# BUTTE COLLEGE
## COURSE OUTLINE

I. **CATALOG DESCRIPTION**

**WLD 160 - Welding Certification Practices** **1 - 2 Unit(s)**

**Prerequisite(s):** WLD 28, WLD 30, WLD 32, WLD 34, WLD 36, WLD 42, WLD 56, WLD 156

**Recommended Prep:** Reading Level III; English Level II; Math Level II

**Transfer Status:** NT

51 - 102 hours Lab

This is a supervised lab experience to help prepare students to meet the required standard for qualification papers in welding codes using American Welding Society (AWS) and American Society of Mechanical Engineers (ASME) specifications. Students will practice skills in shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux core are welding (FCAW), and gas tungsten arc welding (GTAW), in all positions on plate and pipe, in preparation for weld performance tests with certified welding inspectors (CWI) or contractors. Students may enroll in this course up to 2 unit(s) to complete the entire curriculum of the course. Pass/No Pass Only. Open Entry/Open Exit.

II. **OBJECTIVES**

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

A. Follow proper safety protocols when operating welding and cutting equipment.
B. Perform at code level on open groove plate and pipe joints.
C. Demonstrate destructive testing of welds in accordance with the AWS and ASME codes.
D. Follow procedures using the SMAW, GMAW, FCAW, and GTAW welding processes meeting AWS and ASME specifications for qualification.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

| Topics | Lab Hours |
|---|---|
| 1. Introduction and safety | 1.50 |
| 2. SMAW welding processes related to AWS and ASME codes | 8.25 - 16.75 |
| 3. GMAW welding processes related to AWS and ASME codes | 8.25 - 16.75 |
| 4. FCAW welding processes related to AWS and ASME codes | 8.25 - 16.75 |
| 5. GTAW welding processes related to AWS and ASME codes | 8.25 - 16.75 |
| 6. Open groove plate and pipe joint welding | 8.25 - 16.75 |
| 7. Destructive testing methods for AWS and ASME codes | 8.25 - 16.75 |
| Total Hours | 51 - 102 |

IV. **METHODS OF INSTRUCTION**

A. Demonstrations
B. Laboratory Experiments

V. **METHODS OF EVALUATION**

A. Class participation

B. Practical Evaluations

## VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
1. Read the manual for the GTAW equipment and describe the steps for proper setup to the instructor.
2. Read the American Society of Mechanical Engineers (ASME) section IX code book for proper GTAW procedures and discuss with instructor.

B. Writing Assignments
1. Maintain a written log of your daily welding activities.
2. Write a summary of the American Welding Society requirements for certification.

C. Out-of-Class Assignments
1. Not applicable

## VII. RECOMMENDED MATERIALS OF INSTRUCTION

Materials Other Than Textbooks:

A. All tools listed in the Butte College Welding Technology Program Guide.
B. A full list of tools can be found at www.butte.edu./departments/careertech/welding/tools.html

**Created/Revised by:** Donald Robinson
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