

# Welding

## Technical Diploma

### Overview

The Welding program will prepare you for a wide variety of jobs as a welder in production, maintenance, construction, manufacturing, or servicing occupations. You will study a number of welding processes including shielded metal arc (stick electrode), gas tungsten arc (TIG), gas metal arc (MIG), submerged arc, oxyacetylene cutting and brazing, metal spraying, plasma arc and arc-air cutting. You will also become familiar

with various types of metals, fabrication of metals and welding under codes such as the American Welding Society Code. When you successfully complete this program, you will be prepared to take welding certification tests.

**The Welding program is offered at the Wisconsin Rapids campus.**



### Program Outcomes

Employers will expect you, as a Welding graduate, to be able to:

- Demonstrate appropriate safe work habits when operating oxyfuel and electric welding equipment
- Use terminology associated with welding to communicate effectively with co-workers, supervisors, customers, inspectors, engineers and vendors
- Perform welding operations with appropriate process on various metals and situations
- Interpret blueprint welding symbols to fabricate components
- Analyze given procedures to simulate state weld tests
- Display manipulative skills with various welding processes to assure adequate weld integrity and appearance

### Career Options

Brazer  
Combination Welder  
Construction Welder  
Counterperson in Distributorship  
Maintenance Welder  
MIG Welder  
Pipeline Welder  
Production Line Welder  
Shipyards Welder  
Structural Welder  
TIG Welder  
Welder, Fitter  
Welding Repair

### Potential for Advancement

Certified Welder  
Layout Person  
Owner of Fabrication Shop  
Set-Up Welder  
Tool and Die Welder  
Weld Shop Supervisor  
Weld Tester  
Welding Dealer, Distributor, Demonstrator  
Welding Engineer  
Welding Inspector  
Welding Instructor  
Welding Repair Shop Owner  
Welding Technician  
*Potential advancement generally requires further education.*

### Admissions Procedures

To apply to the Welding program, please submit the following to MSTC Student Affairs Admissions Office:

1. WTCS application form and \$30 non-refundable application fee
2. Completed Accuplacer test. (Other test scores may be acceptable alternatives.) Entrance exam requirements for the Welding program are:
  - Reading–Accuplacer score of 55 or equivalent
  - Language–Accuplacer score of 60 or equivalent
  - Math–Accuplacer score of 34 or equivalentIf a student does not meet the required scores in these academic areas, they may remediate and retest or complete an identified structured remediation course(s) in the Academic Support Center.
3. High school transcript or GED/HSED scores

Mid-State Technical College  
Admissions  
500 32nd Street North  
Wisconsin Rapids, WI 54494  
mstc.edu  
888.575.MSTC

## Program Course Descriptions

31420312

**Metals Science** 2 credits

Students are introduced to the field of metallurgy. Includes the following topics: sources of common metals including both ferrous and non-ferrous methods of ore extraction and refining and classification of these metals and the alloy systems. The heat treatment of various metals and properties of metals are studied including lab work on shear, compression, tensile strength and corrosion.

31420346

**Related Machine Shop** 3 credits

Students are introduced to basic machine shop operations. Covers hand tools, semi-precision and precision measuring tools, layout work, sawing, grinding, drill press, and lathe operations. Laboratory assignments are completed to familiarize students with various types of equipment for practical application in their respective trades.

31421388

**Blueprint Reading-Welding** 2 credits

Introduces the use and reading of a blueprint, includes interpretation from orthographic projection; reviews the meaning of lines, dimensions, notes and symbols; covers the use of special views and assembly drawing and stresses actual blueprint reading.

31442301

**Basic Welding I** 5 credits

Introduces fundamental skills, eye-hand coordination, knowledge in SMAW (arc), oxyacetylene (gas), brazing and cutting processes. Typical operations include tee, lap, corner and butt joints in the flat position. Safety aspects of all welding operations are emphasized. Prerequisite: Admission to Welding Program 314421

31442302

**Advanced Welding I** 5 credits

Advanced skills and knowledge in the SMAW (arc) oxyfuel (gas), brazing and soldering processes are developed in this course. Operations include the tee, lap and butt joints in the overhead position. GTAW (TIG) and GMAW (wire) processes are introduced in the flat position. Tee, lap, corner and butt joints are welded on aluminum, carbon steel and stainless steel using the GTAW and GMAW processes. Prerequisite: Basic Welding II 31442305

31442305

**Basic Welding II** 5 credits

Further skill development and knowledge in the SMAW (arc), oxyfuel (gas) and brazing processes. Arc welding includes a variety of electrodes and manipulations including whipping the E6010. Operations include tee, lap, corner and butt joints in the horizontal and vertical positions. Butt joints are welded both open and with backing strips similar to state certification requirements. Introduces fundamental skills, eye-hand coordination, knowledge in SMAW (arc), oxyacetylene (gas), brazing and cutting processes. Typical operations include tee, lap, corner and butt joints in the flat position. Safety aspects of all welding operations are emphasized. Prerequisite: Admission to Welding Program 314421 and Corequisite: Basic Welding I 31442301

31442306

**Advanced Welding II** 5 credits

Advanced skills using the GTAW (TIG) and GMAW (wire) processes on various metals, in all positions, are developed. Oxyacetylene welding and brazing of cast iron, plasma cutting and other special materials and processes are introduced. Within the entire welding program, safety, welding codes and local industrial practices are emphasized. Corequisite: Advanced Welding I 31442302

## Curriculum

**First Semester (17 Credits)**

10804106	Intro to College Math	3
31420312	Metals Science	2
31442301	Basic Welding I	5
31442305	Basic Welding II	5
31801351	Occupational Communication	2

**Second Semester (17 Credits)**

31420346	Related Machine Shop	3
31421388	Blueprint Reading-Welding	2
31442302	Advanced Welding I	5
31442306	Advanced Welding II	5
31809351	Applied Human Relations	2

**Total Credits 34**

**Please Note:**

- The Welding program has an August starting date. However, we advise you to meet with a counselor to successfully plan your academic schedule.
- For General Education course descriptions (800 level courses), see section marked under Course Descriptions.