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.

Transfers to CSU only
51 to 153 Hours Lab, 51 to 153 Total Student Learning Hours
Scheduled:

II. Coding Information

Repeatability: Not repeatable
Open Entry/Open Exit: Open Entry/Exit
Grading Option: Graded or Credit/No Credit
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:

One Unit:

1. 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.
2. Perform a name cutout of 3/16”-1/4” steel, with a minimum of four letters (initial letter 2”, remaining 1 ½”), using the OAC process.

Three Units:

1. 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.
2. 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:

One Unit:

1. 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.
2. Perform a name cutout of 3/16”-1/4” steel, with a minimum of four letters (initial letter 2”, remaining 1 ½”), using the OAC process.

Three Units:

1. 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.
2. Fabricate watertight and airtight joint designs, to welding shop standards, using OAW.

IV. Course Content

One Unit:

1. Safety precautions
   a. Working conditions
   b. Personal protection
   c. Air contamination
   d. Compressed gases
2. Project procedures
   a. Identify recognized joint designs
   b. Tacking procedures
3. Equipment setup
   a. Oxygen and acetylene pressure requirements
   b. Cutting and welding tip requirements
   c. Filler rod selection
4. Welding/Cutting preparation procedure
   a. Open butt - flat
   b. Open butt - vertical
   c. T-joint 2F (horizontal)
   d. T-joint 3F (vertical)
   e. Lap joint - flat
   f. Lap joint – vertical

Three Units: (in addition to one and two unit requirements)

1. Welding/cutting procedures
   a. Open butt-overhead
   b. T-joint 4F - overhead
   c. Lap joint – overhead
   d. Name cut-out
   e. Edge joint – Double - Flat
   f. Edge joint – Single - Flat
   g. Outside corner - flat
   h. Water-tight project
   i. Air tight project

V. Assignments

A. Appropriate Readings

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

B. Writing Assignments

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

None

D. Specific Assignments that Demonstrate Critical Thinking

Students will be required to demonstrate understanding of OAWand 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, wleding tips, tip cleaner, RG45 fill rod, oxyacetylene goggles, leather gloves and jacket, welding table.

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.

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. Adestructive 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

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

Demonstration/Laboratory

VIII. Representative Texts and Supplies

Jeffus, Larry;*"Welding Principles & Applications*", 2017, 8th Edition, Delmar Cengage Learning, ISBN: 978-1-305-494695-5

Supplies:

Gauntlet leather welding gloves
Safety glasses
Leather "logging" type boots
Cuffless, heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active

Original Approval Date: 3/27/1990
Revised By: Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 11/29/2022
Reviewed for IPR with no recommended changes: