Print Date: 7/10/14

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Maintenance Welding
Prefix and Course Number: AGGEN 161

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Identify common metals including mild steel, high carbon steel, cast iron, cast steel, aluminum, copper and brass
- Use an oxy-acetylene torch to gouge out a weld, remove a broken stud from a cast iron part, cut a nut from a bolt, cut a bearing from a shaft, cut a bevel on a steel plate, make high quality cuts on various steel shapes
- Repair broken steel parts
- Repair broken cast iron parts
- Apply steel pipe
- Use heat and/or pressure to bend or straighten steel parts
- Sharpen a twist drill
- Make fabrication welds in all positions using the MIG welding machine

Course Outline

I. Metals
   A. Identification
   B. Types
   C. Availability
II. Oxy-acetylene Cutting
   A. Gouging Welds
   B. Removal of Nuts and Bearing
   C. Cutting
   D. General Cutting
III. Repair of Steel Parts
   A. Proper Penetration
   B. Proper Reinforcement
IV. Repair of Cast Iron Parts
   A. Grinding and Cleaning
   B. Air-arc Gouging
   C. Brazing
   D. Using Nickel Electrodes
V. Heat Treating

VI. Hard Facing
    A. Arc
    B. Oxy-acetylene
    C. Powder Torch
VII. Soldering
    A. Gun
    B. Iron
    C. Flame
VIII. Flame Bending and Straightening
IX. Pipe Welding
X. MIG Welding
XI. Basic Metal Layout
XII. Twist Drill Sharpening