



WELD 1030

Division: Career and Technical Education

Department: Industrial Technology

Course: WELD 1030

Title: Related Oxy-acetylene and Arc Welding

Catalog Description:

This course is designed to give students in other programs a background in welding fundamentals that can be used in their career fields. This course will instruct students on the basic skills and principles for oxy-acetylene welding, shielded metal arc welding, gas metal arc welding, and gas tungsten arc welding. Instruction will also be given on shop safety, electrode selection, equipment setup, brazing, soldering, and cutting techniques.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 3; Lecture: 1; Lab: 6

Clock/Hour Requirements: 105

Offered for Non-Credit: Yes

Prerequisites: N/A

Corequisites: N/A

Justification:

The program advisory committee approved this course.

Student Learning Outcomes:

Upon successful completion, students will be able to:

- demonstrate safe shop practices while working with welding equipment
- demonstrate how to assemble and use oxy-acetylene welding (OAW) equipment in the flat position on several joint configurations
- demonstrate and use shielded metal arc welding (SMAW) equipment in the flat position on several joint configurations
- demonstrate and use gas metal arc welding (GMAW) equipment in the flat position on several joint configurations
- demonstrate and use gas tungsten arc welding (GTAW) equipment in the flat position on several joint configurations
- demonstrate how to braze and solder joints
- cut with an oxy-acetylene torch.

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

- proper safety techniques
- assembly and use of oxy-acetylene welding equipment
- use and care of shielded metal arc welding equipment
- use and care of gas metal arc welding equipment
- use and care of gas tungsten arc welding equipment
- electrode selection
- brazing processes
- soldering processes
- 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.

Applied Education Outcomes:

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 and quizzes

- competency in subsequent courses and on 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:

Alan Palmer, M. Ed., Associate Professor

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

Alan Hart, AAS, Instructor, 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)