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| **Weld 115**  **Basic Arc Welding/Oxyfuel welding**  **COURSE SYLLABUS** | | |
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| Instructor: | Martin Wolfe | Term: | Fall 2014 | |
| Office: | T145 | Class Meeting Days: | Tuesday | |
| Phone: | 708-709-7807 | Class Meeting Hours: | 8:00am–12:40pm | |
| E-Mail: | mwolfe@prairiestate.edu | Class Location: | T186 | |
| Website: | [www.prairiestate.edu](http://www.prairiestate.edu) | Lab Location: | T165 Welding lab | |
| Office Hours: | Tues, Wed, Thurs, 1-5pm |  |  | |
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# Welcome!

Thank you for taking the time to enroll in the program as it will be one of the most rewarding processes that you will go through. I look forward to an exciting semester which will challenge you and be a lot of fun at the same time.

# Course Overview

This course covers basic welding fundamentals related to arc and oxy-acetylene welding theory and practice, AC and DC welding equipment, and applications that position welding techniques, arc welding electrodes and ferrous metal identification. Procedures and techniques in arc and oxyacetylene welding. Includes health, safety, and environmental practices, welding terminology, arc and oxyacetylene welding equipment, proper welding procedures for arc and oxyacetylene, arc and oxyacetylene steel welding, welding machines and polarities, filler metal identification, welding positions, and oxyacetylene cutting

# Course Prerequisites

None

# Course Credits

3 credit hours

# Required Texts and Materials

Text: Welding, principles and applications; Jeffus, Larry

# Expected competencies/outcomes

At the completion of this course, the students will, given the appropriate special tools and equipment, be able to safely perform the attached list of tasks with a degree of proficiency and in a period of time deemed satisfactory by the instructor.

# Disability Access:

Prairie State College is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students who need accommodations must be registered with Student Disability Services,

**Attendance Policy**: Attendance is expected and records will be maintained. Consistent attendance is essential for success in this course. Tardiness and leaving class/lab early will also be noted. People entering the classroom late should take the instructor and students into consideration. Poor attendance not only denies the individual student instruction but also denies the class of the unique perspective of that student. For these reasons, on the third absence, the final letter grade will be lowered one full letter grade. Each additional two absences will lower your final grade an additional letter.

**Professionalism Policy**:

Per college policy and classroom etiquette; mobile phones, iPods, *etc*. **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc*., and have been warned may suffer a reduction in their final class grade.

**Academic Conduct Policy**:

Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty. As in all College courses, The student handbook Rules of Conduct will be applied. Violations of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor’s discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the College

**Methods of Evaluation:**

The norm expected in the workplace is “Excellence”. The same is expected of your work in this course.

Grading criteria:

Quizzes 15% Excellent performance (your best) earns you an A

Homework 10% Good performance (moderate effort) earns you a B

Midterm Exam 15% Mediocre performance (little effort) earns you a C

Final Exam 20% Poor performance (minimum effort) earns you a D

Attendance/Classroom 10%

Participation

Shop/Lab 30%

**Course Goals/Objectives**

**Upon successful completion of the course, the student will be able to:**

1. Describe the health, safety, and environmental practices used in the arc and oxyacetylene welding
2. processes.
3. Describe the welding terminology used in the arc welding and oxyacetylene welding process.
4. Identify and describe the proper handling and assembly of arc and oxyacetylene welding equipment.
5. Demonstrate oxyacetylene flame cutting procedures and arc welding techniques.
6. Describe and demonstrate welding of steel with the arc and oxyacetylene welding processes.
7. Describe the welding machines and polarities used in the arc welding process.
8. Identify the applications of filler metals and electrodes used in the arc and oxyacetylene welding
9. processes.
10. Demonstrate welding in flat, vertical, horizontal, and overhead positions used in the arc and
11. oxyacetylene welding processes.
12. Demonstrate hand and track torch techniques for oxyacetylene cutting.

**Detailed topical course outline:**

1. Introduction to welding and history of welding **Chapter 1**
2. Health, Safety, and Environmental Practices  **Chapter 2**
   1. Eye protection
   2. Protective clothing
   3. Equipment handling
   4. Safety features to welding processes
   5. Shop clean-up procedures
   6. Occupational Safety and Health Administration (OSHA) regulations
   7. Ventilation requirements
   8. Waste disposal
   9. Material Safety Data Sheets (MSDS) **Chapter 19**
3. Welding Terminology
   1. Definitions
   2. Applications
4. Arc and Oxyacetylene Welding Equipment **Chapter 30**
   1. Identification
   2. Proper handling
   3. Assembly
   4. Types of gases
   5. Handling of cylinders
   6. Types of regulators
   7. Hose size and safety features
   8. Torch handling and types
   9. Arc welding helmets and lenses
   10. Power tools
5. Proper Welding Procedures for Arc and Oxyacetylene **Chapter 31**
   1. Electrode size
   2. Amperage settings
   3. Arc length
   4. Speed of travel
   5. Electrode angle
   6. Flame adjustment
   7. Tip size
   8. Torch angle
6. Arc and Oxyacetylene Steel Welding **Chapter 32**
   1. Definition
   2. Application
   3. Processes
   4. Regulator pressure settings
   5. Lighting the torch
   6. Flame adjustment
   7. Clamping and tacking procedures
7. Welding Machines and Polarities **Chapter 3**
   1. Alternating Current (AC) machines
   2. Direct Current (DC) machines
   3. Polarities
   4. AC current
   5. DC current
8. Filler Metal Identification **Chapter 18**
   1. Digit selection
   2. Types of electrodes
      1. E6010
      2. E6011
      3. E7018
      4. E7024
   3. Identification of gas welding rods
   4. Application
9. Welding Positions **Chapter 33**
   1. Flat
   2. Vertical
   3. Horizontal
   4. Overhead
10. Oxyacetylene Cutting **Chapter 7**
    1. Hand cutting torch
       1. Lighting
       2. Flame adjustment
       3. Procedures
    2. Track torch
    3. Lighting
    4. Flame adjustment
    5. Procedures

**Assignments:**

Assignments will be based in class as well as handed out during the class time. All required reading and homework assignments will be given out during class.