



## WELD 1008

**Division:** Career and Technical Education

**Department:** Welding Technology

**Course:** WELD 1008

**Title:** Principles of Technology II

**Catalog Description:**

This applied physics course covers mathematic computations necessary to perform experiments involving scientific concepts of vibrations, energy, conversion, transducers, radiation, light, and time constants as applied to mechanical, fluid, and electrical systems found in modern industry. Laboratory activities featuring measurement and instrumentation are emphasized.

**General Education Requirements:** N/A

**Semesters Offered:** TBA

**Credit/Time Requirement:** Credit: 2; Lecture: 1; Lab: 2

**Clock/Hour Requirements:** 45

**Offered for Non-Credit:** No

**Prerequisites:** WELD 1007

**Corequisites:** None

**Justification:**

Principles of Technology II helps students acquire skills for understanding and solving problems they will encounter in continued study of welding technology as well as problems that they will encounter on the job. It has been recommended and promoted by the Utah State Office of Applied Technology Education for all Trade and Industry (T & I) training programs.

**Student Learning Outcomes:**

Upon completion of this course, students will be able to understand and explain the following concepts:

- waves and vibrations
- mechanical, fluid, electrical, and thermal energy conversion
- mechanical, fluid, electrical, and thermal transducers
- radiation
- light and optical systems
- time constants.

Upon completion of the course students will be able to use technical math concepts and computations for solving practical application problems.

**Content:**

Course objectives will be achieved by providing students with instructional and hands-on experiences in the

following areas:

- waves and vibrations
- energy
- conversion
- transducers
- radiation
- light and optical systems
- time constants
- technical mathematics.

### **General Education Outcomes:**

6) Apply computational skills to a variety of contexts.

Students are required to apply mathematic computations to the fundamental concepts of physics contained in this course, including work, rate, resistance, energy, power, etc. Measurement and instrumentation activities are included in the curriculum.

7) Apply scientific reasoning to a variety of contexts.

This course requires students to understand the effects of force, energy, and other fundamental physics concepts. Students will apply scientific reasoning in the application of these concepts to laboratory exercises and in future discipline-specific lab settings.

### **Key Performance Indicators:**

#### **In class:**

- Students will be required to complete chapter tests and pass a final test. The final grade will be based on: 25% lab activities, 25% assignments, and 50% final test.

#### **Following class:**

- Course evaluation will be demonstrated by student performance in subsequent courses.

### **Representative Text and/or Supplies:**

- *Principles of Technology*, current edition, Center for Occupational Research and Development (CORD).
- *Principles of Technology Student Resource Book*, current edition, Center for Occupational Research and Development (CORD).

**Optimum Class Size:** 10

**Maximum Class Size:** 18

**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)