

Welding Codes (WLDG 1327)



Credit: 3 semester credit hours (3 hours lecture)

Prerequisite/Co-requisite: None

Course Description

An in-depth study of welding codes and their development in accordance with structural standards, welding processes, destructive and nondestructive test methods

Required Textbook and Materials

1. *Modern Welding* by Althouse, Turnquist, Bowditch 2013
 - a. ISBN number is 978-1-60525-795-2
2. Notebook.

Course Objectives

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

1. Categorize major codes
2. Identify welding procedure specifications. Develop welding procedures, and list alloy/phases of metal and the effect of heating and cooling
3. Identify the welding symbol and weld symbols.
4. Identify both destructive and non-destructive weld test, and identify weld discontinuities.
5. List responsibilities of inspectors, apply pre-weld, in process, and shop inspections standards.

Course Outline

- I. **Major codes.**
 - A. Codes
 - B. Professional Associations
- II. **Weld and welding symbols.**
 - A. Weld symbols
 - B. Parts of the welding symbol
- III. **Responsibilities of inspectors.**
 - A. Weld test to be preformed
 - B. Importance that the weld meets the code.
- IV. **Heat treatments**
 - A. Preheat
 - B. Interpass-heat
 - C. Post heat
- V. **Alloys/phases of metals; and state the effects of heating and cooling.**
 - A. Draw the metal by heating and cooling
 - B. Physical properties as metal is heated and cooled

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- VI. **Welding procedure**
 - A. Welding Procedure Specification
 - B. Welding Procedure Qualification Record
 - C. Essential and non-essential variables
- VII. **Non-destructive and destructive test procedures**
 - A. Destructive test
 - B. Non-destructive test
 - C. Welding flaws and defects

Grade Scale

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

Course Evaluation

Final grades will be calculated according to the following criteria:

<i>Activity</i>	<i>Percentage</i>
Assignments	30%
TEST	70%
Total	100%

Late Penalties will be assessed on all work turned in late. 5 points per day.
Average a grade on all test and assignments of at least 70%

Course Requirements

1. Identify major codes. (AWS, ASME, API, etc.)
2. Identify welding procedure specifications.
3. Identify welding Procedure Qualification Record.
4. Identify both destructive and non-destructive weld test, and identify weld discontinuities.
5. List responsibilities of inspectors, apply pre-weld, in process, and shop inspections standards
6. Identify the welding symbol and weld symbols.
7. Develop welding procedures, and list alloy/phases of metal and the effect of heating and cooling.
8. Identify an electrode by the AWS numbering system.

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 absence
 - 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. 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.

Classroom Policies

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.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the online resource:

<http://www.lit.edu/depts/stuserv/special/defaults.aspx>

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 or obtained in print upon request at the Student Services Office.

Course Schedule

Week	Topic	Reference
1/2/3	Course introduction and polices Print Reading Test • Lecture	Syllabi Chapter 2
4/5	Reading Welding Symbols Test • Lecture	Chapter 3
6/7	Shielded Metal Arc Welding Equipment and Supplies Test • Lecture	Chapter 5
8/9	Inspecting and testing of welds Test • Lecture	Chapter30
10/11	Procedures and Welder Qualification Test • Lecture	Chapter 31
12	Welding and Cutting Processes Plasma Arc Cutting Test • Lecture	Chapter 4 Chapter10
13/14	Arc and Oxygen Arc Cutting Equipment and Processes • Project: As Assigned	Chapter 11

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Course Syllabus

Week	Topic	Reference
15/16	Soldering	Chapter 15
	Braze and Braze Welding	Chapter 16
	Final Exam	
	• LECTURE	