

ATGL-1630: BASIC WELDING

Cuyahoga Community College

Viewing: ATGL-1630 : Basic Welding

Board of Trustees:

September 2025

Academic Term:

Fall 2025

Subject Code

ATGL - Appld Indus Tech - Glazing

Course Number:

1630

Title:

Basic Welding

Catalog Description:

Introduction to arc welding and oxy-acetylene cutting including shop safety, electrode identification and classification and selection, all position welding, set up of fillet, power sources, weld size, and weld symbols.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Departmental approval: Admissions to Glazing Technology apprenticeship program.

Outcomes

Course Outcome(s):

N/A

Objective(s):

1. 1. Explain power sources, duty cycle, and problems and solutions for arc blow.
2. 2. Differentiate between the various electrode classifications and groups.
3. 3. Explain the advantages and problems with fast-freeze electrode groups and with vertical-up welding.
4. 4. Demonstrate various welding procedures such as; testing, and safety precautions.

Methods of Evaluation:

1. Quizzes
2. Exams
3. Classroom participation
4. Demonstration of assigned projects

Course Content Outline:

1. Introduction
2. Electrodes
 - a. Types
 - b. Given a problem, determine weld size
 - c. Electrode classifications
 - d. Polarity analysis

- e. Fill-freeze group
- f. Fast freeze
- g. Fast-fill group
- 3. Preparation for welding
 - a. Power sources
 - b. Duty cycle
 - c. Arc blow
 - d. Weld symbols
 - e. Vertical-up welding
- 4. Arc welding
 - a. Welding overhead
 - b. Butt joints
 - c. Overhead v butts
 - d. Non-destructive testing
 - e. Fillet gauge
 - f. Weld size
 - g. Joint designs
- 5. Introduction to oxy-acetylene cutting
 - a. Oxy-fuel
 - b. Preheating
 - c. Oxy-fuel cutting
- 6. Safety procedures
 - a. Metal coating
 - b. Ventilation
 - c. Respirators

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Resources for the Instructor

Geary, Don. *Welding*. New York: McGraw-Hill, 2000.

McGuire, Daniel. *Weldperfect: The Easy Guide to Perfect Welding*. Miami, Florida American Welding Society, 1998.

Finch, Richard. *Welder's Handbook: Complete Guide to MIG, TIG, Arc and Oxyacetylene Welding*. Revised Edition. New York: HP Books, 1997.

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