



Welding Technician Advanced

EXAM INFORMATION

Items

40

Points

41

Prerequisites

WELDING TECHNICIAN, INTERMEDIATE

Grade Level

11-12

Course Length

ONE YEAR

Career Cluster

AGRICULTURE, FOOD AND NATURAL
RESOURCES

ARCHITECTURE AND CONSTRUCTION

MANUFACTURING

SCIENCE, TECHNOLOGY,

ENGINEERING, AND MATHEMATICS

Performance Standards

INCLUDED

Certificate Available

YES

DESCRIPTION

Students will learn more advanced skills in the welding processes that will prepare them to apply technical knowledge and skill to the workplace and to project construction. Students will learn, and practice knowledge, attitude, skills, and habits required to perform tasks autonomously and with minimum supervision, including the selection and use of appropriate techniques and equipment.

EXAM BLUEPRINT

STANDARD	PERCENTAGE OF EXAM
1- Welding Safety and First Aid	24%
2- Employment Skills	15%
3- Fabricate from a Blueprint	17%
4- Gas Tungsten and Welding Processes	15%
5- Flux Cored ARC Welding Processes	7%
6- Shielded Metal Arc Welding Process	7%
7- Welding Inspection and Testing	15%
8- Metal and Welding Fabrication (Optional)	



STANDARD 1

STUDENTS WILL UNDERSTAND AND USE WELDING SAFETY AND FIRST AID

- Objective 1 Complete a student safety pledge (disclosure statement).
- Objective 2 Respond to first aid requirements.
- Objective 3 Follow safe practices.
- Objective 4 Perform housekeeping duties.
- Objective 5 Successfully complete safety tests on equipment use.

Standard 1 Performance Evaluation included below (Optional)

STANDARD 2

STUDENTS WILL UNDERSTAND AND USE EMPLOYMENT SKILLS

- Objective 1 Build a job search network and find job leads.
- Objective 2 Write a résumé and create a job portfolio.
- Objective 3 Write a letter of application.
- Objective 4 Complete a job application.
- Objective 5 Participate in an actual or simulated job interview.

STANDARD 3

STUDENTS WILL FABRICATE PARTS FROM A BLUEPRINT

- Objective 1 Interpret welding symbols information.
- Objective 2 Accurately measure and prepare materials for fabrication.
- Objective 3 Use correct techniques and equipment to fabricate part.

Standard 3 Performance Evaluation included below (Optional)

STANDARD 4

STUDENTS WILL USE GAS TUNGSTEN ARC WELDING (GTAW) PROCESSES

- Objective 1 Set up for GTAW operations on plain carbon steel.
- Objective 2 Make 3F (vertical position-fillet weld) welds on carbon steel.
- Objective 3 Make 2G (horizontal position-groove weld) welds on carbon steel.
- Objective 4 Make 3G (vertical position-groove weld) welds on carbon steel.
- Objective 5 Perform the GTAW welder performance qualification test on carbon steel.



Standard 4 Performance Evaluation included below (Optional)

STANDARD 5

STUDENTS WILL USE FLUX CORED ARC WELDING (FCAW) PROCESSES

- Objective 1 Set up for FCAW operations on plain carbon steel.
- Objective 2 Make 3F (vertical position-fillet weld) welds on carbon steel.
- Objective 3 Make 2G (horizontal position-groove weld) welds on carbon steel.
- Objective 4 Make 3G (vertical position-groove weld) welds on carbon steel.
- Objective 5 Perform the FCAW welder performance qualification test on carbon steel.

Standard 5 Performance Evaluation included below (Optional)

STANDARD 6

STUDENTS WILL USE THE SHIELDED METAL ARC WELDING (SMAW) PROCESSES

- Objective 1 Set up for SMAW operations on plain carbon steel.
- Objective 2 Make 3F (vertical position-fillet weld, uphill travel) welds on carbon steel.
- Objective 3 Make 2G (horizontal position-groove weld) welds on carbon steel.
- Objective 4 Make 3G (vertical position-groove weld, uphill travel) welds on carbon steel.
- Objective 5 Perform the SMAW welder performance qualification test on carbon steel.

Standard 6 Performance Evaluation included below (Optional)

STANDARD 7

STUDENTS WILL CONDUCT WELDING INSPECTION AND TESTING

- Objective 1 Visually examine cut surfaces and edges of prepared base metal parts for appropriate preparation and fit.
- Objective 2 Visually examine tacks, root passes, intermediate layers, and completed welds for penetration and porosity, undercut, bead reinforcement, slag inclusions, and overlap.
- Objective 3 Perform bend-testing procedures to determine the quality of the weld.
- Objective 4 Take or suggest appropriate corrective action based on testing results.

Standard 7 Performance Evaluation included below (Optional)

STANDARD 8 (Optional)

STUDENTS WILL FABRICATE PROJECTS USING METAL AND WELDING PROCESSES

- Objective 1 Develop a drawing of a project and create a bill of materials with cost estimates.



- Objective 2 Prepare a materials order and secure the materials.
- Objective 3 Construct the project according to a plan that meets high quality standards in four areas, including project design, quality of workmanship, attention to detail, and fit and finish.



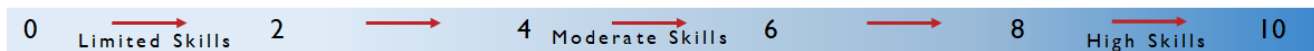
Welding Technician, Advanced Performance Standards (Optional)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of **8 or higher** on the rating scale. Students may be encouraged to repeat the objectives until they average **8 or higher**.

Students Name _____

Class _____

PERFORMANCE RATING SCALE



STANDARD 1 Welding Safety and First Aid

Score:

- 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

STANDARD 3 Fabricate from a Blueprint

Score:

- Interpret welding symbols information
- Accurately measure and prepare materials for fabrication
- Use correct techniques and equipment to fabricate parts

STANDARD 4 Gas Tungsten Arc Welding (GTAW) process

Score:

- Set up for GTAW operations on plain carbon steel
- Make 3F (vertical position-fillet weld) welds on carbon steel
- Make 2G (horizontal position-groove weld) welds on carbon steel
- Make 3G (vertical position-groove weld) welds on carbon steel
- Perform GTAW welder performance qualification test on carbon steel

STANDARD 5 Flux Cored Arc Welding (FCAW) process

Score:

- Set up for FCAW operations on carbon steel
- Make 3F (vertical position-fillet weld) welds on carbon steel
- Make 2G (horizontal position-groove weld) welds on carbon steel
- Make 3G (vertical position-groove weld) welds on carbon steel
- Perform FCAW welder performance qualification test on carbon steel



STANDARD 6 Shielded Metal Arc Welding (SMAW) Process

Score:

- Set up SMAW operations on carbon steel
- Make 3F (vertical position-fillet weld, uphill travel) welds on carbon steel
- Make 2G (horizontal position-groove weld) welds on carbon steel
- Make 3G (vertical position-groove weld, uphill travel) welds on carbon steel
- Perform SMAW welder performance qualification test on carbon steel

STANDARD 7 Welding Inspection and testing

Score:

- Visually examine cut surfaces and edges of prepared base metal parts for appropriate preparation and fit
- Visually examine tacks, root passes, intermediate layers, and completed welds for penetration and porosity, undercut, bead reinforcement, slag inclusions, and overlap
- Perform bend-testing procedures to determine the quality of the weld
- Take or suggest appropriate corrective action based on testing results

PERFORMANCE STANDARD AVERAGE SCORE: