Adv Welding & Fabrication Lab

WLD2231 001

Instructor Information

Course Description

Practical hands-on lab application of Gas Metal Arc Welding to include spray and pulse spray arc transfer, Gas Tungsten Arc Welding on nonferrous base metals. Practical maintenance and repair welding application. Emphasis on American Welding Society D1.1 welder Qualification test prep.

Prerequisite(s): Certificate of completion in welding from the Salt Lake Technical college at SLCC.
Corequisite(s): WLD 2230
Semester(s) Taught: Fall, Spring

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Course Student Learning Outcomes

- Demonstrate the practical application of the Gas Metal Arc Welding (GMAW or MIG welding) spray transfer process with and without pulse spray.
- Demonstrate the practical application of the Gas Tungsten Arc Welding (GTAW or TIG welding) process on non ferrous materials with and without pulse.
- Duplicate the destructive weld testing on 3/8” plate in various positions for weld certifications.
- Demonstrate the practical application of identifying and making proper weld repairs on a variety of different types of materials in various weld positions.
- Interpret Welding Blueprints and demonstrate basic fabrication.
- Demonstrate the practical application of the submerged arc welding process.
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Course Prerequisites

Student must complete SLTC Welding Technology Certificate.

This course must be taken in the same semester as WLD2230.

Communication Plan

Example language:

- I will respond to email within 48 hours or in person in the lab. The best way to contact me is via the Canvas Inbox, as I will prioritize this email over other modes of communication.

Brief Description of Assignments/Exams

- Gas Metal Arc Welding troubleshooting
- Light gage welding of carbon steel in the flat, horizontal and vertical and overhead positions
- T-joint using spray transfer in the flat and horizontal positions on low carbon steel.
- T- joint using pulse spray transfer in all welding positions on low carbon steel.
- T- joint using spray and pulse spray transfer in all welding positions on aluminum.
- Shielded Arc Welding T joint multi-pass weld in the flat position
- Fabrication project
- Gas Metal Arc Welding pipe on positioner
- Gas Tungsten Arc Welding 11-gauge aluminum lap, inside and outside corners all positions
- Gas Tungsten Arc Welding 11-gauge cold rolled steel with stainless filler lap, T, outside corners with and without pulse in all positions.
- Light gage stainless lap and edge weld using the Gas Tungsten Arc Welding process.
- Blueprint fabrication. Project using the Gas Metal Arc Welding/Gas Tungsten Arc Welding
- Cast iron repair project, nickel/silicon bronze.
- Spark test, Metal ID
- Miscellaneous repair projects
- Final Fabrication projects

Grading Scale

A (92-100%) C (74-76%)

A- (89-91%) C- (71-73%)

B+ (86-88%) D+ (67-69%)

B (83-85%) D (64-66%)

B- (80-82%) E (below 64%)

C+ (77-79%) I (Incomplete)

UW (Unofficial withdrawal)

How to Navigate to Canvas

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

You can access the document by clicking on the following link: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, please visit the Institutional Syllabus under the Tutoring and Learning Support tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, please visit the Institutional Syllabus under the Advising and Counseling Support Services tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar

Tools and PPE

MATERIALS: Welding Tools & Personal Protective Equipment (PPE)

Because of their personal nature, and the necessity for welders to have these items on a job, students are required to purchase their own PPE and tools. Each welding student should obtain at least one of each of the following PPE & Tools prior to starting lab courses.

PPE:

· Welding Jacket

· Split Leg Leather Apron or Leather Chaps, or Coveralls (Must be cotton, denim, or twill material. (NO SYNTHETICS!)

· Safety Glasses (Clear Lenses Only)

· Heavy Welding Gloves

· Light Weight MIG Welding Gloves

· Clear Face Shield

· Work boots (Over the ankle. Steel toes not required.)

· Welding Helmet (Passive or Automatic) (Lincoln, Miller, or Speedglass brands preferred for Auto-darkening)

· Welding Cap

· Welding Goggles, #5 shade lens (Must fit over safety glasses.)

· Fillet Weld Gauges

Tools:

· Wire Brush

· 3/32" Tungsten

· Combination square

· Wire wheels/ Hard wheels/ flap disks

· Tig finger

· Torpedo level

· Triple Flint Spark Lighter

· Soap Stone with Holder (Rectangular shape preferred)

· Vise Grip Pliers (Optional – Vise Grip “C” Clamp)

· 12’ Tape Measure (3/4” to 1” blade width is best)

· Combination Lock (Needed if you lease a locker)

· Welding Tip Cleaner

· Chipping Hammer

· Scribe (pen style)

· Ballpoint pen and black Sharpie marker

· Welding Pliers (Special tool for wire feed processes.)

· 4 1/2" Angle grinder

· Wire cutters