



Program Code 31-442-1
Expected Program Costs: \$6,200
Median Annual Salary: \$34,000

OVERVIEW

The Welding program prepares 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 documents to the MSTC Admissions Office:

1. Complete an MSTC application form and return it with the \$30 non-refundable application fee.
2. Complete the Accuplacer or ACT test. Minimum scores required:
 - Reading-Accuplacer score of 55
 - Sentence Skills-Accuplacer score of 60
 - Math-Accuplacer score of 34
 - ACT equivalents for above scores are acceptable.

If a student does not meet the required test scores, they may retest or complete an identified structured course(s) in the Academic Support Center.

3. Submit an official copy of all academic transcripts, including high school, college or university and HSED/GED.

Mid-State Technical College
Admissions
500 32nd Street North
Wisconsin Rapids, WI 54494

PROGRAM COURSE DESCRIPTION

**10462114 // 3 credits
Metals & Machining**

A two-part class which introduces the basics of metal science and machine shop practice. Metallurgical concepts of steel and iron production, properties of metals, testing of metals, carbon and its rule, heat-treating, steel designations, and cast iron and non-ferrous metals are introduced. Students will participate in lab exercises examining the properties of metal, an introduction to machine shop practices of safety, measurement, and machining through the use of hand tools, drilling machines, saws and engine lathes. Students will be introduced to those concepts by both classroom presentation and hands-on shop experiences.

**31420312 // 2 credits
Metals Science**

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.

**31421388 // 2 credits
Blueprint Reading-Welding**

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 // 4 credits
Basic Welding I**

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 // 4 credits
Advanced Welding I**

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 // 4 credits
Basic Welding II**

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 // 4 credits
Advanced Welding II**

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

Term		(15 credits)
10804107	College Mathematics	3
31442301	Basic Welding I	4
31442305	Basic Welding II	4
31801351	Occupational Communication	2
32420312	Metals Science	2

Term		(15 credits)
10462114	Metals & Machining	3
31421388	Blueprint Reading-Welding	2
31442302	Advanced Welding I	4
31442306	Advanced Welding II	4
31809351	Applied Human Relations	2

Total Credits 30

Please Note:

- The Welding program has an August start date. We advise you to meet with an academic advisor or counselor to successfully plan your academic schedule.
- This curriculum sequence is only for student planning. Actual student schedules will vary depending on course availability.
- Degree completion time may vary based on student scheduling and course availability.
- For General Education course descriptions (800 level), see section marked under Course Descriptions.