



**WLDG-1434-ALL**  
**Introduction to Gas Tungsten Arc Welding**  
**Spring 2022**  
**Tues./Thurs.- 6:00AM -9:20PM**

**Instructor:** Derrick Cooper, [dcooper@com.edu](mailto:dcooper@com.edu), 409-933-8380

**Student hours and location** MTWTH, 5:15PM – 6:00PM, Welding Technology Office

**Required Textbook:** Welding Principles and Applications (Larry Jeffus)  
 (ISBN-13: 978-1-111-03918-9) (ISBN-10: 1-111-03918-6)  
 (ISBN-13: 978-1-111-03917-2) (ISBN-10: 1-111-03917-8)  
 The Hard back and Lab book is required.

**Course Description**

Principles of gas tungsten arc welding (GTAW), including setup, GTAW equipment. Instruction in various positions and joint designs

**Course requirements:**

Lab Assignments	Performance Rating	Date	Instructor initials	Student Initials
1. Describe safety rules on equipment SPOL				
2. Describe various joint designs SPOL				
3. Describe the effects of the welding parameters in GTAW. SPOL				
4. Operate GTAW equipment.				
5. Weld various structural materials SPOL				
6. Make 2F fillet weld on carbon steel plate with E70S6 1/8” diameter electrode				
7. Make 3F fillet weld on carbon steel plate with E70S6 1/8” diameter electrode				
8. Make 4F fillet weld on carbon steel plate with E70S6 1/8” diameter electrode				
9. Make 2F fillet weld on aluminum plate with E4043 1/8” diameter electrode				
10. Make 3F fillet weld on aluminum plate with E4043 1/8” diameter electrode				

11. Make 2F fillet weld on with stainless steel filler rod E309 1/8" diameter electrode on carbon steel plate.				
12. Make 3F fillet weld with stainless steel filler rod E309 1/8" diameter electrode on carbon steel plate.				
13. Make 1G vee- butt weld on carbon steel plate with E70S6 1/8" diameter				
14. Make 3G vee-butt weld with carbon steel plate with E70S6 1/8" diameter				
15. Make a 2G vee-butt weld on 6" carbon steel pipe with E70S6 1/8" diameter				

### **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, 25% written exams, and 50% is skills test
3. Student must have a 65-70 on Exams and complete Lab Objectives 1 thru 7=D
4. Student must 71 thru 80 on Exams and complete Lab Objectives 1 thru 8=C
5. Student must 81 thru 90 on Exams and complete Lab Objectives 1 thru 9=B
6. Student must 91 thru 100 on Exams and complete Lab Objectives 1 thru 10=A

### **Late Work, Make-Up, and Extra -Credit Policy:**

Make-up exams must be scheduled with your professor but must be scheduled within 7 days of the original test date or you will receive a zero for the test. Make-up exams may score no higher than 90% unless the make-up exam was scheduled prior to the original exam date. At the instructor's discretion, make up exams may be in a different format from the scheduled exam. Labs and homework not turned in on the due date will be scored at 80% of the maximum

**Attendance Policy: Attendance and Tardiness will be taken each class period.**

**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 Learner Outcome	Maps To Core Objective	Assessed Via This Assignment
Describe safety rules and equipment	Critical thinking	Homework, Written Exams, Lab Manual Assignment 16-2 SPOL
Describe various joint designs	Critical thinking	Homework, Written Exams, Lab Manual Assignments 16-7 and 16-8 SPOL
Describe the effects of welding parameters in GTAW	Critical thinking	Homework, Written Exams Lab Manual Assignment 15- Welding Quiz SPOL
Weld various structural materials	Critical thinking	Homework, Written Exams, Lab Manual Assignments 16-6 SPOL

**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

**Concerns/Questions Statement:** 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 Derrick Lewis Department Chair 409 933-8607/dlewis22@com.edu.

**Course outline:**

Week#	Day/Date	Topic	Reading Assignments & Homework Due Dates
1	T 1-18-22	Intro + Syllabus + Expectations + Explain Grading % + Welding Safety Rules + Welding Equipment	
	TH 1-20-22	Welding Lecture/Simulator 2-hours lab	Chapter 16 Key Terms 1 thru 9←
2	T 1-25-22	Welding Lecture/Simulator 2-hours lab	Chapter 16 review question 1 thru 11
	TH 1-27-22	Welding Lecture/Simulator 2-hours lab	Chapter 16 review question 12 thru 22
3	T 2-01-22	Labor Day closed	
	TH 2-03-22	Welding Lecture/Simulator 2-hours lab	Chapter 16 review question 23 thru 33
4	T 2-08-22	Welding Lecture/Simulator 2-hours lab	Chapter 16 Quiz
	TH 2-10-22	Welding Lecture/Chapter 16 Quiz Review 2-hours lab	Chapter 16 Review

