



WELD 2200

Division: Career and Technical Education

Department: Welding Technology

Course: WELD 2200

Title: Semi-Automatic Welding Processes

Catalog Description:

A course designed for welding technology majors to cover theory and practical hands-on experience with semi-automatic wire fed machines. Emphasis is on safety and maintenance of equipment, basic fundamentals of each process, mode of transfers associated with gas metal arc welding (GMAW) and flux core arc welding (FCAW) processes, and electrode selection, gas selection, proper regulator, and flow meter calibration. Joint design and equipment troubleshooting will also be discussed.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 8; Lecture: 3; Lab: 15

Clock/Hour Requirements: 270

Offered for Non-Credit: No

Prerequisites: WELD 1300

Corequisites: None

Justification:

This course is comparable to CEU WELD 1120,1130 and was approved by our program advisory committee. SLCC WLD 1230,1231,1240 and 1241. Qualification procedures are according to American Welding Society standards.

Student Learning Outcomes:

Upon successful completion, students will be able to:

- demonstrate safe shop practices while working with welding equipment
- set up and operate GMAW and FCAW equipment correctly
- perform weld in all positions
- perform welds on various materials
- perform welds with various processes.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- proper safety techniques
- maintenance of equipment

- fundamentals of each process
- mode of transfers associated with GMAW and FCAW processes
- electrode selection
- gas selection
- proper regulator and flow meter calibration
- joint design
- equipment troubleshooting.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.

Students will perform measurement, design, and fabrication functions as they pertain to laboratory experiences and welding projects. Students must be familiar with basic computational functions.

7) Apply scientific reasoning to a variety of contexts.

Students will understand the structural changes that take place in ferrous and non-ferrous materials during the welding process.

9) Respond with informed sensitivity to an artistic work or experience.

Students will visually inspect weld quality for appearance, uniformity, and consistency. Professional welding is judged heavily on the aesthetic aspect.

Key Performance Indicators:

In class:

- The students' knowledge and skills are tested through assignments, tests and quizzes. Assignments are worth 40%-50%, written tests are 30%-40%, and quizzes are 10%-20% of the total grade.

Following class:

- The students will demonstrate competencies learned in subsequent courses and on the job.

Representative Text and/or Supplies:

- Larry Jeffus, *Welding Principles and Applications*, current edition, Delmar Publishers.

Optimum Class Size: 10

Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

Alan Palmer, M. Ed., Associate Professor

I hereby find this course consistent with the goals and resources of the Welding Technology Department:

Alan Palmer, M. Ed., Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)