College of the Mainland

WLDG-1434-ALL
Introduction to Gas Tungsten Arc Welding
SPRING 2021
MON./WED.- 9:00AM -12:20PM

Instructor: VICTOR WOODS, vwoods@com.edu, 409-933-8380 or 409-933-8321

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: MTWTH,6:30AM-7:00AM ;3:15PM – 4:20PM, 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: 1-305-49470-9)
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
Principles of gas tungsten arc welding (GTAW), including setup, GTAW equipment. Instruction in various positions and joint designs.

Student Learner Outcomes: Upon successful completion of this course, students will:
1. Describe safety rules and equipment;
2. Describe various joint designs
3. Describe the effects of welding parameters in GTAW
4. Weld various structural materials

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.
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

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.

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

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

Critical Thinking Skills: Students will demonstrate creative thinking, innovation, and the ability to analyze, evaluate, and synthesize information.

Attendance Policy: Attendance will be taken each class period**.** It is the students 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 April 26, 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. 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. Counseling services are available on campus in the student center for free and students can also email counseling@com.edu to setup their appointment. Appointments are strongly encouraged; however some concerns may be addressed on a walk-in basis.

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.

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

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 make up exam.

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

65-69 Plus student must complete Lab Objectives 1-12 =D

70-79 Plus student must complete Lab Objectives 1-13 =C

80-89 Plus student must complete Lab Objectives 1-14=B

90-100 Plus student must complete Lab Objectives 1-15=A

FILLET GTAW(TIG) Checklist

REVISED BY VICTOR WOODS (SUMMER 2020)

	Needs Improvement	Standards Met
Root Pass		
Root Pass – 1/4 – 5/16 wide, no cold wire		
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.		
Shield Gas settings – Proper gas flow settings		
Cover Pass		
Root Pass – 1/4 – 5/16 wide, no cold wire		
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.		
Shield Gas settings – Proper gas flow settings		
Cover Pass – 1/4 – 5/16 wide, no cold wire		
2 stringer bead cap		

Course outline:

Week#	Day/Date	Topic	Reading Assignments & Homework Due Dates
1	M 1-18-21	Run, Hide, Fight Intro + Syllabus + Expectations + Explain Grading % + Welding Safety Rules + Welding Equipment	
	W 1-20-21	Welding Lecture/Simulator 2-hours lab	←
2	M 1-25-21	Welding Lecture/Simulator 2-hours lab	Chapter 16 Key Terms 1 thru 9
	W 1-27-21	Welding Lecture/Simulator 2-hours lab	Chapter 16 review question 1 thru 11

3	M 2-01-21	Welding Lecture/Simulator 2-hours lab	Chapter 16 review question 12 thru 22
	W 2-03-21	Welding Lecture/Simulator 2-hours lab	Chapter 16 review question 23 thru 33
4	M 2-08-21	Welding Lecture/Simulator 2-hours lab	Chapter 16 Quiz
	W 2-10-21	Welding Lecture/Chapter 16 Quiz Review 2-hours lab	Chapter 16 Review
5	M 2-15-21	Chapter 16 Exam 2-hours lab	Chapter 17 key terms 1 thru 6
	W 2-17-21	Welding Lecture/Simulator 2-hours lab	Chapter 17 review 1 thru 13
6	M 2-22-21	Welding Lecture/Simulator 2-hours lab	Chapter 17 review 14 thru 26
	W 2-24-21	Welding Lecture/Simulator 2-hours lab	Chapter 17 Quiz
7	M 3-01-21	Welding Lecture/Chapter 17 Quiz Review 2-hours lab	Chapter 17 Review
	W 3-03-21	Chapter 17 Exam 2-hours lab	Chapter 28 Key Terms 1 thru 10
8	M 3-08-21	Welding Lecture/Simulator 2-hours lab	Chapter 28 Key Terms 11 thru 21
	W 3-10-21	Welding Lecture/Simulator 2-hours lab	Chapter 28 review questions 1 thru 10
	M 3-15-21	Welding Lecture/Simulator 2-hours lab	
	W 3-17-21	Welding Lecture/Simulator 2-hours lab	
9	M 3-22-21	Welding Lecture/Simulator 2-hours lab	Chapter 28 review questions 11 thru 20
	W 3-24-21	Welding Lecture/Chapter 28 Quiz Review 2-hours lab	Chapter 28 review questions 21 thru 31
10	M 3-29-21	Chapter 28 Exam 2-hours lab	Chapter 28 Quiz
	W 3-31-21	Make Up Exams/ Contextualized Welding Lecture/Simulator 2-hours lab	Chapter 28 Review
11	M 4-05-21	Chapter 28 Exam 2-hours lab	
	W 4-07-21	Last Day For Make Up Exams/ Contextualized Welding Lecture/Simulator 2-hours lab	
12	M 4-12-21	Contextualized Welding Lecture/Simulator 2-hours lab	

	W 4-14-21	Contextualized Welding Lecture/Simulator 2-hours lab	
13	M 4-19-21	Contextualized Welding Lecture/Simulator 2-hours lab	
	W 4-21-21	Contextualized Welding Lecture/Simulator 2-hours lab	
14	M 4-26-21	Contextualized Welding Lecture/Simulator 2-hours lab	
	W 4-28-21	Contextualized Welding Lecture/Simulator 1- hour lab	
15	M 5-03-21	Contextualized Welding Lecture/Simulator 1- hour lab	
	W 5-05-21	Welding Lecture/Simulator 2-hours lab	
16	M 5-10-21	Welding Lecture/Simulator 2-hours lab	
16	W 5-12-21	Welding Lecture/Simulator 2-hours lab	

1. The student must pass the safety test.
2. Student first written exam is due the second week of class.
3. Student second written exam is due the third week of class.
4. Student third written exam is due the fourth week of class.
5. Student fourth written exam is due the fifth week of class.
6. The student must meet AWS standards on all workmanship qualifications.
7. 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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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				

Core competencies Assessments

Critical thinking	The student will Describe safety rules and equipment
Critical thinking	The student will Describe various joint designs
Critical thinking	The student will Describe the effects of welding parameters in GTAW
Critical thinking	The student will Weld various structural materials.

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, 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, sun glasses are NOT acceptable**
4. **Shaded cutting googles 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 warn 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. **FAILUE TO FOLLOW SAFETY RULES WILL RESULT BEING REMOVED FROM CLASS**