I. **OVERVIEW**
The following information will appear in the 2011 - 2012 catalog

WELD 200  *Arc & Gas Welding*  
3 Units

*Also offered as:* MFGA - 200: Arc & Gas Welding

Introduction level course with a lecture/lab format of instruction. Activities and topics include oxyacetylene welding/cutting and shielded metal arc welding processes.

**Materials Fee Required**

Field trips might be required.  
(A-F or P/NP - Student choice) Lecture /Lab

Transfer: (CSU)

II. **LEARNING CONTEXT**
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   a. Oxyacetylene equipment & supplies
   
   b. Oxyacetylene cutting and welding safety
   
   c. Oxyacetylene cutting and welding set-up
   
   d. Shielded metal arc welding equipment & supplies
   
   e. Shielded metal arc welding safety
   
   f. Shielded metal arc welding set-up
   
   g. electrode selection

2. **Required Lab Content:**

   a. Oxyacetylene equipment adjustments & set-up
   
   b. Oxyacetylene welding procedures
   
   c. Oxyacetylene cutting adjustments & set-up
   
   d. Oxyacetylene cutting procedures
   
   e. Shielded metal arc welding adjustments & set-up
   
   f. Shielded metal arc welding procedures
   
   g. General metal shop equipment set-up & operation
h. Safety equipment and procedures

B. HOURS AND UNITS

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<tr>
<th>INST METHOD</th>
<th>TERM HOURS</th>
<th>UNITS</th>
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<tr>
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C. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Classroom Lectures
2. Lab demonstrations
3. Review of supplementary industry based handouts.
4. Use of multimedia videos, slide presentations.
5. Guest speakers from industry.
6. Lab review and feedback of student work during lab times.

D. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

   Time spent on coursework in addition to hours of instruction (lecture hours)

   a. Weekly reading assignments
   b. Weekly homework assignments
   c. Periodic quizzes
   d. Periodic lab project job sheets
   e. Safety Exam
   f. Final Exam

2. EVIDENCE OF CRITICAL THINKING

   Assignments require the appropriate level of critical thinking

   a. Describe the safety precautions using oxy/acetylene equipment.
   b. The acetylene line pressure must never exceed ______.
   c. Explain how to adjust to a neutral flame.
   d. Describe the safety precautions using SMAW equipment.
   e. List the proper shade of lens required for SMAW welding.
Discuss the importance of joint set up.

If undercutting occurs while SMAW welding, what should you do to correct the problem?

What can be done to prevent heat buildup during welding?

E. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. COURSE GOAL

As a result of satisfactory completion of this course, the student should be prepared to:

explain and practice fundamental safety rules of the SMAW and OFW/OFC equipment and process;
explain and practice the basic procedures and concepts of operation with the SMAW and OFW/OFC equipment and process; comprehend and develop welds, weld joints and welding positions from the instructions of job sheets JS-1 and JS-2.

B. STUDENT LEARNING GOALS

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals

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

a. Explain the 8 fundamental rules of operation with the SMAW process.

b. Explain the 5 fundamental rules of operation and set-up of the oxyacetylene apparatus.

c. Understand and explain the basic functions and controls of a constant current power source.

d. Identify the 4 basic welding positions.

e. Identify the 5 basic welding joints.

f. Explain the basic principles of welding electricity.

2. Lab Learning Goals

Upon satisfactory completion of the lab portion of this course, the student will be able to:

a. Use appropriate materials and equipment to develop the welds and weld joints illustrated on job sheet #1.

b. Use appropriate materials and equipment to develop the welds and weld joints illustrated on job sheet #2.

c. Use a constant current power source to set the machine controls for both SMAW and GTAW.

d. Use selected materials to correctly fit-up the 5 basic weld joints.

IV. METHODS OF ASSESSMENT (TYPICAL)
A. FORMATIVE ASSESSMENT

1. Quizzes
2. Assessment of student ability to follow safety and work environment procedures
3. Evaluation of quality of lab welds
4. Assessment of student equipment set-up and operation
5. Safety exam.
6. Class and laboratory participation and punctuality

B. SUMMATIVE ASSESSMENT

1. Final examination
2. Assessment of student completion and quality of all laboratory assignments.