

# PIPE WELDING AND FABRICATION

WLD2240 001

## Instructor Information

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**Phone:**

**Email:**

**Office Location:**

**Office Hours**

**Best Time to Contact:**

## Course Description

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Theory of pipe welding and fitting, layout, and fabrication including blueprint reading and interpretation. Emphasis on American Welding Society D1.1 and American Petroleum Institute 1104 in preparation for welder qualification tests.

Prerequisite(s): WLD 2230 and WLD 2231

Corequisite(s): WLD 2241

Semester(s) Taught: Fall, Spring

## Course Student Learning Outcomes

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- Identify and discuss the critical variables of each welding process.
- Identify and classify commonly welded materials to include low carbon steel, stainless steel, and aluminum.
- Explain and safely set up and operate welding power sources and conduct a visual inspection of completed welds.
- Describe and utilize safety in set up and operating related cutting process equipment.

## Course Prerequisites

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WLD 2230 and WLD 2231

## Communication Plan

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I will respond to email within **two days**.

I will offer feedback on major assignments within **one week**.

The best way to contact me is via the Canvas Inbox, as I will prioritize this email over other modes of communication.

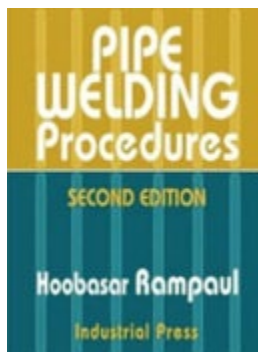
## Keys for Success (how to succeed in the course)

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Attendance and class Participation are critical to each student's success in the course.

## Required Text or Materials

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**Title:** Pipe Welding Procedures

**ISBN:** 9780831131418

**Authors:** Hoobasar Rampaul

**Publisher:** Industrial Press Inc.

**Publication Date:** 2003-01-01

*image  
not  
available*

**Title:** Metals and how to Weld Them

**Authors:** Ted B. Jefferson, Gorham Woods, James F. Lincoln Arc Welding Foundation

**Publisher:** James F. Lincoln Arc Welding Foundation

**Publication Date:** 1954-01-01

**Edition:** Second Edition

For more information on textbook accessibility, contact Accessibility & Disability Services at [ads@slcc.edu](mailto:ads@slcc.edu).

# Brief Description of Assignments/Exams

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The following is the guideline for this WLD 2240 theory class. There will be a quiz each week after book chapter review.

## Week One-

- Chapter 1 of Metals and How to Weld Them
- Chapter 1 of Pipe Welding Procedures

## Week Two-

- Chapter 2 of Metals and How to Weld Them
- Chapter 2 of Pipe Welding Procedures

## Week Three-

- Chapter 3 of Metals and How to Weld Them
- Chapter 3 of Pipe Welding Procedures

## Week Four-

- Chapter 4 of Metals and How to Weld Them
- Chapter 4 of Pipe Welding Procedures

## Week Five-

- Chapter 5 of Metals and How to Weld Them
- Chapter 5 of Pipe Welding Procedures

## Week Six-

- Chapter 6 of Metals and How to Weld Them
- Chapter 6 of Pipe Welding Procedures

Week Seven-

- Chapter 7 of Metals and How to Weld Them
- Chapter 7 of Pipe Welding Procedures

Week Eight-

- Midterm exam

Week Nine-

- Chapter 8 of Metals and How to Weld Them
- Chapter 8 of Pipe Welding Procedures

Week Ten-

- Chapter 9 of Metals and How to Weld Them
- Chapter 9 of Pipe Welding Procedures

Week Eleven

- Chapter 10 of Metals and How to Weld Them
- Chapter 10 of Pipe Welding Procedures

Week Twelve-

- Chapter 11 of Metals and How to Weld Them
- Chapter 11 of Pipe Welding Procedures

Week Thirteen-

- Chapter 12 of Metals and How to Weld Them
- Chapter 12 of Pipe Welding Procedures

Week Fourteen-

- Chapter 13 of Metals and How to Weld Them
- Chapter 13 of Pipe Welding Procedures

