

# WELDING TECHNOLOGY (WELD), CERTIFICATE

## Overview

At Dunwoody College of Technology, the Welding Technology certificate provides students with the entry-level skills and theoretical knowledge to perform the various welding, cutting, and fabrication processes required in a 21st-century manufacturing facility. Graduates from this program are prepared to enter the industry as welders, fabricators, fitters, and inspectors.

The course of study includes: print reading; weld symbols; measurement and materials; job planning and layout; and metallurgy. Welding techniques instructed include: oxygen-fuel welding and cutting; shielded metal arc welding (SMAW-stick); gas metal arc welding (GMAW-MIG); gas tungsten arc welding (GTAW-TIG); and various fabrication processes.

The program's curriculum is closely aligned with standards set forth by the American Welding Society (AWS). Students may choose to utilize these credits to continue on for an AAS degree in Welding & Metal Fabrication.

Arts & Sciences curriculum supports the technical coursework by enhancing the students' communication, mathematics, and critical thinking skills.

Credits earned in the Welding Technology certificate directly transfer into Dunwoody's Welding & Metal Fabrication (WMET) (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/robotics-manufacturing/welding-metal-fabrication-wmet-aas/>) associate's degree program.

**Credential Earned:** Certificate

**Length of Program:** 1 year (2 semesters)

**Classes Offered:** Day

**Available Starts:** Fall Semester

## Program Outcomes

- Demonstrate required industry safety standards.
- Interpret welding blueprints and symbols.
- Fabricate weldments using multiple processes and positions.
- Analyze weldments for quality.

## Degree Requirements

Code	Title	Credits
<b>General Requirements</b>		
ARTS1000	Introduction to Drawing	3
	Communications	3
<b>Technical Requirements</b>		
MDES1110	Engineering Drawings with SolidWorks	4
WELD1110	Introduction to Welding Lab	5
WELD1120	Introduction to Welding Theory	4
WELD1130	Welding Math, Prints & Symbols	4
WELD1210	Advanced Welding Lab	5
WELD1220	Advanced Welding Theory	4
<b>Total Credits</b>		<b>32</b>

## Courses

### Descriptions

#### MDES1110 | Engineering Drawings with SolidWorks | Lecture (4 Credits)

Creation of 3D solid models, assemblies and related engineering documentation using SolidWorks. Blueprint reading and application of ASME/ANSI standards to CAD drawings.

#### WELD1110 | Introduction to Welding Lab | Laboratory (5 Credits)

Perform welding of standard joint designs on various thicknesses of steel plate. Practice oxyacetylene welding and cutting (OAW), stick welding (SMAW), and wire feed welding (GMAW). Introduction to tungsten inert gas (TIG) welding. Demonstrate shop safety, setup and troubleshooting of welding equipment and applications.

**Corequisite(s):** WELD1120 WELD1130

#### WELD1120 | Introduction to Welding Theory | Lecture (4 Credits)

Identification, recognition and calculations associated with weld joint designs and weld materials. Examine various weld processes: oxyacetylene welding and cutting (OAW), stick welding (SMAW), wire feed welding (GMAW). Introduction to tungsten inert gas (TIG) welding. Examine shop safety, setup and troubleshooting of welding equipment and applications.

**Corequisite(s):** WELD1110 WELD1130

#### WELD1130 | Welding Math, Prints & Symbols | Lecture (4 Credits)

Principles of weld print reading, measuring systems, decimal/fraction conversions, dimensioning, layout, orthographic views, technical math, and section views.

**Corequisite(s):** WELD1110 WELD1120

#### WELD1210 | Advanced Welding Lab | Laboratory (5 Credits)

Practice welding of steel plate and aluminum alloys using stick welding (SMAW), wire feed welding (GMAW) and tungsten inert gas (TIG) welding. Demonstrate shop safety, grinding, finishing, and cutting practices in a final fabrication project.

**Prerequisite(s):** WELD1110

#### WELD1220 | Advanced Welding Theory | Lecture (4 Credits)

Identification, recognition and calculations associated with weld joint designs, weld gasses, and metallurgy. Examine various weld processes including oxyacetylene welding and cutting (OAW), stick welding (SMAW), wire feed welding (GMAW), and tungsten inert gas (TIG) welding. Examine shop safety, setup and troubleshooting of welding equipment and applications.

**Prerequisite(s):** WELD1120

#### ARTS1000 | Introduction to Drawing | Lecture (3 Credits)

Analyze basic drawing concepts and techniques through demonstrations, discussions, critiques, slide lectures, and the use of a sketchbook. Work from observation using line, tone and other elements of art to solve spatial, compositional and light problems to accurately render the illusion of 3-dimensional form on a 2-dimensional surface.

**General Education:** Humanities