WELD 2200

Division: Career and Technical Education
Department: Industrial 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 arch 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: Yes
Prerequisites: WELD 1300

Corequisites: N/A

Justification:

This course has been approved by the program advisory committee. Qualification procedures are according to A merican 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.

Applied Education Outcomes:

1) Students will acquire entry-level skills specific to and appropriate for employment in their chosen field of study.

Students will correctly learn how to weld with gas metal arc and flux core arc processes on a variety of materials and positions.

3) Students will demonstrate safe practices and awareness of potential hazards in their field of expertise.

Students must pass a shop safety test prior to entering the lab. Continued compliance with safe practices is monitored by the instructor.

Key Performance Indicators:

Student Learning Outcomes will be assessed by two or more of the following Key Performance Indicators:

- assignments
- tests
- quizzes
- competency 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 Industrial Technology Department:

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Alan Hart, AAS, Instructor, 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:

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

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)