

Print Date: 7/10/14  
**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title:** Arc Welding

**Prefix and Course Number:** AGGEN 152

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**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- Identify the scope and uses of arc welding equipment
- Select proper arc welding equipment and electrodes for a given assignment
- Operate arc welding equipment safely
- Recognize quality workmanship in an arc weld
- Determine when welding jobs should be sent to professionals
- Weld mild steel in the flat, horizontal, vertical and overhead positions
- Identify types of metal and determine appropriate welding procedures
- Control distortion during welding
- Weld aluminum, cast iron and hard surfaces
- Use heliarc equipment

**Course Outline**

**I. Introductory Concepts**

**A. Overview**

1. Definitions
2. History
3. Uses
4. Safety

**B. Machines and Accessories**

**C. Welding Metallurgy and Terminology**

**D. Equipment Setup**

**E. Techniques**

**II. Shielded Metal Arc Welding**

**A. Rod Selection**

**B. Striking the Arc**

**C. Running a Continuous Bead**

**D. Flat Positions**

1. E 6010
2. E 6011
3. E 7018
4. E 7024

**E. Horizontal Positions**

1. E 6010
2. E 6011
3. E 7018

- F. Overhead Positions
  - 1. E 6010
  - 2. E 6011
  - 3. E 7018
- G. Cast Iron
- H. Pip Welds and Fitup
- III. Gas Shielded Arc Welding
  - A. Gas Metal Arc MIG
  - B. Related MIG Welding Processes
- IV. Special Welding
  - A. Carbon Arc
  - B. Hard Surfacing
  - C. Aluminum Welding
  - D. Metal Identification and Properties
  - E. Joint Design
  - F. Flame Cutting Operation
- V. Testing
  - A. Test Welds
  - B. Written Test