



Department of Teaching & Learning
Parent/Student Course Information

Welding I

(VO8672)

Three Credits, One Year

Grades 10 - 12

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

COURSE DESCRIPTION

In this two-year program students learn and practice oxyacetylene welding and cutting, metal-arc welding, gas tungsten-arc welding, and plasma-arc cutting. The students study metallurgy and weld symbols, read blueprints and fabricate various projects.

CERTIFICATION

American Welding Society

National Occupational Competency Testing Institute: Welding

STUDENT ORGANIZATION

SkillsUSA is a co-curricular organization for all students enrolled in trade and industrial education programs. SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA helps students excel by providing educational programs, events and competitions that support career and technical education (CTE) in the nation's classrooms. Students are highly encouraged to participate.

PREREQUISITE

None

OPTIONS FOR NEXT COURSE

Welding II

REQUIRED STUDENT TEXTBOOK

None

COMPETENCIES FOR TURF WELDING I

Demonstrating Workplace Readiness Skills: Personal Qualities and People Skills

- 1 Demonstrate positive work ethic.
- 2 Demonstrate integrity.
- 3 Demonstrate teamwork skills.
- 4 Demonstrate self-representation skills.
- 5 Demonstrate diversity awareness.
- 6 Demonstrate conflict-resolution skills.
- 7 Demonstrate creativity and resourcefulness.

Demonstrating Workplace Readiness Skills: Professional Knowledge and Skills

- 8 Demonstrate effective speaking and listening skills.
- 9 Demonstrate effective reading and writing skills.
- 10 Demonstrate critical-thinking and problem-solving skills.
- 11 Demonstrate healthy behaviors and safety skills.
- 12 Demonstrate an understanding of workplace organizations, systems, and climates.
- 13 Demonstrate lifelong-learning skills.
- 14 Demonstrate job-acquisition and advancement skills.
- 15 Demonstrate time-, task-, and resource-management skills.
- 16 Demonstrate job-specific mathematics skills.
- 17 Demonstrate customer-service skills.

Demonstrating Workplace Readiness Skills: Technology Knowledge and Skills

- 18 Demonstrate proficiency with technologies common to a specific occupation.
- 19 Demonstrate information technology skills.
- 20 Demonstrate an understanding of Internet use and security issues.
- 21 Demonstrate telecommunications skills.

Examining All Aspects of an Industry

- 22 Examine aspects of planning within an industry/organization.
- 23 Examine aspects of management within an industry/organization.
- 24 Examine aspects of financial responsibility within an industry/organization.
- 25 Examine technical and production skills required of workers within an industry/organization.
- 26 Examine principles of technology that underlie an industry/organization.
- 27 Examine labor issues related to an industry/organization.
- 28 Examine community issues related to an industry/organization.
- 29 Examine health, safety, and environmental issues related to an industry/organization.

Addressing Elements of Student Life

- 30 Identify the purposes and goals of the student organization.
- 31 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.
- 32 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.
- 33 Identify Internet safety issues and procedures for complying with acceptable use standards.

Applying Basic Safety Standards

- 34 Comply with federal, state, and local safety legal requirements, including the Occupational Safety and Health Administration (OSHA), Virginia OSHA (VOSHA), and Environmental Protection Agency (EPA).

- 35 Maintain a safe working environment.
- 36 Explain safe working practices around electrical hazards.
- 37 Identify emergency first aid procedures.
- 38 Identify the types of fires and the methods used to extinguish them.
- 39 Demonstrate the use of a fire extinguisher.
- 40 Identify personal protective equipment (PPE) requirements.
- 41 Describe ventilation requirements and regulations pertaining to welding procedures and materials.
- 42 Inspect hand and power tools to ensure safety and usability.
- 43 Demonstrate lifting and carrying techniques.
- 44 Identify types of ladders.
- 45 Demonstrate safe laddering techniques for various types of ladders.
- 46 Describe safe scaffolding techniques.
- 47 Report injuries.
- 48 Report personal, environmental, and equipment safety violations to the appropriate authority.
- 49 Earn the OSHA 10 card.
- 50 Pass the safety exam.

Exploring the Basics of Welding

- 51 Identify common metals used in the welding profession.
- 52 Identify the main regulatory bodies and specifications of the welding profession in the United States.
- 53 Identify minor external repairs to all equipment and accessories.

Working with Welding Documents, Drawings, and Measurements

- 54 Identify basic elements of a drawing or sketch.
- 55 Identify welding symbol information.
- 56 Follow the instructions on a job specifications sheet (e.g., weld procedure sheet [WPS]).
- 57 Convert basic measurements.
- 58 Interpret dimensions from a drawing with incomplete dimensions.
- 59 Apply basic measuring skills to welding operations.
- 60 Identify simple parts from a drawing or sketch.

Demonstrating Shielded Metal Arc Welding (SMAW)

- 61 Describe the theories behind SMAW.
- 62 Perform safety inspections of all equipment and accessories.
- 63 Identify minor external repairs to all equipment and accessories.
- 64 Set up for SMAW operations and base metal preparation on carbon steel.
- 65 Operate SMAW equipment.
- 66 Perform single-pass fillet welds, 1F and 2F, on carbon steel.
- 67 Perform groove welds, 1G and 2G, on carbon steel, limited thickness.

Demonstrating Gas Metal Arc Welding (GMAW, GMAW-S)

- 68 Describe the theories behind GMAW and GMAW-S.
- 69 Perform safety inspections of all equipment and accessories.
- 70 Identify minor external repairs to all equipment and accessories.
- 71 Set up for GMAW and GMAW-S operations and base metal preparation on carbon steel.
- 72 Operate GMAW and GMAW-S equipment.
- 73 Perform single-pass fillet welds, all positions, on carbon steel, using different modes of transfer.
- 74 Perform groove welds, all positions, on carbon steel, using different modes of transfer.

Demonstrating Flux Cored Arc Welding (FCAW-G)

- 75 Describe the theories behind FCAW-G.
- 76 Perform safety inspections of all equipment and accessories.
- 77 Identify minor external repairs to all equipment and accessories.
- 78 Set up for FCAW-G operations and base metal preparation on carbon steel.
- 79 Operate FCAW-G equipment.
- 80 Perform single-pass welds on carbon steel, using different modes of transfer.

Demonstrating Manual Oxyfuel Gas Cutting (OFC)

- 81 Describe the theories behind manual OFC.
- 82 Perform safety inspections of all equipment and accessories.
- 83 Identify minor external repairs to all equipment and accessories.
- 84 Set up for manual OFC operations and base metal preparation on carbon steel.
- 85 Operate manual OFC equipment.
- 86 Perform straight-cutting operations on carbon steel.

Demonstrating Plasma Arc Cutting (PAC)

- 87 Describe the theories behind PAC.
- 88 Perform safety inspections of all equipment and accessories.
- 89 Identify minor external repairs to all equipment and accessories.
- 90 Set up for manual PAC operations.
- 91 Operate manual PAC equipment.

Demonstrating Visual Examination Procedures

- 92 Examine cut surfaces and edges of prepared base metal parts.
- 93 Examine tack, intermediate layers, and completed welds.

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For further information please call (757) 263-1070.

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CHARTING THE COURSE

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