Week Fifteen-

- Course Review

Week Sixteen-

- Final exam

## Assignment Schedule

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Due Date	Assignment Name	Assignment Type	Points
	<a href="#">Roll Call Attendance</a>	Assignment	100
8/22	<a href="#">Chapter 1 Review Questions</a>	Assignment	7
8/22	<a href="#">Unit 1 Quiz</a>	Quiz	100
8/29	<a href="#">Chapter 2 Review Questions</a>	Assignment	7.75
8/29	<a href="#">Unit 2 Quiz</a>	Quiz	100
9/5	<a href="#">Chapter 3 Review Questions</a>	Assignment	7.75
9/5	<a href="#">Unit 3 Quiz</a>	Quiz	100

<b>Due Date</b>	<b>Assignment Name</b>	<b>Assignment Type</b>	<b>Points</b>
9/12	<a href="#">Chapter 4 Review Questions</a>	Assignment	7.75
9/12	<a href="#">Unit 4 Quiz</a>	Quiz	100
9/19	<a href="#">Chapter 5 Review Questions</a>	Assignment	7.75
9/19	<a href="#">Unit 5 Quiz</a>	Quiz	100
9/26	<a href="#">Chapter 6 Review Questions</a>	Assignment	7.75
9/26	<a href="#">Unit 6 Quiz</a>	Quiz	100
10/3	<a href="#">Chapter 7 Review Questions</a>	Assignment	7.75
10/3	<a href="#">Unit 7 Quiz</a>	Quiz	100
10/10	<a href="#">Unit 8 Quiz</a>	Quiz	100
10/15	<a href="#">Midterm Exam</a>	Quiz	100
10/24	<a href="#">Chapter 8 Review Questions</a>	Assignment	7.75
10/24	<a href="#">Unit 9 Quiz</a>	Quiz	100
10/31	<a href="#">Chapter 9 Review Questions</a>	Assignment	7.75
10/31	<a href="#">Unit 10 Quiz</a>	Quiz	100

<b>Due Date</b>	<b>Assignment Name</b>	<b>Assignment Type</b>	<b>Points</b>
11/7	<a href="#">Chapter 10 Review Questions</a>	Assignment	7.75
11/7	<a href="#">Unit 11 Quiz</a>	Quiz	100
11/14	<a href="#">Chapter 11 Review Questions</a>	Assignment	7.75
11/14	<a href="#">Unit 12 Quiz</a>	Quiz	100
11/21	<a href="#">Chapter 12 Review Questions</a>	Assignment	7.75
11/21	<a href="#">Unit 13 Quiz</a>	Quiz	100
12/5	<a href="#">Chapter 13 Review Questions</a>	Assignment	7.75
12/10	<a href="#">Final Exam</a>	Quiz	100

## Grading Scale

Attendance and Participation (20%)

Quizzes (20%)

Chapter Review Questions (10%)

Mid-term (25%)

Final Exam (25%)

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

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## Institutional Policies

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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

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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

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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

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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](#)

## Additional Policies

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### Special Instructions

Because of the nature of the environment students will be working in; there are special rules that must be adhered to with zero tolerance.

- See the instructor immediately if you have an emergency situation.
- Use of cell phone for calls, texting, or internet will not be allowed in the shop floor. Cell phones may be used in the classroom, but they must be on silent or vibrate mode. If you receive a call, please leave the classroom briefly. Making a call or texting during class should be restricted for emergency purposes only.
- No profanity will be tolerated in class or lab.

### General Lab Safety Rules

1. Safety glasses are to be worn at all times while in the welding lab.
2. Face shields and safety glasses are to be worn when using the grinders.
3. Wear proper protective clothing while performing welding & cutting operations.
4. THINK before you DO!
5. No horseplay will be tolerated in the welding lab!
6. Students, Faculty & Staff are required to adhere to Utah State Law and SLCC Policy regarding legally controlled substances, i.e.: Alcoholic beverages, Tobacco products, Vaporizers, drugs etc.
7. Report ALL accidents or injuries to your instructor as soon as they happen.
8. Treat all equipment as potential hazard.
9. Make sure compressed gas cylinders are secured when in use or storage.
10. Close compressed gas cylinder valves when not in use.
11. Make sure protective valve caps are secure on the compressed gas cylinders during moving and storage.
12. Do not burn weld material lying on concrete.
13. Use pliers or clamps to handle hot materials. (NOT GLOVES!)
14. Contain long hair with welding caps or other suitable protective wear.

