



WELD 1020

Division: Career and Technical Education

Department: Industrial Technology

Course: WELD 1020

Title: Shielded Metal Arc Welding

Catalog Description:

This course is designed for welding technology majors, various trades, and community members. The course is for beginning students interested in learning basic arc welding techniques, theory, and practices, including types of machines, electrodes, and their application. Students study types of joints, expansion and contraction of metals, care and use of tools and equipment, and welding safety.

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: Yes

Prerequisites: N/A

Corequisites: N/A

Justification:

The program advisory committee has approved this course. It meets the American Welding Society standards for Entry Level Welder Profile.

Student Learning Outcomes:

Upon successful completion, students will be able to:

- demonstrate safe shop practices while working with welding equipment
- demonstrate ability to apply fillet weld techniques
- demonstrate ability to apply groove weld techniques
- identify electrodes according to application
- demonstrate understanding of joint designs and their applications
- identify applications of arc welding techniques to their particular field of study or interest.

Content:

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

- proper safety techniques
- use and care of arc welding equipment
- electrode identification and selection
- weld assignments on various joint types, including stringer beads, tee joints, edge joints, corner joints, etc.

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 arc weld in all positions on a variety of joint configurations.

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
- written tests
- quizzes
- competency in subsequent courses and on projects.

- 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)