WELD 1303

Division: Career and Technical Education
Department: Welding Technology
Course: WELD 1303
Title: Advanced Arc Welding A
Catalog Description:

This course will cover advanced welding techniques and arc-related cutting processes. Welding practice is continued with emphasis on multiple pass welds in all positions. Qualification tests must be completed for flat, horizontal, vertical, and overhead positions to complete the course.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 4; Lecture: 2; Lab: 6
Clock/Hour Requirements: 120
Offered for Non-Credit: No
Prerequisites: WELD 1020

Corequisites: WELD 1313

Justification:

This course, along with WELD 1305, and WELD 1250 is comparable to UVSC 2300 and was approved by our program advisory committee. 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
- demonstrate an ability to make multiple pass welds in all positions
- identify the types and parts of weld grooves
- explain how to prepare, test, and evaluate guided bend specimens
- pass a four position American Society of Mechanical Engineers (ASME) American Welding Society (AWS) test
- demonstrate an ability to set up and use a plasma cutting torch
- list advantages and disadvantages of using the different cutting processes
- demonstrate an ability to set up and use an air carbon arc
- demonstrate an ability to set up and use an oxygen lance.

Content:

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

- proper safety techniques
- advanced shielded metal arc welding
- welder qualifications testing
- plasma arc welding
- related cutting processes.

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:

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Alan Palmer, M. Ed., Associate Professor

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

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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:

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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)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)