**Barstow College Course Outline - Course - SLO, Objectives, Methods of Instruction**

**WELD 51**

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**Dept & Nbr:** WELD 51 **Abbrv Title:** ARC WELD & CUTTING

**Full Title:**
SHIELDED METAL ARC WELDING AND CUTTING

**Title 5 Category:**
Associate Degree Applicable

**Certificate:**
Yes

**Units**
Max: 3.00
Min: 3.00

**Course Hours Per Week**
Lecture 2
Lab 3

**Number of Weeks**
18.0

**Course Hours Total**
Lecture 36.00
Lab 54.00

**Methods of Delivery**

**Selected Topic**
No

**Grading**
Graded Option (ABCDEF) and Pass/No Pass (P/NP)

**Repeat Code**

Non Repeatable/Non Activity Course (May be repeated two times with a grade of less than “P” or "C")

**Basic Skills**

Course is not a basic skills course.

**Prerequisites**

**Corequisites**

**Recommended Preparation**

**Catalog Description**

Use of electrodes, metals, welding machines in arc welding and cutting.

**Course Content**

I. Shielded Metal Arc Welding (SMAW) Safety
II. Electrode coatings
III. Electrode classifications
IV. Electrode selection
V. The arc
VI. Metal transfer
VII. SMAW equipment
VIII. Process basics
IX. Equipment basics
X. SMAW weld joints
XI. Testing procedures

**Methods of Instruction**

1. Lecture presentations and class discussion.
   (Satisfies objectives 1, 2, 3, 4)
2. Video viewing and class discussion.
   (Satisfies objectives 1, 2, 3, 4)
3. Instructor demonstration followed by student demonstration and instructor critique.
   (Satisfies objectives 1, 4, 5, 6, 7)
4. Homework, both reading and writing, assigned by instructor
   (Satisfies objectives 1, 2, 3, 4)

**Course Objectives**

**A. Define Course Objectives**

1. Demonstrate welding safety practices. .
2. Identify electrode coating and classifications.
3. Select the correct electrode.
4. Set-up SMAW power sources.
5. Practice arc starts and stops.
6. Produce various SMAW weld in Demonstthe flat position.
7. Demostrate testing procedures

**B. Critical Thinking Tasks/Assignments**

Critical thinking assignments include(but are not limited to) the following:

Substantial Writing Assignments Including:

Computational or Non-Computational Problem Solving Demonstrations Including:
Exam(s)
Quizzes

Skill Demonstration Including

Objective Examinations Including

**C. Methods of Evaluation**

| | |
|---|---|
| Substantial Writing Assignments | None |
| Computational or Non-Computational Problem Solving Demonstrations | Exam(s)<br>Quizzes |
| Skill Demonstration | Class Performance(s)<br>Performance Exam(s) |
| Objective Examinations | Multiple Choice<br>True/False<br>Matching<br>Completion |
| Other | None |
| Additional assessment information (optional). | SPECIAL ASSIGNMENTS = 5%<br>CLASS PARTICIPATION AND ATTENDANCE = 15% |

**Basis for Grades**

| | |
|---|---|
| Writing Assignments | 30.0% |
| Skill Demonstrations | 30.0% |
| Objective Examinations | 20.0% |
| Other Category | 20.0% |

**Required Reading, Writing and Other Outside of Class Assignments**

**Required Reading:**

**Required Writing:**

**Other Out of Class Assignments:**

**Texts/Materials**

**Textbooks**

1. Bonhart. *Welding*, 4th ed. MCG, 2011, ISBN: 9780073373713.
2. Sacks. *Welding (Workbook)*, 4th ed. MCG, 2011, ISBN: 9780077475079.

**Manuals**

*You have no manuals defined.*

**Periodicals**

*You have no periodicals defined.*

**Software**

*You have no software defined.*

**Other**

1. Sample Textbook: Koellhoffer, Hornberger and Manz. WELDING PROCESS AND PRACTICES.

2. Sample Textbook: Hornberger and Manz. WELDING PROCESS AND PRACTICES WORKBOOK.

**Student Learning Outcomes**

1. . Student will exercise the safety precautions necessary to avoid injury to self or property when shielded metal arc welding.
    - Core Competency: Communication and Critical Thinking and Personal/Professional Development
    - Assessment Methods: Multiple Choice, Demonstration, Observations by Instructors.
    - Rubric:
2. Student will be capable of properly setting up, adjusting, operating and shutting down shielded metal arc welding equipment
    - Core Competency: Communication and Critical Thinking and Personal/Professional Development
    - Assessment Methods: Project or Presentation, Multiple Choice, Demonstration, Observation by instructors
    - Rubric:
3. Student will produce sound shielded metal arc welds in the flat position
    - Core Competency: Communication and Critical Thinking and Personal/Professional Development
    - Assessment Methods: Demonstration, Project or Presentation, Multiple Choice, Instructor performed visual, non-detuctive, and/or detructive tests.
    - Rubric:

**Curriculum Committee Approval Date:** 01/10/1990 **Last Outline Revision Date:** 01/01/2013