

Welding Technician - Advanced Level

Levels:	Grades 11-12
Units of Credit:	1.00
CIP Code:	48.0512
Core Code:	40-10-00-00-114
Prerequisite:	Welding Technician-Intermediate Level
Skill Test:	597

COURSE DESCRIPTION

Students will learn more advanced skills in the welding processes that will prepare them to apply technical knowledge and skill in the workplace and in 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.

CORE STANDARDS, OBJECTIVES, AND INDICATORS

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 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.

Skills USA PDP requirements—optional but recommended

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 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 GTAW welder performance qualification test on carbon steel.

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 FCAW welder performance qualification test on carbon steel.

STANDARD 6

Students will use 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 SMAW welder performance qualification test on carbon steel.

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 8**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.