

STRANDS AND STANDARDS

WELDING TECHNICIAN – INTERMEDIATE LEVEL



Course Description

This is an intermediate level course that will teach the next level of welding skills. This course will prepare students to apply technical knowledge and skill in the workplace and in project construction. In this course, students will learn and practice knowledge, attitude, skills, and habits required for performing tasks autonomously, including the selection and use of appropriate techniques and equipment with minimum supervision.

Intended Grade Level	10-12
Units of Credit	1.0
Core Code	40.10.00.00.112
Concurrent Enrollment Core Code	40.10.00.13.112
Prerequisite	Welding Technician-Entry Level
Skill Certification Test Number	596
Test Weight	1.0
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Welding
Endorsement 2	N/A
Endorsement 3	N/A



WELDING TECHNICIAN – INTERMEDIATE LEVEL

STRAND 1

Students will understand and use welding safety and first aid.

Standard 1

Complete a student safety pledge (disclosure statement).

Standard 2

Respond to first aid requirements.

Standard 3

Follow safe practices.

Standard 4

Perform housekeeping duties.

Standard 5

Successfully complete safety tests on equipment use.

Performance Skill

Understand and use welding safety and first aid.

- Complete a student safety pledge (disclosure statement).
- Respond to first aid requirements.
- Follow safe practices.
- Perform housekeeping duties.
- Successfully complete safety tests on equipment use.

STRAND 2

Students will read and interpret welding blueprints.

Standard 1

Interpret the tolerance dimensions found on a blueprint in decimals, fractions, and degrees.

Standard 2

Draw blueprints for simple welding projects.

Performance Skill

Read and interpret welding blueprints.

- Interpret the tolerance dimensions found on a blueprint in decimals, fractions, and degrees.
- Draw blueprints for simple welding projects.

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STRAND 3

Students will identify and apply intermediate welding symbols.

Standard 1

Identify and interpret basic welding symbols including; bevel groove weld, plug or slot weld, melt through, intermittent field weld, and contour symbols.

Standard 2

Identify and interpret drawings describing the anatomy of a groove and fillet weld.

Standard 3

Draw welding symbols for given specification.

Standard 4

Interpret a welding print and welding procedure specifications.

Performance Skill

Identify and apply intermediate welding symbols.

- Identify and interpret basic welding symbols including; bevel groove weld, plug or slot weld, melt through, intermittent field weld, and contour symbols.
- Identify and interpret drawings describing the anatomy of a groove and fillet weld.
- Draw welding symbols for given specification.
- Interpret a welding print and welding procedure specifications.

STRAND 4

Students will use the Flux Cored Arc Welding (FCAW) process.

Standard 1

Set up for FCAW operations on carbon steel.

Standard 2

Make 1F (flat position-fillet weld) welds on carbon steel.

Standard 3

Make 2F (horizontal position-fillet weld) welds on carbon steel.

Standard 4

Make 1G (flat position-groove weld) welds on carbon steel.

Performance Skill

Use the Flux Cored Arc Welding (FCAW) process.

- Set up for FCAW operations on carbon steel.
- Make 1F (flat position-fillet weld) welds on carbon steel.
- Make 2F (horizontal position-fillet weld) welds on carbon steel.
- Make 1G (flat position-groove weld) welds on carbon steel.

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STRAND 5

Students will use the Gas Tungsten Arc Welding (GTAW) process.

Standard 1

Set up for GTAW operations on carbon steel.

Standard 2

Make 1F (flat position-fillet weld) welds on carbon steel.

Standard 3

Make 2F (horizontal position-fillet weld) welds on carbon steel.

Standard 4

Make 1G (flat position-groove weld) welds on carbon steel.

Performance Skill

Use the Gas Tungsten Arc Welding (GTAW) process.

- Set up for GTAW operations on carbon steel.
- Make 1F (flat position-fillet weld) welds on carbon steel.
- Make 2F (horizontal position-fillet weld) welds on carbon steel.
- Make 1G (flat position-groove weld) welds on carbon steel.

