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.	Writing 0 - 0%

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

Homework problems	Problem solving 10 - 20%

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

Welding skills assignments and certification tests.	Skill Demonstrations 50 - 60%

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

Quizzes, Midterm, final exam	Exams 10 - 20%

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

Participation	Other Category 0 - 10%

Representative Textbooks and Materials:
Welding Skills, Processes and Practices for Entry Level Welders. Delmar Centage Learning, 2009
Instructor prepared materials