5	T 2-15-22	Chapter 16 Exam 2-hours lab	Chapter 17 key terms 1 thru 6
	TH 2-17-22	Welding Lecture/Simulator 2-hours lab	Chapter 17 review 1 thru 13
6	T 2-22-22	Welding Lecture/Simulator 2-hours lab	Chapter 17 review 14 thru 26
	TH 2-24-22	Welding Lecture/Simulator 2-hours lab	Chapter 17 Quiz
7	T 3-01-22	Welding Lecture/Chapter 17 Quiz Review 2-hours lab	Chapter 17 Review
	TH 3-03-22	Chapter 17 Exam 2-hours lab	Chapter 28 Key Terms 1 thru 10
8	T 3-08-22	Welding Lecture/Simulator 2-hours lab	Chapter 28 Key Terms 11 thru 21
	TH 3-10-22	Welding Lecture/Simulator 2-hours lab	Chapter 28 review questions 1 thru 10
9	T 3-15-22	<b>Spring Break</b>	
	TH 3-17-22	<b>Spring Break</b>	
10	T 3-22-22	Welding Lecture/Simulator 2-hours lab	Chapter 28 review questions 11 thru 20
	TH 3-24-22	Welding Lecture/Chapter 28 Quiz Review 2-hours lab	Chapter 28 review questions 21 thru 31
11	T 3-29-22	Chapter 28 Exam 2-hours lab	Chapter 28 Quiz
	TH 3-31-22	Make Up Exams/ Contextualized Welding Lecture/Simulator 2-hours lab	Chapter 28 Review
12	T 4-05-22	Chapter 28 Exam 2-hours lab	
	TH 4-07-22	Last Day For Make Up Exams/ Contextualized Welding Lecture/Simulator 2-hours lab	
13	T 4-12-22	Contextualized Welding Lecture/Simulator 2-hours lab	
	TH 4-14-22	Contextualized Welding Lecture/Simulator 2-hours lab	
14	T 4-19-22	Contextualized Welding Lecture/Simulator 2-hours lab	
	TH 4-21-22	Contextualized Welding Lecture/Simulator 2-hours lab	
15	T 4-26-22	Contextualized Welding Lecture/Simulator 2-hours lab	
	TH 4-28-22	Contextualized Welding Lecture/Simulator 1- hour lab	
16	T 5-03-22	Contextualized Welding Lecture/Simulator 1- hour lab	
	TH 5-05-22	Welding Lecture/Simulator 2-hours lab	

**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 support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

**ADA Statement:** College of the Mainland adheres to all applicable federal, state and local laws, regulations and guidelines with respect to providing accommodations to students with disabilities. If you have a disability and need special accommodation, the instructor will work with you to provide a reasonable accommodation to ensure that you have a fair opportunity to perform in this class. 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 Student Success Center. Appropriate steps will then be taken to assist you in your needs.

**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. Appointments are strongly encouraged; however, some concerns may be addressed on a walk-in basis

**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.

**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 permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 1<sup>st</sup> 8-week session is March 2. The last date to withdraw from the 16-week session is April 25. The last date to withdraw for the 2<sup>nd</sup> 8-week session is May 4.

**Fn Grading:** The Fn grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The Fn grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the Fn grade is at the discretion of the instructor

**Early Warning Program:** The Counseling Center at College of the Mainland has implemented an Early Warning Program. 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 Warning Program you will be contacted by someone in the Counseling Department. As student success and retention is very important to us, someone from the

Counseling Department will schedule a meeting with you to see what assistance they can offer for you to meet your academic goals.

**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.

### 3G PLATE GTAW Checklist

WLDG 1434	Needs Improvement	Standards Met
<b>Root Pass</b>		
Root Penetration – 1/16 – 3/32 penetration, no cold wire		
Weld porosity/undercut – no excess undercut, no porosity		
Weld Tie In (Restarts) – uniform with no undercut, cold wire		
Shield Gas settings – Proper gas flow settings		
<b>Cover Pass</b>		
Size – weld size no less than 1/16, no more than 1/8 height Width no more than 1/16 outside the bevel		
Weld Undercut – no undercuts (if there are undercuts the weld is being made too fast or with too much heat)		
Weld Porosity – no pin holes in weld		
Continuous Welding Bead – straight uniform beads		
Cold Lap – need to run at proper temperature		

### 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 always worn 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**