



School District of Horicon

Course Outline

Learning Targets

Advanced Welding Technology

UNIT: Safety

The student will be able to

- Visualize and see examples of safety in the work environment.
- Identify workplace hazards.
- Select personal protective equipment.
- Identify electrical hazards.
- Safely handle and set up compressed gas.

UNIT: Measurement/Shop Math

The student will be able to

- Measure fractions to the nearest $1/32$ ".
- Calculate and add/subtract fractions to the nearest $1/16$ ".
- Perform advanced tape measure and square usage.
- Memorize decimal/fraction equivalents to the $1/16$ ".

UNIT: Welder Maintenance

The student will be able to

- Read machine schematics to disassemble part of the welder.
- Comprehend directions in order to clean and maintain equipment.
- Safely transport gas cylinders from one place to another.
- Troubleshoot problems with a welder's performance and fix as needed.

UNIT: GMAW(MIG) - 1F Position

The student will be able to

- Follow safety protocols when welding with the GMAW process.
- Properly set up for GMAW by adjusting volts, travel speed, work angles & stick out.
- Adjust the power source to produce the mode of transfer that is best for 1F position.
- Select the correct electrode and shielding gas for the base metal and position of weld.

UNIT: GMAW -2F-4F Positions

The student will be able to

- Follow safety protocols when welding with the GMAW process.
- Properly set up for GMAW by adjusting volts, travel speed, work angles & stick out.
- Adjust the power source to produce the mode of transfer that is best for 2F-4F position.
- Select the correct electrode and shielding gas for the base metal and position of weld.

UNIT: GMAW Spray Transfer

The student will be able to

- Follow safety protocols when welding with the GMAW spray transfer process.
- Properly set up for spray transfer by adjusting volts, travel speed, work angles & stick out.
- Adjust the power source to produce the correct output when using spray transfer.
- Select the correct electrode and shielding gas for the base metal and position of weld.

UNIT: Stick Welding(SMAW) - 1F-3F Position

The student will be able to

- Follow safety protocols when welding with the SMAW process.
- Properly set up for SMAW by adjusting amperage, travel speed, work angles & arc length.
- Adjust the power source to produce the mode of transfer that is best for 1F position.
- Select the correct electrode and shielding gas for the base metal and position of weld.

UNIT: Oxy Fuel Welding/ GTAW(TIG) Intro

The student will be able to

- Determine when Oxy Fuel welding processes function and be best used.
- Incorporate safe practices when using Oxy Fuel welding.
- Ignite and control the flame of an oxy fuel torch.
- Produce stringer beads using the correct filler metal.
- Follow safety protocols when welding with the GTAW process.
- Properly set up for GTAW by adjusting Frequency, travel speed, work angles & stick out of tungsten.
- Adjust the power source to produce the correct output when using GTAW.
- Select the correct tungsten electrode and shielding gas for the base metal and position of weld.
- Sharpen the tungsten to meet the correct parameters of the weld.

UNIT: Blueprints/Symbols

The student will be able to

- Identify parts of the welding symbol.
- Distinguish between “arrow side” and “other side”.
- List what type of information is included in the tail of a weld symbol.
- Apply a weld according to a welding symbol.
- Correctly listing information according to the welding print.

Students will be able to meet the learning targets above as evidenced by formative and summative classroom assessments.