BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

WLD 22 - Oxyacetylene Welding and Flame Cutting **2 Unit(s)**

Prerequisite(s): WLD 21 and NCCER Level I Welding Qualification
Co-requisite(s): WLD 24, WLD 25, WLD 26, WLD 40, WLD 154
Recommended Prep: Reading Level III; English Level II; Math Level II
Transfer Status: CSU
17 hours Lecture
51 hours Lab

This course includes the techniques used for oxyacetylene welding (OAW) in all positions (flat, vertical, horizontal and overhead) and uses a variety of freehand and automatic burning equipment on different metals.

II. **OBJECTIVES**

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

A. Demonstrate the proper use and set up of the OAW and oxy-fuel cutting(OFC) units in a safe manner.
B. Demonstrate the proper use and set up of the plasma arc cutting (PAC) unit in a safe manner.
C. Demonstrate the proper use of the air carbon arc cutting and gouging (CAC-A) unit in a safe manner.
D. Demonstrate proper use of the OAW process in all positions.
E. Demonstrate proper OAW on various joint details.
F. Identify and use the American Welding Society (AWS) classification for the selection of the correct filler materials for the job.

III. **COURSE CONTENT**

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

Lecture

Topics	Hours
1. Introduction and safety	2.00
2. Set up and operation of flame cutting equipment	1.50
3. Flame cutting	1.00
4. Freehand/guided cutting	1.00
5. OAW in all positions	1.00
6. Base metal preparation	0.50
7. Joint fit-up and alignment	0.50
8. Bronze welding	1.00
9. Weld quality	1.00
10. Machine flame cutting	1.00
11. Different gases used for flame cutting	1.00
12. Set up and operation of CAC-A equipment	1.50
13. Set up and operation of PAC equipment	1.50
14. Plasma cutting	1.50
15. Other Related Cutting Processes	1.00

Total Hours	17.00

Lab

Topics	Hours
1. Introduction and safety	2.00
2. Set up and operation of flame cutting equipment	1.50
3. Flame cutting	3.00
4. Freehand/guided cutting	6.00
5. OAW in all positions	16.00
6. Base metal preparation	1.00
7. Joint fit-up and alignment	0.50
8. Bronze welding	4.00
9. Weld quality	1.00
10. Machine flame cutting	6.00
11. Different gases used for flame cutting	3.00
12. Set up and operation of CAC-A equipment	2.00
13. Set up and operation of PAC equipment	2.00
14. Plasma cutting	2.00
15. Other Related Cutting Processes	1.00
Total Hours	51.00

IV. METHODS OF INSTRUCTION

A. Lecture
B. Instructor Demonstrations
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
D. Discussion
E. Demonstrations
F. Multimedia Presentations
G. Laboratory Experiments

V. METHODS OF EVALUATION

A. Exams/Tests
B. Quizzes
C. Homework
D. Lab Projects
E. Lab Mid-term Project
F. Lab Final Project

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
    1. Read assigned AWS journal article and be prepared to discuss in class.
    2. Review OAW safety handbook and be prepared to discuss in class.
B. Writing Assignments
    1. Write the proper steps for setting up and the operation of a PAC system.
    2. Write the steps to properly light, properly adjust flame and shut down an OFC torch system.

C. Out-of-Class Assignments
    1. Research the proper process for setting up OAW equipment using manufactures publication.
    2. Answer review questions for module 2.

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Textbooks:

A. National Center for Construction Education and Research (NCCER) . Welding Level One. 4th Edition. Pearson Education INC, 2010.
B. ESAB welding and cutting products. The Oxy-Acetylene Handbook. ESAB welding and cutting products, 1994.
C. National Center for Construction Education and Research (NCCER). Welding Level Two. 4th Edition. Pearson Education INC, 2010.

Materials Other Than Textbooks:

A. All tools listed in the Butte College Welding Technology Program Guide.

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