



## WELD 1260

**Division:** Career and Technical Education

**Department:** Welding 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:** No

**Prerequisites:** None

**Corequisites:** None

**Justification:**

This course was approved by our program advisory committee. Course materials are according 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.

**Key Performance Indicators:**

**In class:**

- The students' knowledge and skills are tested through assignments, tests and quizzes. Assignments are worth 40%-50%, written tests are 30%-40%, and quizzes are 10%-20% of the total grade.

**Following class:**

- The students will demonstrate competencies learned 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:

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Alan Palmer, M. Ed., Associate Professor

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

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Alan Palmer, M. Ed., Associate Professor, 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)