WELD 171.1 Course Outline as of Fall 2021

CATALOG INFORMATION

Dept and Nbr: WELD 171.1 Title: ADVANCED SMAW

Full Title: Advanced Shielded Metal Arc Welding

Last Reviewed: 3/31/2014

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.00	17.5	Lecture Scheduled	17.50
Minimum	2.00	Lab Scheduled	3.00	6	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 35.00 Total Student Learning Hours: 105.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

Catalog Description:

All position welding utilizing Shielded Metal Arc Welding and Oxy-Acetylene Welding. Welding certification testing included.

Prerequisites/Corequisites:

Course Completion of WELD 70

Recommended Preparation:

Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:

Description: All position welding utilizing Shielded Metal Arc Welding and Oxy-Acetylene

Welding. Welding certification testing included. (Grade Only) Prerequisites/Corequisites: Course Completion of WELD 70

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: Area Effective: Inactive: CSU GE: Transfer Area Effective: Inactive:

IGETC: Transfer Area Effective: Inactive:

CSU Transfer: Effective: Inactive:

UC Transfer: Effective: Inactive:

CID:

Certificate/Major Applicable:

Certificate Applicable Course

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

- 1. Demonstrate safe use of the tools and equipment in a welding shop.
- 2. Arc weld from flat, horizontal, vertical and overhead positions.
- 3. Demonstrate competent hand-eye coordination necessary to control molten metal and produce aesthetically pleasing appearance and strength in both ferrous and non-ferrous metals.

Objectives:

Upon completion of the course, students will be able to:

- 1. Demonstrate the ability to carry out safe welding practices.
- 2. Identify the five basic types of welding joints.
- 3. Prepare a sample of cast iron for welding.
- 4. Set up and place in operation arc and oxy-acetylene welding equipment.
- 5. Identify filler metals by American Welding Society (A.W.S) specifications.
- 6. Demonstrate welding in flat, horizontal, overhead and vertical positions.
- 7. Prepare plates for certification test in accordance with A.W.S. D. 1.1 structure code.
- 8. Discuss the reasons for preheating in welding.
- 9. Demonstrate ability to weld in all positions with shielded metal arc and Oxy-acetylene.

Topics and Scope:

- I. Shielded Metal Arc
 - A. Arc welding safety
 - B. Fillet welds, flat position
 - C. Fillet welds, vertical position
 - D. Single V-butt joints, flat, horizontal, and vertical positions
 - E. Welding cast iron
 - F. Hardfacing
 - G. Manipulative practice
- II. Oxy-Acetylene
 - A. Oxy-acetylene safety
 - B. Butt and lap joints, horizontal position

- C. Butt and lap joints, vertical position
- D. Brazing cast iron
- E. Case hardening
- F. Hardfacing
- G. Automatic flame cutting
- H. Preheating and post-heating
- I. Manipulative practice

III. Flame Cutting

- A. Flame cutting safety
- B. Manual
- C. Automatic
- D. Torches and tips
- E. Gas pressure settings
- F. Torch manipulation
- G. Manipulative practice
- IV. Certification Testing

Assignment:

- 1. Weekly reading assignments, 10-15 pages per week.
- 2. Homework problems, including safety handouts.
- 3. Welding skills assignments and certification tests.
- 4. Quizzes, Midterm, final exam.

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 skill demonstrations are more appropriate for this course.

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

Homework problems

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

Welding skills assignments and certification tests.

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

Quizzes, Midterm, final exam

Writing 0 - 0%

Problem solving 10 - 20%

Skill Demonstrations 50 - 60%

Exams 10 - 20%

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

Participation		Other Category 0 - 10%
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Representative Textbooks and Materials:Welding Skills, Processes and Practices for Entry Level Welders. Delmar Centage Learning, 2009

Instructor prepared materials