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 Paths

All CTE programs correlate to many career paths.

↓ Start Here
- Welder

Go Here ↓
with more education & experience
- Inspector
- Robotic Welding Operator/ Programmer
- Metal Fabricator

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
@WEMOCOCTE

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Employability Profile

Work-Related Skills

Productivity and Accountability

Follows procedures to meet expectations and deadlines

Displays consistent work performance and quality of work

Flexibility and Adaptability

Works effectively in varied roles and responsibilities

Responds well to and implements feedback

Initiative and Self-Direction

Identifies, prioritizes, and completes tasks without direct oversight

Seeks to learn and develop new knowledge and skills

Leadership and Responsibility

Leverages strengths of others to accomplish a goal

Takes ownership of one's work, performance, behavior, and actions

Communication

Articulates thoughts and ideas clearly and effectively through speaking and writing

Practices active listening skills

Collaboration

Works effectively with others

Open and responsive to new and diverse perspectives

Critical Thinking and Problem Solving

Asks questions to lead to better solutions

Identifies possible options and their outcomes

Layout inspection and blueprint

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

Shop skills

Uses iron worker properly

Uses bandsaw properly

Proper use of power tools

Cutting

Set up and break down of OFC

Operation of OFC

Set up and break down of PAC

Operation of PAC

CNC Plasma cutting

SMAW

Set up and break down of SMAW equipment

7018 Flat

7018 Out of position

6010 Flat

6010 Out of position

GMAW/FCAW

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

GTAW

Stainless steel flat

Steel flat

Aluminum flat