BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

WLD 159 - Shop Practices for Advanced Pipe Welders **0.25 - 1 Unit(s)**

Prerequisite(s): WLD 156 or WLD 158
Recommended Prep: Reading Level III; English Level II; Math Level II
Transfer Status: NT
12.75 - 51 hours Lab

This is a supervised lab experience for pipe and tube welders. Students will practice skills in shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux core arc welding (FCAW), gas tungsten arc welding (GTAW), oxyacetylene welding (OAW), and oxy-fuel cutting (OFC) processes on several piping systems. American Petroleum Institute (API) 1104, American Welding Society (AWS) and American Society of Mechanical Engineers (ASME) Section IX will be practiced. Students may enroll in this course up to 1 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. Cut, prepare, and weld various pipe joint designs.
C. Follow procedures using the OAW, SMAW, GMAW, FCAW, and GTAW welding processes meeting API, AWS, and ASME specifications for qualification.

III. **COURSE CONTENT**

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

Topics	Lab Hours
1. Intoduction and safety	0.75 - 1.50
2. Cutting and welding large diameter pipe	2.00 - 8.25
3. Welding the root, hot pass, fill passes, and cover passes	2.00 - 8.25
4. Welding various wall thicknesses of pipe	2.00 - 8.25
5. Welding in the 2G position	2.00 - 8.25
6. Welding in the 5G position	2.00 - 8.25
7. Welding in the 6G and complicated 6GR position	2.00 - 8.25
Total Hours	12.75 - 51

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 OAW 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 Petroleum Institute (API) 1104 requirements for certifications.

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

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Materials Other Than Textbooks:

A. Safety equipment: safety glasses, welders hat, leather gloves, leather jacket, leather chaps, leather boots, ear plugs and proper protective clothing (no tennis shoes, tank tops, or shorts).

B. Tools: chipping hammer, wire brush, tip cleaners, 10 in. straight jaw locking pliers, combination square, paint pen, striker, 25' tape measure, 10R and 11R vise grips, mig pliers, 3" x 5" memo pad and soap stone.

Created/Revised by: Donald Robinson
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