

Intermediate Welding Using Multiple Processes

WLDG 2413



**LAMAR INSTITUTE
OF TECHNOLOGY**

INSTRUCTOR CONTACT INFORMATION

Instructor: Robert Jones

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Office Location: Tommy Williams – IT1 - 106

Office Hours: Monday, Wednesday 3:30 P.M. – 5:00 P.M.

Tuesday, Thursday 3:00 P.M. – 5:00P.M.

Friday 10:00 A.M. – 1:00 P.M.

CREDIT

4 Semester Credit Hours (2 hours lecture, 6 hours lab)

MODE OF INSTRUCTION

Hybrid/Online Lecture-Face to Face Lab

PREREQUISITE/CO-REQUISITE:

COURSE DESCRIPTION

Instruction using layout tools and blueprint reading with demonstration and guided practices with some of the following welding processes: oxy-fuel gas cutting and welding, shield metal arc welding (SMAW), gas metal arc welding (GMAW), flux-cored arc welding (FCAW), gas tungsten arc welding (GTAW).

COURSE OBJECTIVES

Upon completion of this course, the student will be able to:

1. Identify proper safety equipment and tools. Identify and select the proper welding process for a given application.
2. Demonstrate skills training using more than one approved welding process. Demonstrate ability to analyze situations and make decisions using skills as taught concerning safety and electrode selection.
3. Select the most economical and practical welding process for a given task.

REQUIRED TEXTBOOK AND MATERIALS

1. Modern Welding by Althouse, Turnquist, Bowditch
2. Personal tool list (approximately \$150-\$250).
 1. Hood
 2. Welder's cap
 3. Shade 10 or 11 lens
 4. Clear lens (10)
 5. Long sleeve 100% cotton shirt or leather sleeves or leather jacket
 6. Long 100% cotton work pants (jeans)
 7. High top leather boots (steel toe)
 8. Leather gloves
 9. Chipping hammer
 10. Wire brush
 11. Safety glasses
 12. Cutting goggles or glasses (shade 5)
 13. Measuring tape
 14. Tip cleaner
 15. 12" combination square
 16. Pliers

ATTENDANCE POLICY

I. Students are allowed to miss two days without penalty; each additional day will result in the student's grade being dropped by a letter grade.

Example:

- 2 days absent = If student has an A average no penalty
- 3 days absent = A drops to a B
- 4 days absent = B drops to a C
- 5 days absent = C drops to a D (student must retake class)
- 6 days absent = D drops to a F (student must retake class)

II. Absences are counted for unexcused, excused and coming to class late.

III. 3 tardies = 1 absences

- A. Tardy- arriving within 15 minutes after class begins or leaving before the end of class.
- B. More than 15 minutes late you will be counted absent.
- C. If you sleep in class, you will be counted absent.

IV. **Excused absences.** Only given to allow students to make up missed work.

- A. Will be given for documented Injury or Illness. The doctor's excuse required showing proof. Will count toward total days missed.
- B. Will be given for documented Death in immediate family. Will count toward total days missed.

C. Approved LIT school functions; E.g., SkillsUSA, SGA etc. Will not count toward total days missed

D. It is the student's responsibility to obtain from the instructor any handouts or assignments for classes missed. Lectures will not be repeated.

V. If you wish to drop, you are responsible for the drop process. I will not initiate the drop, no matter how many absences or zeroes you have; that is, if you stop coming to class and do not drop, you will earn an "F" in the course. Students are only allowed to drop 6 times in their college career.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

COURSE CALENDAR

WEEK	TOPIC	REFERENCE
8/24/26	Course Introduction and Policies; Shop Orientation and Safety Procedures; Cutting Torch Safety and Procedures; Miller OpenBook Orientation and Enrollment	- Syllabi - Instructor Demonstration and Supervision
8/31/26	Set Up GMAW & FCAW Stations; GMAW Equipment Setup; Introduction to GMAW Welding Variables	
9/14/26	GMAW Welding Variables; GMAW Wire/Electrode Selection; GMAW Groove Welds in Various Positions	Instructor Demonstration and Supervision
9/20/26	Miller OpenBook 1 Due: GMAW Variables & Wires	
9/21/26	GMAW Arc Transfer Modes; Shielding Gases; GMAW Groove Welds in Various Positions	
9/27/26	Miller OpenBook 2 Due: GMAW Transfer Modes & Shielding Gases	
9/28/26	GMAW Common Weld Defects; Troubleshooting GMAW Systems; GMAW Groove Welds in Various Positions	
10/4/26	Miller OpenBook 3 Due: GMAW Defects & Troubleshooting	Instructor Demonstration and Supervision
10/5/26	GMAW Practical Application/Testing; Transition to FCAW	

10/12/26	FCAW Equipment; Wire Feeders; FCAW Welding Gun; FCAW Equipment Setup	
10/19/26	FCAW Welding Variables; FCAW Groove Welds in Various Positions	
10/25/26	Miller OpenBook 4 Due: FCAW Equipment & Variables	
10/26/26	FCAW Filler Metals/Wire Selection; Shielding Gases; FCAW Groove Welds in Various Positions	
11/2/26	FCAW Common Weld Defects; Troubleshooting; FCAW Groove Welds in Various Positions	Instructor Demonstration and Supervision
11/8/26	Miller OpenBook 5 Due: FCAW Filler Metals, Shielding Gases & Weld Defects	
11/9/26	FCAW Practical Application/Testing; GMAW/FCAW Process Comparison	
11/16/26	Advanced GMAW/FCAW Applications; Process and Electrode Selection; Corrective Practice	
11/23/26	GMAW/FCAW Skills Completion and Make-Up Work	
11/30/26	Final Laboratory Skills Completion and Review	

Calendar subject to change due to unforeseen circumstances. Check blackboard for due dates.

COURSE EVALUATION

- Final grades will be calculated according to the following criteria:

Activity	Percentage
Miller OpenBook Assignments:	20%
Lab Exercises/Practical Welds:	30%
Tests/Practical Tests:	25%
Final Examination/Practical:	25%
Total:	100%

No late assignments will be accepted.

GRADE SCALE

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D
- 0-59 F

MILLER OPENBOOK

Miller OpenBook will be used as part of the online lecture component of this course. Students will complete assigned OpenBook modules and assessments covering GMAW and FCAW concepts that correspond with laboratory instruction. OpenBook assignments are required course activities and must be completed by the due dates posted in Blackboard. Successful completion of applicable Miller OpenBook requirements may provide students the opportunity to earn a Miller welding education micro-credential.

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or Wi-Fi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

AI STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI / ChatGPT in their courses.

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

1. No electronic devices of any kind (cell phones, I-pod, headphone, etc.) will be tolerated in the classrooms or labs. If you are seen using any electronic device, you will be asked to leave the class for the day.
2. No food or drink will be allowed in the classroom.
3. No derogatory or foul language will be tolerated.
4. We have a zero-tolerance policy for sexual harassment.
5. We have a zero-tolerance policy of racial or ethnic discrimination.
6. Be considerate of others in the classroom. Remember they paid for the class just like you.