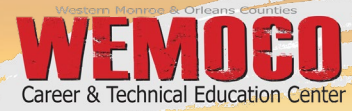


# Engineering & Metal Fabrication: Welding



Create in metal by electricity and fire fusion



Students gain a global understanding of welding, the art and science of joining metal together. Common industry standard processes of Shielded Metal Arc Welding (SMAW-Stick), Gas Tungsten Arc Welding (GTAW-TIG), and Gas Metal Arc Welding (GMAW-MIG), as well as plasma arc and oxy-acetylene cutting are covered. Students will be exposed to the programming (CNC) aspect of machining.

## Units of Study

- Identifying Plastic Parts
- Safety
- OFC (Oxy Fuel Cutting)
- Weld symbols
- Weld prints
- Power saws
- SMAW (Shielded Metal Arc Welding)
- GMAW (Gas Metal Arc Welding)
- GTAW (Gas Tungsten Arc Welding)
- FCAW (Flux Core Arc Welding)
- Forging
- Metallurgy
- PAC (Plasma Arc Cutting)

## Integrated Academics

- English
- Math

## Licensing / Industry- Based Certifications

OSHA 10 Construction

## Work-Based Learning

CTE programs bring students into the workplace for real life experiences. Businesses that support our Welding Program:

- Cannon Industries, Inc.
- Es Systems
- Graham Manufacturing
- Mahany ARC & Flame Center

## Articulation Agreements

- Alfred State
- SUNY Canton



## Career Outlook

All CTE programs correlate to many careers paths. Use the links below to explore more. One example:

Job Projections for Welders: 8% projected growth in New York State jobs 2016-2026.

New York State salary range:  
\$31,530 entry level- \$57,840 experienced

Education Requirements: Training or apprenticeship programs, career and technical education schools, or community and technical colleges. Additional courses beyond high school are often required.

Explore more:

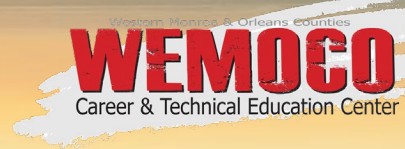
<https://www.careerzone.ny.gov/>  
<https://www.onetonline.org/find/>



WEMOCO Career & Technical Education Center  
Monroe 2-Orleans Board of Cooperative Educational Services  
Monroe2BOCES.org/cte 585-352-2471  
3589 Big Ridge Road, Spencerport, New York 14559



# Engineering & Metal Fabrication: Welding



## Employability Profile

<u><b>Career Readiness</b></u>	
Attendance	_____
Punctuality	_____
Appropriate Workplace appearance	_____
Takes Initiative	_____
High Quality of work	_____
Knowledge of workplace ethics	_____
Responsive to supervisor	_____
Effective Communication skills	_____
Solves problems	_____
Makes decisions	_____
Cooperates with others	_____
Resolves conflict	_____
Observes critically	_____
Takes responsibility for learning	_____
Reads with understanding	_____
Solves problems using math	_____
Complies with health and safety rules	_____
Uses technology appropriately	_____

<u><b>Layout inspection and blueprint</b></u>	
Reads a tape measurer efficiently	_____
Understands fractions	_____
Properly uses inspection tools	_____
Layout parts according to tolerance	_____
Properly read and interpret weld symbols	_____
Can effectively read a blueprint	_____

<u><b>Shop skills</b></u>	
Uses iron worker properly	_____
Uses bandsaw properly	_____
Proper use of power tools	_____

<u><b>Cutting</b></u>	
Set up and break down of OFC	_____
Operation of OFC	_____
Set up and break down of PAC	_____
Operation of PAC	_____
CNC Plasma cutting	_____

<u><b>SMAW</b></u>	
Set up and break down of SMAW equipment	_____
7018 Flat	_____
7018 Out of position	_____
6010 Flat	_____
6010 Out of position	_____

<u><b>GMAW/FCAW</b></u>	
Set up and break down of GMAW equipment	_____
70S-2 Flat	_____
70S-2 Out of position	_____
308-L Flat	_____
308-L Out of position	_____
71T-1 FLAT	_____
71T-1 Out of position	_____
308T-1 Flat	_____
308T-1 Out of position	_____

<u><b>GTAW</b></u>	
Stainless steel flat	_____
Steel flat	_____
Aluminum flat	_____