



GAS METAL
ARC WELDING
TECHNICAL
DIPLOMA

Welding Academy

The Gas Metal Arc Welding (GMAW) Technical Diploma program provides a solid foundation in process-specific production welding technology. The program is designed to develop the necessary entry-level competencies for work in the production welding and metal fabrication industries.

Coursework includes all position “mig” welds on steel, stainless steel and aluminum, mechanical and thermal cutting, fabricating parts from prints and assessing weld quality.

LEARN HOW TO:

- Produce Gas Metal Arc Welds (GMAW)
- Interpret welding drawings
- Demonstrate industry recognized safety practices

POTENTIAL CAREERS:

- Maintenance and Repair Welder
- Construction Trades Apprentice
- Welder

COURSES OFFERED

10-442-101	Intro to Welding	1
10-442-163	Weld Inspection & Testing	1
10-442-172	Welding Safety	1
10-442-173	Thermal Cutting	1
10-442-181	Weld Print Reading 1	1
10-442-182	Weld Print Reading 2	1
10-442-183	Gas Metal Arc Welding 1	1
10-442-184	Gas Metal Arc Welding 2	1
10-442-185	Gas Metal Arc Welding 3	1
10-442-186	Gas Metal Arc Welding 4	1
10-442-204	Gas Metal Arc Welding 5	1
10-442-205	Gas Metal Arc Welding 6	1

TOTAL CREDITS 12

AVAILABILITY

- In-Person:
 - Antigo: MWF, 7:00 AM – 10:00 AM
 - Phillips: MTWRF, 8:00 – 11:00 a.m., 12:00 p.m. – 3:00 p.m. (August – May)
 - Wausau: TBD (August – May)

COMPLETING THE WELDING ACADEMY EARNS YOU:

- 35% of the total credits in the Welding Technical Diploma (12 of 34 credits)

To apply, contact Crystal Witt-Whybrow, Pre-college Student Specialist, at wittwhybrow@ntc.edu or 715.803.1228.

Course Descriptions

INTRO TO WELDING

Compares equipment and techniques used in the major arc welding and thermal cutting processes. Learners perform introductory level welds in the SMAW, GMAW, FCAW and GTAW processes. Learners also perform material preparation skills including shearing, grinding and thermal cutting.

WELD INSPECTION & TESTING

Emphasizes measurement of weld defects and assessment of weld quality conformance to common welding codes. Learners conduct etch tests, bend tests and break tests on welds. The process of procedure and welder qualification is explored through group activities.

WELDING SAFETY

Prepares learners for safe operation of work site equipment. Procedures regarding welding machines, band saws, shears, grinders, oxy fuel equipment and an array of hand tools are practiced. Crane and forklift operation are introduced.

THERMAL CUTTING

Develops skill in thermal cutting and gouging processes. Learners practice manual and machine oxy-fuel cutting, plasma cutting and gouging and air carbon arc gouging.

WELD PRINT READING 1

Develop print interpretation skills needed in metal fabrication. Learners study orthographic projection, dimensioning, welding symbols and bill of materials. Learners apply concepts in hands-on activities, practicing basic layout skills and safe operation of saws, shears and drills.

WELD PRINT READING 2

Builds on print interpretation skills developed in Weld Print Reading 1. Learners study increasingly complicated prints and welding symbols. Learners will apply concepts in hands-on activities, practicing basic layout skills and safe operation of saws, shears and drills.

GAS METAL ARC WELDING 1

Develops skill in gas metal arc welding. Learners use short circuit transfer to make fillet and groove welds in the flat and horizontal positions on steel. Weld quality is assessed per AWS D1.1 Structural Steel Code.

GAS METAL ARC WELDING 2

Develops skill in gas metal arc welding. Learners use short circuit transfer to make fillet and groove welds in the vertical and overhead positions on steel. Weld quality is assessed per AWS D1.1 Structural Steel Code.

GAS METAL ARC WELDING 3

Develops skill in gas metal arc welding. Learners use spray transfer to make fillet and groove welds in the flat and horizontal positions on steel. Weld quality is assessed per AWS D1.1 Structural Steel Code.

GAS METAL ARC WELDING 4

Develops skill in gas metal arc welding. Learners use pulsed spray transfer to make fillet and groove welds in the horizontal and vertical positions on steel. Weld quality is assessed per AWS D1.1 Structural Steel Code.

GAS METAL ARC WELDING 5

Develops skill in gas metal arc welding. Learners use pulsed spray transfer to make fillet and groove welds in the horizontal and vertical positions on stainless steel and aluminum.

GAS METAL ARC WELDING 6

Develops skill in gas metal arc welding. Learners use short circuit transfer and pulsed spray transfer to make fillet and groove welds in the horizontal and vertical positions on sheet metal.