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Northeast Wisconsin Technical College

## 31-442-315 023414 Welding-Gas Service 1

### Course Outcome Summary

#### Course Information

|                      |  |
|----------------------|--|
| <b>Description</b>   | 31-442-315 WELDING-GAS SERVICE 1 ...position pipe welding utilizing oxyacetylene and gas metal arc welding, welding safety, weld faults and causes, weld joint design, and fitup. (Prerequisite: Accepted into Gas Utility Construction & Service; Corequisite: 10-804-312, Math-Algebra Trades) |
| <b>Total Credits</b> | 2  |
| <b>Total Hours</b>   | 72   |

#### Course History

**Last Revision Date** 7/9/2012

#### Course Competencies

##### 1. Explain course objectives and basic oxyfuel equipment.

###### Learning Objectives

- 1.a. Introduce course objectives.
- 1.b. Tour shop.
- 1.c. Analyze oxyfuel equipment basics of operation.
- 1.d. Explain oxyfuel equipment.

##### 2. Set-up and O/A system and weld in the 1G, 2G, 3G and 4G position.

###### Learning Objectives

- 2.a. Use oxyfuel equipment.
- 2.b. Identify basic characteristics of steel.
- 2.c. Demonstrate welding in the 1G, 2G, 3G and 4G position.

##### 3. Explain field joining and the qualification standards for 3/4 inch service pipe.

###### Learning Objectives

- 3.a. Explain joining procedures.
- 3.b. List qualification standards.
- 3.c. Demonstrate welding 3/4" service pipe in the 5G position.

##### 4. Explain Oxyfuel equipment and safety procedures.

###### Learning Objectives

- 4.a. Explain oxyfuel equipment and safety.
- 4.b. Demonstrate 5G position: 3/4 pipe

**5. Describe the GMAW process, equipment and consumables.**

**Learning Objectives**

- 5.a. Explain the GMAW process.
- 5.b. Describe GMAW equipment.
- 5.c. List GMAW variables.
- 5.d. Explain GMAW electrodes and shielding gas.

**6. Define field joining using the GMAW process.**

**Learning Objectives**

- 6.a. Identify pipe welding theory.
- 6.b. Explain pipe welding safety.
- 6.c. Demonstrate: 5G position: 8" gas pipe.

**7. Describe the qualification procedures related to GMAW.**

**Learning Objectives**

- 7.a. Explain W1.. Qualification procedures - GMAW
- 7.b. Properly prepare specimen for testing.

**8. Explain standards, joint configurations, terminology and pipe welding theory.**

**Learning Objectives**

- 8.a. Explain welder qualifications, WPS, joint configurations, terminology and pipe welding theory.
- 8.b. Demonstrate: 5G position: 8" gas pipe