STRAND 6

Students will use the Gas Metal Arc Welding (GMAW) process.

Standard 1

Set up for GMAW operations on carbon steel.

Standard 2

Use Spray Transfer mode to make 1F (flat position-fillet weld) welds on carbon steel.

Standard 3

Use Short Spray Transfer mode to make 2F (horizontal position-fillet weld) welds on carbon steel.

Standard 4

Use Short Spray Transfer mode to make 1F (flat position-fillet weld) multi-pass welds on carbon steel.

Standard 5

Use Short Spray Transfer mode to make 1G (flat position-groove weld) welds on carbon steel.

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Standard 6

Use Short Spray Transfer mode to make 2G (horizontal position-groove weld) welds on carbon steel.

Performance Skill

Use the Gas Metal Arc Welding (GMAW) process.

- Set up for GMAW operations on carbon steel.
- Use Spray Transfer mode to make 1F (flat position-fillet weld) welds on carbon steel.
- Use Short Spray Transfer mode to make 2F (horizontal position-fillet weld) welds on carbon steel.
- Use Short Spray Transfer mode to make 1F (flat position-fillet weld) multi-pass welds on carbon steel.
- Use Short Spray Transfer mode to make 1G (flat position-groove weld) welds on carbon steel.
- Use Short Spray Transfer mode to make 2G (horizontal position-groove weld) welds on carbon steel.

STRAND 7

Students will use the Carbon Arc Cutting (CAC-A) or gouging process.

Standard 1

Set up for Carbon Arc Cutting (CAC-S) gouging operations on carbon steel.

Standard 2

Perform straight gouging operations on carbon steel.

Standard 3

Perform shape gouging operations on carbon steel.

Standard 4

Pierce a hole through a carbon steel plate.

Performance Skill

Use the Carbon Arc Cutting (CAC-A) or gouging process.

- Set up for Carbon Arc Cutting (CAC-S) gouging operations on carbon steel.
- Perform straight gouging operations on carbon steel.
- Perform shape gouging operations on carbon steel.
- Pierce a hole through a carbon steel plate.

STRAND 8

Students will use the Plasma Arc cutting process.

Standard 1

Set up for plasma arc cutting operations on carbon steel.

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Standard 2

Perform straight cutting operations on carbon steel.

Standard 3

Perform shape cutting operations on carbon steel.

Standard 4

Pierce a hole through a carbon steel plate.

Performance Skill

Use the Plasma Arc cutting process.

- Set up for plasma arc cutting operations on carbon steel.
- Perform straight cutting operations on carbon steel.
- Perform shape cutting operations on carbon steel.
- Pierce a hole through a carbon steel plate.

STRAND 9

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 2.

Standard 1

Understand and demonstrate reliability.

- Determine individual time management skills.
- Explore what's ethical in the workplace or school.
- Demonstrate awareness of government.
- Demonstrate awareness of professional organizations and trade unions.

Standard 2

Understand and demonstrate responsiveness.

- Define the customer.
- Recognize benefits of doing a community service project.
- Demonstrate social etiquette.
- Identify customer expectations.

Standard 3

Understand resiliency.

- Discover self-motivation techniques and establish short-term goals.
- Select characters of a positive image.
- Identify a mentor.

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Standard 4

Understand and demonstrate workplace habits.

- Participate in a shadowing activity.
- Explore workplace ethics: codes of conduct.
- Recognize safety issues.
- Perform a skill demonstration.
- Exercise your right to know.

Standard 5

Understand and develop initiative.

- Develop personal financial skills.
- Develop a business plan.
- Investigate entrepreneurship opportunities.

Standard 6

Understand and demonstrate continuous improvement.

- Conduct a worker interview.
- Demonstrate evaluation skills.
- Examine ethics and values in the workplace.
- Develop a working relationship with a mentor.
- Construct a job search network.

Skill Certificate Test Points by Strand

Test Name	Test #	Number of Test Points by Strand									Total Points	Total Questions
		1	2	3	4	5	6	7	8	9		
Welding Technician, Intermediate	596	7	6	8	11	8	5	7	6	4	62	54