

## **WELDING SAFETY, TOOLS, AND EQUIPMENT WLDG 1323**

### **INSTRUCTOR CONTACT INFORMATION**

Instructor: Robert Fancher

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Office Phone: 409-384-2401 Ext. 6305

Office Location: Jasper Higher Ed. Center Rm. 305

Office Hours: Monday - Friday 7:40 A.M. – 4:00 P.M.



### **CREDIT**

3 Semester Credit Hours (3 hours lecture, 0 hours lab)

### **MODE OF INSTRUCTION**

In Person

### **PREREQUISITE/CO-REQUISITE:**

None

### **COURSE DESCRIPTION**

An introduction to welding equipment and safety practices, including OSHA standards for industry.

### **COURSE OBJECTIVES**

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

1. Apply welding safety practices, OSHA and the Hazardous Communications Act, and DS
2. List hazards associated with welding equipment and processes
3. Identify how to use and maintain tools and equipment
4. Identify hazards associated with gases, fluxes, electrodes and equipment
5. Explain different welding processes and their operation.

### **REQUIRED TEXTBOOK AND MATERIALS**

1. 12<sup>th</sup> Edition Modern Welding by Althouse, Turnquist, Bowditch

### **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 OUTLINE**

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

A. Career paths of a welder. Specific reasons for interest in a specific welding career.  
Career paths by certifications

B. Welding safety practices, OSHA and the Hazardous Communications Act, and  
SDS. • Welding safety procedures

• Hazards associated with basic welding gases, fluxes, and electrodes

- Proper personal protective equipment (PPE)
  - OSHA and the Hazardous Communications Act
- 
- Safety Data Sheets (SDS)
- C. Hazards associated with welding and oxyfuel cutting equipment and processes.
- Dangers of fumes produced while welding or cutting
  - Dangers of fire and explosions
  - Ventilation systems and fresh air supply
- D. List the dangers and safety procedures when handling an oxyfuel welding/cutting rig.
- Dangers of high-pressure gas cylinders
    - Safety devices of high-pressure gas cylinder and the safe handling procedures of high-pressure cylinders
  - Safety devices of high-pressure cylinder regulators
  - Reverse flow check valves and flashback arrestor
    - Proper procedure the start-up, light and shut-down an oxyfuel torch system
- E. Use and maintain tools and equipment
- Proper use of angle grinders, die grinders, saws, clamps, jack stands, etc.
  - Proper maintenance and storage of shop tools
- F. Basic shop math as it pertains to the welding industry
- Various measuring instruments and their application in the welding industry
  - Add, subtract, multiply, and divide fractions
  - Markings on a tape measure
  - Fabrication tools

#### **COURSE CALENDAR**

| <b>WEEK</b> | <b>TOPIC</b>                                                                                                                                                                                                                        | <b>REFERENCE</b>                                                                                                             |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1 - 4       | <ul style="list-style-type: none"> <li>• Course Introduction and Policies</li> <li>• Safety in the Welding Shop</li> <li>• The Welding Shop</li> <li>• Getting and Holding a Job in the Welding Industry</li> <li>• Test</li> </ul> | <ul style="list-style-type: none"> <li>• Syllabi</li> <li>• Chapter 1</li> <li>• Chapter 32</li> <li>• Chapter 33</li> </ul> |
| 5 - 9       | <ul style="list-style-type: none"> <li>• Welding and Cutting Processes</li> <li>• Oxyfuel Gas Welding Equipment and Supplies</li> <li>• Test</li> </ul>                                                                             | <ul style="list-style-type: none"> <li>• Chapter 4</li> <li>• Chapter 12</li> </ul>                                          |
|             |                                                                                                                                                                                                                                     |                                                                                                                              |

|         |                                                                                                                                               |                                                                                                 |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 10 - 13 | <ul style="list-style-type: none"> <li>• Oxyfuel Gas Cutting Equipment and Supplies</li> <li>• Oxyfuel Gas Cutting</li> <li>• Test</li> </ul> | <ul style="list-style-type: none"> <li>• Chapter 14</li> <li>• Chapter 15</li> <li>•</li> </ul> |
| 14 - 16 | <ul style="list-style-type: none"> <li>• Plasma Arc Cutting</li> <li>• Special Cutting Processes</li> <li>• Test</li> </ul>                   | <ul style="list-style-type: none"> <li>• Chapter 11</li> <li>• Chapter 24</li> </ul>            |
| 17      | <ul style="list-style-type: none"> <li>• Final Exam</li> </ul>                                                                                |                                                                                                 |

### COURSE EVALUATION

Final grades will be calculated according to the following criteria:

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

#### ***Activity Percentage***

Discussions: 10%

Assignments: 60%

Test: 30%

***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

### 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](mailto:specialpopulations@lit.edu). You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](https://www.lit.edu/specialpopulations).

## **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](http://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.