WELD 2400

Division: Career and Technical Education
Department: Industrial Technology
Course: WELD 2400
Title: Industrial Joining Processes
Catalog Description:

This course is for welding technology majors. It covers common current industrial welding processes; i.e., gas tungsten arc welding (GTAW), resistance, and specialized processes.

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 2200

Corequisites: N/A

Justification:

This course has been approved by the program advisory committee and follows standards of the American W elding Society.

Student Learning Outcomes:

Upon successful completion, students will be able to:

- set up and properly operate a gas tungsten arc welder
- weld aluminum, stainless, cast iron, etc.
- pass a four position GTAW American Society of Mechanical Engineers (ASME) test
- recognize other welding processes.

Content:

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

- GTAW power supplies and operation
- GTAW components, proper care, and use of equipment

- GTAW trouble shooting
- GTAW pipe welding techniques in all positions
- resistant welding processes
- special welding processes
    - laser beam
    - inertia
    - ultrasonic
    - plasma arc
    - stud
    - hardfacing
    - thermal spraying
    - cold
    - resistance
    - seam.

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 tungston arc process 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
- visually inspect welds
- non-destructive testing procedures on weldments in future projects.

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)