



# Welder

SCHOOL OF MANUFACTURING & AUTOMATION

## Overview

Learn how to join or sever metals in beams, girders, vessels, piping and other metal components, make metal parts used in construction and manufacturing plants, and weld parts, tools, machines and equipment.

There are two different specializations for this trade.

## Welder

You'll apply heat to metal pieces to melt and fuse them during your career. The different types of welding include:

- electric arc welding: heat is created as an electric current flows through an arc between the tip of the welding electrode and the metal
- gas welding: such as oxy-acetylene welding, the flame from the combustion of burning gases melts the metal
- resistance welding: the metal piece is melted as current flows through it, and no filler is added.

You'll use different welding processes and fillers depending upon the type of metal, its size and shape and requirements for finished product strength.

For a typical welding project, you'll:

- develop patterns for projects or follow directions given in layouts, blueprints and work orders
- clean
- check for defects and shape parts, sometimes using a cutting torch
- weld parts together.

You may also build up worn parts by welding layers of high-strength hard-metal alloys onto them.

## Welder-Wire Process Operator

You'll work primarily in production and manufacturing plants, joining components and sub-assemblies to make various items using various construction materials.

Welding in this branch of the welder trade is restricted to:

- gas metal arc welding (GMAW),
- flux cored arc welding (FCAW),
- submerged arc welding (SAW)
- other semiautomatic wire feed welding processes.

The welder-wire process operator uses different welding processes and filler metals depending upon the type of metal, its size and shape, and requirements for finished mechanical properties. This one-year specialty shares a common first year with the Welder apprenticeship.

To work in this trade, certification is required. This means that you must either be a registered apprentice working under the guidance of a certified journeyman or be a certified journeyman yourself.

## Traits, skills and aptitudes

Those who have the following characteristics find greater success in the welding trade:

- good eye-hand coordination, spatial and form perception, good eyesight, strength and stamina to carry heavy tools and manual dexterity
- the ability to visualize a finished product from a document
- the ability to concentrate on detailed work
- patience, dependability and accuracy

- the ability to work in a construction or shop environment
- a commitment to safe working conditions.

## Credentials

Upon successfully completing the required working hours and apprenticeship education periods, graduates will be awarded a diploma in addition to journey person status by Alberta's Apprenticeship and Industry Training.

Welders are a Red Seal Endorsed trade – a recognizable standard that allows tradespeople to work across Canada.

## Admission requirements

To enter an apprenticeship, you must have the educational qualifications required or recommended education for the trade to which you apply.

Entrance requirements are monitored and set by Alberta Apprenticeship and Industry Training.

### Minimum requirements

Successful completion of the following courses:

- English 10-2
- Math 10-3

OR

A pass mark in all five Canadian General Educational Development (GED) tests

OR

Alberta Apprenticeship and Industry Training Entrance Exam

### Recommended requirements

Apprentices with an Alberta High School Diploma that includes the following courses:

- English 30-2
- Math 30-3
- Physics 20 OR Chemistry 20 OR Science 20
- Related career and technology studies (CTS) courses

## Costs

### 2023/24 tuition and fees

The following costs are effective as of July 1, 2023.

### Domestic Students

#### Welder

Period	Number of weeks	Tuition fees	Additional fees	Total
1	8	\$1,056	\$319	\$1,375
2	8	\$1,056	\$319	\$1,375
3	8	\$1,056	\$319	\$1,375

Period	Number of weeks	Tuition fees	Additional fees	Total
<b>Total cost:</b>				<b>\$4,125</b>

## Welder - Wire Process Operator

Period	Number of weeks	Tuition fees	Additional fees	Total
1	8	\$1,056	\$319	\$1,375
<b>Total cost:</b>				<b>\$1,375</b>

## Books and Supplies

Books or modules, along with other items for classes, are approximately \$600 per period.

It's recommended you don't purchase books or modules ahead of time as they might be outdated by the time you attend classes, and they cannot be returned to the Bookstore.

Personal protective equipment (PPE) will be required for the program, which may be an additional cost to apprentices.