



**BAKER COLLEGE**  
**STUDENT LEARNING OUTCOMES**

**WELD 2110 Advanced Welding and Cutting Processes**  
**3 Semester Hours**

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**Student Learning Outcomes & Enabling Objectives**

1. Demonstrate appropriate safety precautions for welding and cutting of pipe.
  - a. Apply general industrial safety precautions while working.
  - b. Apply necessary safety precautions related to welding and cutting.
  - c. Demonstrate appropriate use of personal protection equipment.
  - d. Properly set-up and tear down welding and cutting machinery.
  - e. Properly prepare materials prior to welding and/or cutting.
  
2. Demonstrate the appropriate techniques for welding and/or cutting pipe.
  - a. Demonstrate the various uses of plasma arc cutting (PAC) and oxy-acetylene flame cutting (OFC-A) for cutting pipe.
  - b. Demonstrate the various uses of gas metal arc welding (GMAW), gas tungsten arc welding (GTAW), and shielded metal arc welding (SMAW) for welding pipe.
  - c. Determine the appropriate technique and angle needed for various pipe cutting and welding situations.
  - d. Examine the positions needed for various pipe cutting and welding situations.
    - i. 1G (horizontal rolled)
    - ii. 2G (fixed vertical)
    - iii. 5G (fixed horizontal)
    - iv. 6G (45 degree fixed)
  - e. Identify various joint fit-ups used in welding pipe.
  - f. Differentiate between an acceptable pipe weld and/or cut or an unacceptable pipe welds.
  
3. Demonstrate the appropriate evaluations in 5G (fixed horizontal) position in welding procedures.
  - a. 5G SMAW standard pipe welding prep to OFC-A coupons out for destructive testing.

- b. 5G GMAW standard pipe welding prep to OFC-A coupons out for destructive testing.
- c. Demonstrate ability to examine test specimen (coupon) for passing criteria to A.W.S standards.

## **Big Ideas and Essential Questions**

### **Big Ideas**

- Welding and cutting applications
- Positions

### **Essential Questions**

1. How do I ensure my safety and the safety of others during the pipe welding process?
2. How do I determine the appropriate type of welding/cutting process for pipe?
3. How do I determine the appropriate position used for pipe welding/cutting?
4. How do welders determine the quality of a pipe weld/cut?

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These SLOs are approved for experiential credit.

**Effective: Fall 2017**