

**WELD 170A Course Outline as of Summer 2008****CATALOG INFORMATION**

Dept and Nbr: WELD 170A Title: WELDING BASICS,BEGINNING

Full Title: Welding Basics, Beginning

Last Reviewed: 12/10/2001

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.00	Lecture Scheduled	0.50	17.5	Lecture Scheduled	8.75
Minimum	1.00	Lab Scheduled	1.50	8	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	2.00		Contact Total	35.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 17.50

Total Student Learning Hours: 52.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 22 - 4 Times in any Comb of Levels

Also Listed As:

Formerly:

**Catalog Description:**

Basics of arc and oxy-acetylene welding and cutting. This course is a time shortened version of WELD 70A. It is intended to train individuals as maintenance technicians who need to know how to weld but who are not training to be welders.

**Prerequisites/Corequisites:****Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: Intro to basics of electric arc & gas welding. This course is a shortened version of WELD 70A. It is intended to train maintenance technicians who need to know how to weld but who are not training to be welders. (Grade Only)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit:

Repeatability: 4 Times in any Comb of Levels

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:

<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
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<b>CSU Transfer:</b>	Effective:	Inactive:
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<b>UC Transfer:</b>	Effective:	Inactive:
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**CID:**

**Certificate/Major Applicable:**

Not Certificate/Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

The student will:

1. Describe and demonstrate principles of welding safety.
2. Identify components of oxy-acetylene welding and cutting equipment.
3. Recognize a transformer, rectifier and motor generator type welding machine.
4. Explain the principles of the AC and DC welding current.
5. Identify components of gas metal arc welding equipment.
6. Set up and place in operation oxy-acetylene, arc and gas metal arc welding equipment.
7. Differentiate between plain carbon steel, alloy steel, ferrous and non-ferrous metals.
8. Produce a sample butt joint, lap joint, fillet weld and braze welded fillet using the oxy-acetylene welding process.
9. Produce a sample of free hand flame cutting and straight line beveling and piercing.
10. Produce a sample of stringer beads, padding, weaving in the flat position, a multipass fillet weld in the horizontal position, a lap joint and a fillet weld in the vertical down position using shielded metal arc welding.

### **Topics and Scope:**

- I. Shielded Metal Arc
  - A. Arc welding safety
  - B. Electrical terms
  - C. Welding machines
  - D. Personal equipment
  - E. Shop equipment

- F. Basic welding terms
- II. Oxy-Acetylene
  - A. Oxy-acetylene safety
  - B. Compressed gas cylinders
  - C. Pressure regulators
  - D. Hose, torches and tips
- III. Metallurgy
  - A. Ferrous and non-ferrous metals
  - B. Effects of heat during welding
  - C. Metals identification
- IV. Striking the Arc
  - A. Electrode selection
  - B. Adjusting equipment
  - C. Running short beads
  - D. Running continuous beads
  - E. Fillet welds
  - F. Vertical down beads
  - G. Joint design
  - H. Manipulative practice
- V. Carrying Puddles
  - A. Tip selection and flame settings
  - B. Selecting a filler rod
  - C. Laying beads with a filler rod
  - D. Joint design
  - E. Manipulative practice
- VI. Flame Cutting
  - A. Cutting safety
  - B. Cutting torches
  - C. Gas pressure settings
  - D. Flame settings
  - E. Torch manipulation
  - F. Manipulative practice
- VII. Brazing
  - A. Joint preparation
  - B. Filler rod selection
  - C. Flame settings
  - D. Fluxes
  - E. Temperature control
  - F. Manipulative practice

**Assignment:**

Include weekly reading assignments, regular quizzes based on reading (including handouts developed by instructor and from manufacturers), practical skills assignments and tests. Course information will be supplemented by films and videos.

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Quizzes, Exams

Problem solving  
10 - 35%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances, Performance exams

Skill Demonstrations  
30 - 50%

**Exams:** All forms of formal testing, other than skill performance exams.

Multiple choice, True/false

Exams  
15 - 35%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

ATTENDANCE

Other Category  
5 - 10%

**Representative Textbooks and Materials:**

SRJC Welding Department Handbook, updated annually.