tee Plates” completed in each class period. A student is expected to complete 4 Vee-Butt bevel plates in each class period. Student must demonstrate 3 Vee-Butt welds completely and consecutively meeting AWS standards before being checked with Dye Penetrant Minimum standard is 2 pipes welded completely each class period. Student must demonstrate 3 pipes welded completely and consecutively meeting AWS standards before being checked with Dye Penetrant. Any student not passed assignment 9 by (W-day) will meet with instructor about their academic progress. The student and instructor will discuss any issue and/or distractions causing the problem. Faculty may, at their discretion withdraw a student due to an inability to maintain the prescribe minimum rate of progress stated in the course syllabi, or behavior detrimental to the learning process of the student or class.

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Lab Assignments	Performance Rating	Date Completed	Instructor =s Initials	Trainee= s Initials
1. Demonstrate safety procedures associated with oxy-fuel process				
2. Demonstrate safety procedures associated with arc welding process				
3. Perform basic welds using oxy-fuel and arc welding equipment				
4. Identify ferrous and nonferrous metals				

5. Accurately calculate the amperage on a welding machine-----				
6. Set up for shielded metal arc welding operations on plain carbon steel				
7. Make fillet weld in 2F position, on plain carbon steel with E 6010 1/8' Electrodes				
8. Make fillet weld in 3F position, on plain carbon steel with E 6010 1/8' Electrodes				
9. Make fillet weld in 4F position on plain carbon steel with E 6010 1/8' Electrodes				
10. Make 1G v- groove weld on plain carbon steel with E 6010 1/8' Electrode's root and hot pass, E 7018 3/32 Electrode filler and cap				
11. Make 2G v- groove weld on plain carbon steel with E 6010 1/8' Electrode root and hot pass, E 7018 3/32 Electrode filler and cap				

### Core competencies Assessments

**Social Responsibility:** Demonstrate safety procedures associated with oxy-fuel process

**Personal Responsibility:** Demonstrate safety procedures associated with arc welding process

**Critical thinking:** Perform basic welds using oxy-fuel and arc welding equipment

**Critical thinking** Identify ferrous and nonferrous metals

**Empirical and Quantitative Skills:** Accurately calculate the amperage on a welding machine.

### SYLLABUS CHANGES:

The instructor reserves the right to make changes to this syllabus during the semester as needed to facilitate instruction and/or course needs.

The Speaking, Reading and Writing Center provides free tutoring services to students, staff and faculty seeking assistance for writing, reading and oral presentations for academic and non-academic assignments/projects. Located in the Technical Vocational Building 1306, the center provides face to face and online tutoring sessions in a welcoming environment. Appointments can be made in person, or on the center scheduler at [com.mywconline.com](http://com.mywconline.com), or by clicking the SRWC icon on the COM website.

**Run, Hide, Fight \***

<https://www.youtube.com/watch?v=5VcSwejU2D0>

**Last Resort ACTIVE SHOOTER SURVIVAL Measures by Alon Stivi**

<https://www.youtube.com/watch?v=r2tIeRUbRHw>

**Surviving an Active Shooter Event - Civilian Response to Active Shooter**

<https://www.youtube.com/watch?v=j0It68YxLQQ>

**Make the Call \***

<https://www.youtube.com/watch?v=AWaPp-8k2p0>



# **Welding Safety Rules**

- 1. No Horseplay of any kind**
- 2. No lighters or matches in the weld lab**
- 3. Safety glasses(Z87) or prescription glasses with Z87 frame and lens MUST be worn at all times in labs and outside when students are working, sunglasses are NOT acceptable**
- 4. Shaded cutting goggles or shaded cutting face shield must be worn when cutting with safety glasses**
- 5. Never use machinery or equipment unless instructed by faculty instructor or lab assistant**
- 6. Proper fitting clothing must be worn at all times in the lab (100% cotton, FRC)**
- 7. Report all accidents immediately**
- 8. Grinding shields must be worn when grinding with safety glasses**
- 9. No tobacco of any type in the welding building**
- 10.No spitting anywhere in the welding labs**
- 11.Welding hood with a shade of 9,10,11 or 12 must be worn while welding**
- 12. Tool rest for tungsten grinder must be maintained at 1/16 distance from wheel**
- 13.Gloves are required while welding, cutting and handling metal in the weld lab**
- 14.FAILURE TO FOLLOW SAFETY RULES WILL RESULT BEING REMOVED FROM CLASS**