15. Do not weld on or near compressed gas cylinders.
16. Do not use gasoline powered machines inside of the building.
17. Use ventilation fans when welding and/or cutting operations are being done in the lab.

#### Welding Lab Policies & Procedures

- All welding students are to complete the Welding Safety exam with 100% accuracy prior to working in the welding lab.
- No students are to be working in the welding lab without the presence of an instructor. No permission is to be granted to a student to work in the lab other than their regular class period without the consent of any faculty member who will be present during that time.
- Room WTEC-xxx is tool room. This room is not to be accessed by students without the accompaniment of an instructor or the tool room attendant.
- The welding lab has a Lab Coordinator for the day and a tool room attendant for the evening class times. These positions will be responsible to check out any and all tools or other material and equipment as needed.
- ALL students are responsible for their individual areas to be cleaned at the end of each class period. All booths and floor areas are to be cleaned and swept daily and maintained in good condition which meets OSHA and industry standards.
- NO ONE is to use any equipment without first obtaining task training and proving competent in safety procedures in its operation and function. No students should use the shear without the presence and instruction from a welding faculty member. Strict adherence to the size of plate, cut procedures, and materials used are to be enforced.
- Student and class projects need to be approved by faculty and consideration should be given to size, appropriateness for class, and storage during constructions.
- Be conservative with consumable materials, i.e. use welding electrodes down to two-inch stubs; use OAW filler rod completely by welding stubs to long rods; return unused and partially used welding electrodes and welding rods to their proper storage container; use practice materials (sheet, plate, pipe, etc.) efficiently. DO NOT through way and usable materials!
- Place scrap metal in the proper disposal containers.
- DO NOT weld on welding tables, clamps, fixtures.
- Students suspected of attending class while under the influence of drugs and/or alcohol will be asked to leave. Continuation of this type of behavior termination from the class.
- Lab telephones and computers are for official college use and are not to be used by students.
- Mobile phones and audio devices, i.e. cell phones, MP3 players, portable stereos, electronic wearables (wireless headphones, watches), etc. are not allowed in the lab. Any device that detracts from being alert to inherent dangers or warning sounds are not to be used in the lab.
- Students enrolled in courses where learning activities take place in the welding lab are required to have general safety instruction provided. The content of which must include items of general nature as will be found in venues that employ welding personnel. (Reference.: AWSZ49.1 SAFETY IN WELDING AND CUTTING AND ALLIED PROCESSES). An assessment of the content learned by the student is required. No student shall be permitted to work in the welding lab with an assessment score lower than 100%.
- Students enrolled in courses where learning activities take place in the welding lab are required to have process specific safety instruction provided. The content of which must

include items consistent with the safe use and operation of the welding process being taught. An assessment of the content learned by the student is required. No student shall be permitted to work in the welding lab with an assessment score lower than 100%.

