WELD 1260

Division: Career and Technical Education
Department: Industrial Technology
Course: WELD 1260
Title: Electrical Fundamentals
Catalog Description:

This course presents the theories and principles of basic electricity, electrical safety, and working precautions as used by welders.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 2; Lecture: 2; Lab: 0
Clock/Hour Requirements: 30
Offered for Non-Credit: Yes
Prerequisites: N/A

Corequisites: N/A

Justification:

This course has been approved by the program advisory committee. Course material meets to American Welding Society entry level requirements.

Student Learning Outcomes:

Upon successful completion, students will be able to:

- demonstrate safe shop practices while working with welding equipment
- have an understanding of electrical theory
- have knowledge of alternating current circuits
- understand how an alternating current (AC) generator works
- have knowledge of inductance and capacitance
- understand how a transformer works.

Content:

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

- proper safety techniques
- electrical concepts and terminology
- electricity
    - definitions
    - methods of production
    - magnetics, induction, and capacitance
    - generation
- electrical
    - symbols
    - Ohm's Law
- series circuits
- parallel circuits.

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 electrical properties and theory involved in the welding process. Thorough understanding of these concepts is required in the professional welding field.

Applied Education Outcomes:

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

By understanding electrical theories students will demonstrate electrical safety while doing in class assignments and in lab.

Key Performance Indicators:

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

- assignments
- tests
- quizzes.
- compentency in subsequent courses and on the job.

Representative Text and/or Supplies:

- Stephen R. Matt, *Electricity and Basic Electronics,* current edition, Goodheart-Willcox.

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)