

Lassen Community College Course Outline

WT 36 Welding Theory & Practice – Oxyacetylene

1.0 or 3.0 Units

I. Catalog Description

This is an elective welding course where students will apply the oxyacetylene welding (OAW) and oxyacetylene cutting (OAC) processes to selected projects. This course may be taken for a total of three enrollments not to exceed three units. This course has been approved for open entry/open exit. This course may be taken for either 1 unit, at 51 hours, or 3 units, at 153 hours. Students may retake the course up to three times only for the 1-unit option.

Diversity Statement

Our commitment to diversity requires that we strive to eliminate barriers to equity and that we act deliberately to create a safe and inclusive environment where individual and group differences are valued and leveraged for the growth and understanding as an educational community.

Recommended Preparation: Prepared to enter Introduction to College Reading, Writing, and Critical Thinking or equivalent through multiple measures.

Additional Course Information

Transfer Status:

- CSU only

Total Number of Hours by Instructional Method:

- 51 or 153 Hours Laboratory, 51 or 153 Total Hours of Instruction

Scheduled:

- Spring and Fall

II. Coding Information

Repeatability: Not repeatable

Grading Option: Graded or Pass/No Pass

Credit Type: Credit - Degree Applicable

TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

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

1. One Unit Course:
 - a. Safely setup and perform a minimum of ten welds for each of six AWS joint designs, using OAW, on 16g hot roll steel with RG 45 filler rod.
 - b. Perform a name cutout of 3/16" -1/4" steel, with a minimum of four letters (initial letter 2", remaining 1 1/2"), using the OAC process.
2. Three Unit Course:

- a. Safely setup and perform a minimum of ten welds for each of twelve AWS joint designs, using OAW, on 16g hot roll steel with RG 45 filler rod.
 - b. Fabricate watertight and airtight joint designs, to welding shop standards, using OAW.
- B. Course Objectives
- Upon completion of this course the student will be able to:
- 1. One Unit Course:
 - a. Demonstrate the skills needed to setup and operate oxyacetylene welding (OAW) and cutting (OAC) equipment safely.
 - b. Demonstrate the skills to complete the objectives for the one unit class.
 - 2. Three Unit Course:
 - a. Demonstrate the skills needed to set up and operate oxyacetylene welding (OAW) and cutting (OAC) equipment safely.
 - b. Demonstrate the skills to complete advanced skill level AWS joint.

IV. Course Content

A. Outline of Topics

- 1. One Unit Course:
 - a. Safety precautions
 - i. Working conditions
 - ii. Personal protection
 - iii. Air contamination
 - iv. Compressed gases
 - b. Project procedures
 - i. Identify recognized joint designs
 - ii. Tacking procedures
 - c. Equipment setup
 - i. Oxygen and acetylene pressure requirements
 - ii. Cutting and welding tip requirements
 - iii. Filler rod selection
 - d. Welding/Cutting preparation procedure
 - i. Open butt - flat
 - ii. Open butt - vertical
 - iii. T-joint 2F (horizontal)
 - iv. T-joint 3F (vertical)
 - v. Lap joint - flat
 - vi. Lap joint – vertical
- 2. Three Unit Course:
 - a. All Content from one and two unit courses
 - b. Welding/cutting procedures
 - i. Open butt-overhead
 - ii. T-joint 4F - overhead
 - iii. Lap joint – overhead
 - iv. Name cut-out
 - v. Edge joint – Double - Flat
 - vi. Edge joint – Single - Flat
 - vii. Outside corner - flat

- viii. Water-tight project
- ix. Airtight project

V. Assignments

A. Appropriate Readings

1. College text: "Welding Principles and Applications," and/or trade manuals will be primary sources of course readings.
2. Additional information sources will include product and use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments

1. Students will apply technical skills and understanding of course content by demonstrating application of the OAW and OAC processes to selected projects which meet shop standards.

C. Expected Outside Assignments

1. None

D. Specific Assignments that Demonstrate Critical Thinking

1. Students will be required to demonstrate understanding of OAW and OAC processes to selected projects which meet shop standards. An example of the critical thinking and demonstration of welding techniques would be the following: Given: 1" x 4" x 16 gauge low-carbon steel plates, oxyacetylene tanks, welding tips, tip cleaner, RG45 fill rod, oxyacetylene goggles, leather gloves and jacket, welding table.
2. Performance: The student will tack weld two pieces of 16-gauge steel into a T-joint design and set the joint into the 2F position. The student will weld the T-joint, using RG45 fill rod the length of the 4" joint design.
3. Standard: The student will complete 10 T-joints in the 2F position. All welds will be inspected for equal legs, flat face, length, height, and ripple appearance.
4. A destructive bend test will be administered to all T-joints. One hundred percent of the T-joints must pass the bend test.

VI. Methods of Evaluation

Traditional Evaluation

Methods for determining student grades will be accomplished by the following:

1. Completion of required selected projects.
2. Participation in classroom learning activities.

VII. Methods of Delivery

Check those delivery methods for which this course has been separately approved by the Curriculum/Academic Standards Committee.

- Traditional Classroom Delivery
- Correspondence Delivery
- Hybrid Delivery
- Online Delivery

Traditional Classroom Delivery

VIII. Representative Texts and Supplies

A. Jeffus, Larry; "Welding Principles & Applications", 2021, 9th Edition, Delmar Cengage Learning, ISBN: 9780357377833

B. Supplies (Required):

1. Gauntlet leather welding gloves
2. Safety glasses
3. Leather "logging" type boots
4. Cuffless, heavy cotton workpants, in good repair

IX. Course Status

1. Current Status: Active
2. Original Approval Date: 03/27/1990
3. Course Originator: Kory Konkol
4. Board Approval Date:
5. Chancellor's Office Approval Date:
6. Revised By: Kory Konkol
7. Curriculum/Academic Standards Committee Revision Date: 11/29/2022