- Students are allowed to work in the welding lab only during their scheduled lab time (SLCC Policy). An instructor from the welding department must be present in the welding lab anytime students are working.
- The Tool Room is NOT accessible to welding students. In extenuating circumstances, students may enter the tool room ONLY when accompanied by an instructor, Lab Coordinator, or Tool Room Attendant.
- Students are required to “sign out” and “sign in” tools and/or equipment acquired from the tool room through the tool room service window.
- Students are responsible to clean their individual work areas (Welding stations and/or booths) at the end of each class period. Clean worktables by sweeping off loose material, sweep floors, neatly hang hoses & cable, remove welding rods & electrodes from holders, sweep off power sources, scrap loose spatter from welding tables & fixtures, etc.
- It is expected that students who have worked in a general use area of the lab (i.e.: Grinding room, OAC Track Torch, CNC Plasma Torch, Air-Arc rooms, etc.) during their lab time help clean up these areas at the end of their lab class.
- Complete task training is required for each piece of equipment in the welding lab prior to use. A comprehensive assessment of user competency is required prior to use. Minimum acceptable test score is 80%. **STUDENTS ARE NOT AUTHORIZED TO USE THE PLATE SHEAR!**
- Conservation of consumable materials used for instruction purposes shall be observed. This includes all base materials, Filler materials, Welding electrodes, Welding gases, etc.
- Recycle all metals. Place scrap in its proper container: Ferrous Metals; Aluminum Alloys, Copper Alloys, Stainless Steels.
- Clamps and fixtures for holding practice weldments are provided in each welding booth and OAW workstation. It is expected that these devices be kept in good operating condition. **DO NOT force or overtighten clamps and fixtures!**
- Due to regular use and normal wear and tear, these devices will eventually require maintenance. Students shall inform their instructor of malfunctioning fixturing devices. Instructors shall teach students how to make repairs to these fixtures and assist them as necessary. **WELDING ON WORKSTATION OR BOOTH FIXTURES AS A TEMPORARY REPAIR IS CONSIDERED VANDALISM. DO NOT WELD ON TABLES OR FIXTURES!!! DISCIPLINARY ACTION WILL BE REQUIRED UPON VIOLATION OF THIS POLICY.**
- **DO NOT** weld practice weldments on worktable tops. Use the clamps and fixtures that are provided.
- Face shields are required PPE for all grinding, power sanding, power wire brushing operations, and use of metal cut-off wheels.
- Safety glasses shall be worn upon entering the welding lab and at all times that students are working in the lab. Safety glasses shall have clear lenses. Shaded lenses are not approved for indoor use and will NOT be allowed in the welding lab.
- Behavior deemed to be “Horse Play” or “Harassment” has no place in the welding lab and will not be tolerated. Please refer to the SLCC Student Code of Conduct for interpretation.
- Compressed gas cylinders shall have protective valve caps in place when cylinders are not in use. Cylinders shall not be moved without the protective valve caps in place. Gas cylinders shall be secured when being moved or stationary.

- Ventilations fans shall be used while welding and/or cutting operations are taking place in the welding lab.
- White boards located in welding booths are for instructor use only. Only erasable white boards markers are to be used.
- No graffiti activity, which includes, markers, spray paint, stickers, etc. shall take place at any location on SLCC property. Notice: Security cameras are in use everywhere.
- NO food in the welding lab or classrooms!
- All instructors are responsible to enforce department and college policies. Instructors may halt any activity deemed to be unsafe, hazardous, unlawful, or of nonconformance to welding department/SLCC policy, etc. This policy crosses all boundaries regardless of whether or not involved parties are THAT instructors' students or not.

#### Cellular Phone & Electronic Device Use

Cellular phones will be set to silent mode before entering the classroom.

No electronic devices or cell phones are allowed in the welding lab.

If the phone does not have a silent option, it must be turned off while in class. CELL PHONES ARE NOT TO BE ANSWERED in the classroom. In extenuating circumstances, such as an emergency, excuse yourself, leave the classroom, and either answer or return the phone call in a non-disturbing area (please abstain from using your cellphone outside the classroom doors – it is extremely disruptive). While a student is taking an examination, his or her cell phone MUST be in the OFF MODE and NOT accessible to the student.

#### Emergency Procedures

- In the event of an emergency and should the Westpointe campus need to be evacuated, you are to go out the closest open exit and assemble at the northwest corner of the parking lot.
- DO NOT leave as your instructor must account for your whereabouts. Instructors must take roll to account for all their students.
- Always leave the building immediately. Turn off equipment and lights and close the door behind you. (A closed door will limit the spread of heat and smoke and will also act as a fire barrier and can serve as a theft deterrent in case of other evacuations.) Do not take personal belongings.
- Use stairways to exit. Never use an elevator as an emergency exit.
- As you evacuate the building:
  - Please be aware of individuals with disabilities who are also trying to leave the building and offer assistance where you can. The College has placed devices called Evacu-Trac in many buildings to assist in the evacuation of individuals who use wheelchairs or have mobility challenges. For assistance in evacuating an individual with a disability, contact your Building Marshal, or the Department of Public Safety. Know where the nearest Evacu-Trac Device is located and learn how to use it.
    - EvacuTract Training Video

- If you encounter individuals who are ignoring the fire alarm or the request to evacuate, instruct them to leave the building immediately. If they do not respond, report their location to building marshal, police, or fire fighters after you have safely evacuated.
- Keep streets and walkways clear for emergency vehicles and personnel.
- Do not reenter the building until it is determined that is safe to do so as by Fire personnel or the Fire Marshal.