

Program Information

The Anoka Technical College Associate of Applied Science (AAS) degree in Robotic and Laser Welding is a 67-credit program designed for individuals seeking a well-rounded welding background. The Welding program consists of technical courses, specifically designed to develop exceptional welding skills utilizing the major welding processes that are vital to industry. This program will train students in fundamentals of ABB, Fanuc and OTC robot programming and language. The laser portion of this program will include development and documentation of procedures and qualification of welds, and the calibration of equipment for welding.

The degree program also offers a balance of general education courses to complement the welding courses and to provide students with opportunity to capitalize on a broad-based welding education.

This program requires students to go full-time each semester students are required to take all courses.

Program Learning Outcomes

By completing this program, students will achieve the following learning outcomes.

- Students will weld to visual acceptance criteria per applicable American Welding Society standards in Gas Tungsten Arc Welding, Gas Metal Arc Welding and the Shielded Metal Arc Welding process.
- Students will prepare weld joints and perform welding operations using welding symbol information.
- Students will follow established procedures and policies regarding personal protective gear, shop safety and welding equipment.
- Students will visually examine all work for discontinuities and defects with the knowledge of industry specification.
- Students will work in a team environment and accept constructive criticism.
- Students will operate safely and proficiently using Oxy-fuel, Plasma and Carbon Air Arc equipment.
- Students will demonstrate the ability to weld to entry level standard per American Welding Society on carbon steel, stainless steel, and aluminum.
- Demonstrate ability to operate robots and lasers safely.
- Program robotic and arc welders.
- Develop weld schedules and edit weld programs.
- Program and cut parts using CNC laser cutting equipment.
- Develop laser welding and programs.
- Document results of weld procedure and qualification tests.

Certification

The Welding program not only provides students with a thorough background in welding and related theory, but also prepares students with the knowledge and skills needed to take three national certification examinations:

- American Welding Society’s (AWS) Welding Code AWS; and
- Certified Robotic Arc Welding Certification (CRAW)

Course Prerequisites

Some courses may require appropriate test score or completion of basic math, basic English and/or reading courses with a “C” or better.

MATH 1500 Mathematical Ideas Prerequisites MATH 0900 or MATH 0950 or MATH 1080 or MATH 1400 or appropriate test score.

Graduation Requirements

All Anoka Technical College students seeking an Associate in Applied Science (AAS), diploma, or certificate must meet the cumulative grade point average (GPA) of 2.0 or higher.

Transfer Opportunities

To see how credits from this program may transfer into other Anoka Technical College programs or into a program at another college, visit:

- [Minnesota Transfer](#)
- [Anoka Technical College transfer student](#)

Industry Information

The diversification of the welding industry impacts virtually every industry around the globe. From the depth of the world’s oceans to the far-reaching corners of outer space, there is a welding position for every hardworking, ambitious, smart individual who is ready and willing to constantly improve and strive for excellence. A career choice in welding offers a vast array of options for employment and continuing personal development. Welding is the most common way to permanently join metal parts. Heat is applied to the pieces that are being joined, melting and fusing them together which forms a permanent bond. Therefore, welding plays a key role in industry production lines, laboratories, research and development, national defense, sales and service, NASCAR and drag racing, custom motorcycle building, artwork, sculptures, pipelines, power plants, refineries, construction, maintenance, repair and much more.

Wages/Outlook/Advancement

Welders and solderers can advance to more skilled jobs with additional training and experience. For example, experienced welders may become technicians, supervisors, inspectors, or instructors. Other experienced welders and solderers open their own repair shops.

Wage information is available from the [Minnesota Department of Employment and Economic Development](#).

Start Dates

Fall Semester.....August
 Spring SemesterJanuary

Robotic and Laser Welding

Associate of Applied Science (AAS) Degree

General Education: 15 Credits

Fifteen (15) credits of general education credits from the Minnesota Transfer Curriculum (MnTC) are required. MnTC credits must be from three different goal areas and can be completed separate from or together with the technical credit requirements.

Note: MnTC credits are not listed in your program sequence plan. Please see your faculty advisor or enrollment services for help in planning when to complete your MnTC credits.

MATH 1500 Mathematical Ideas	3
MnTC General Education Elective	12

Program Sequence

First Semester (Basic Welding Certificate) 17

- WELD 1000 Blueprint 1- Lecture..... 1
- WELD 1001 Blueprint 1- Lab..... 1
- WELD 1002 Math for Welders 1
- WELD 1004 Oxy-Fuel Applications 1
- WELD 1006 Oxy-Fuel Processes 1
- WELD 1012 Processes and Power Sources I 3
- WELD 1014 Gas Tungsten Arc Welding I 3
- WELD 1018 Shielded Metal Arc Welding I 3
- WELD 1020 Gas Metal Arc Welding I-A 1
- WELD 1021 Gas Metal Arc Welding I-B 2

Second Semester (Welding Technology Diploma) 17

- WELD 1022 Blueprint Reading II 3
- WELD 1024 Metals Theory I 2
- WELD 1026 Processes and Power Source II 3
- WELD 1028 Gas Tungsten Arc Welding II 3
- WELD 1034 Gas Metal Arc Welding II 3
- WELD 1036 Shielded Metal Arc Welding II 3

Third Semester (Robotic and Laser Welding Certificate) 18

- WELD 2006 Welding Code Interpretation..... 2
- WELD 2100 Laser Cutting 2
- WELD 2110 Laser Welding 4
- WELD 2120 Welding Procedures 1
- WELD 2130 Fanuc Robotics 3
- WELD 2140 ABB Robotics..... 3
- WELD 2150 OTC Robotics 3

Faculty Contact

Jay Gerdin	763-576-4055
Rich Godeen	763-576-4122
Lisa Glendower	763-576-4086

For information on how to apply, to schedule a tour, or for service during summer hours, contact Enrollment Services at 763-576-7710 or EnrollmentServices@anokatech.edu

Also see: Welding Technology diploma, Basic Welding certificate, Robotic and Laser Welding certificate, Welding Fabricator certificate, and Pipe Welder certificate