WELD 171.2 Course Outline as of Summer 2018

CATALOG INFORMATION

Dept and Nbr: WELD 171.2 Title: MIG AND TIG WELDING
Full Title: Gas Metal Arc Welding and Gas Tungsten 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 Gas Metal Arc welding (MIG) and Gas Tungsten Arc welding (TIG). 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 Gas Metal Arc welding (MIG) and Gas Tungsten Arc welding (TIG). 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. Prepare and weld with MIG (Metal Iinert Ggas) and TIG (Tungsten Inert Gas) welding machines in all four positions.
4. Demonstrate competent hand-eye coordination necessary to control molten metal and produce aesthetically pleasing appearance and strength in both ferrous and non-ferrous metals.
5. Demonstrate Plasma Arc Cutting.

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. Set up and place in operation MIG and TIG equipment.
4. Identify filler metals by American Welding Society (A.W.S.) specifications.
5. Demonstrate welding in flat, horizontal, overhead and vertical positions.
6. Prepare plates for certification test in accordance with A.W.S. D 1.1 structure code.
7. Assemble gas tungsten/gas metal arc welding equipment for welding.
8. Identify common shielding gases for welding mild steel, stainless steel and aluminum with the gas metal arc welding process.
9. Utilize Plasma Arc equipment for cutting.

Topics and Scope:

I. Gas Metal Arc (MIG)
   A. MIG safety
   B. Power sources
   C. Shielding gases
   D. Wire feeders
   E. Guns and barrels
   F. Consumable wire

G. Manipulative practice

II. Gas Tungsten Arc Welding (TIG)
- A. TIG safety
- B. Power sources
- C. Torches
- D. Shielding gases
- E. Tungsten electrodes
- F. Metal preparation
- G. Filler rod
- H. Manipulative practice

III. Plasma Arc Cutting
- A. Plasma arc cutting safety
- B. Power source
- C. Torches and nozzles
- D. Cutting gases metals
- E. Ferrous and nonferrous metals
- F. Cutting techniques

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