



Department of Teaching & Learning
Parent/Student Course Information

Welding II

(VO8673)

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

Welding I

OPTIONS FOR NEXT COURSE

None

REQUIRED STUDENT TEXTBOOK

None

COMPETENCIES FOR TURF WELDING II

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 Inspect PPE to determine whether it is safe to use.
- 42 Describe ventilation requirements and regulations pertaining to welding procedures and materials.
- 43 Inspect hand and power tools to visually identify defects.
- 44 Demonstrate lifting and carrying techniques.
- 45 Identify types of ladders
- 46 Demonstrate safe laddering techniques.
- 47 Describe safe scaffolding techniques.
- 48 Report injuries.
- 49 Report personal, environmental, and equipment safety violations to the appropriate authority.
- 50 Earn the OSHA 10 card.
- 51 Pass the safety exam.

Working with Documents and Drawings

- 52 Interpret elements of a drawing or sketch.
- 53 Interpret welding symbol information.
- 54 Convert metric or imperial system measurements to and from U.S. system customary (standard) measurements.
- 55 Calculate dimensions from a drawing with incomplete dimensions.
- 56 Interpret elements of a drawing or sketch.
- 57 Fabricate simple parts from a drawing or a sketch.

Demonstrating Machine Oxyfuel Gas Cutting (OFC Track Burner)

- 58 Describe the theories behind machine OFC track burner.
- 59 Perform safety inspections of all equipment and accessories.
- 60 Identify minor external repairs to all equipment and accessories.
- 61 Set up for machine OFC track burner operations on carbon steel.
- 62 Operate machine OFC track burner equipment.
- 63 Perform straight-cutting operations on carbon steel.
- 64 Perform bevel-cutting operations on carbon steel.

Demonstrating Carbon Arc Cutting (CAC-A)

- 65 Describe the theories behind CAC-A.
- 66 Perform safety inspections of all equipment and accessories.
- 67 Identify minor external repairs to all equipment and accessories.
- 68 Set up for manual CAC-A equipment.
- 69 Operate manual CAC-A equipment.
- 70 Perform metal removal operations on carbon steel.

Demonstrating Gas Tungsten Arc Welding (GTAW)

- 71 Describe the theories behind GTAW.
- 72 Perform safety inspections of all equipment and accessories.
- 73 Identify minor external repairs to all equipment and accessories.
- 74 Set up for GTAW operations and base metal preparation on ferrous and non-ferrous materials.
- 75 Operate GTAW equipment.
- 76 Perform 1F and 2F fillet welds on various materials.

- 77 Perform 1G-groove welds on carbon steel, limited thickness.
- 78 Perform 1F–2F welds on aluminum.
- 79 Perform 1G welds on aluminum.
- 80 Perform 1F–2F welds on stainless steel.
- 81 Perform 1G–2G welds on stainless steel.

Demonstrating Shielded Metal Arc Welding (SMAW)

- 82 Perform single-pass fillet welds, all positions, on carbon steel.
- 83 Perform groove welds, all positions, on carbon steel, limited thickness.

Demonstrating Gas Metal Arc Welding (GMAW).

- 84 Perform groove welds, all positions, on carbon steel, limited thickness, using various modes of transfer.

Demonstrating Flux Cored Arc Welding (FCAW-G)

- 85 Make groove welds, all positions, on carbon steel, limited thickness, using various modes of transfer.
- 86 Perform single and multi-pass pass welds, all positions, on carbon steel, limited thickness.

Demonstrating Manual Oxyfuel Gas Cutting (OFC)

- 87 Perform shape-cutting operations on carbon steel.
- 88 Perform bevel-cutting operations on plain carbon steel.
- 89 Remove weld metal from plain carbon steel, using weld washing techniques.

Demonstrating Visual Examination

- 90 Evaluate cut surfaces and edges of prepared base metal parts.
- 91 Evaluate tack, intermediate layers, and completed welds.

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

Notice of Non-Discrimination Policy

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To seek resolution of grievances resulting from alleged discrimination or to report violations of these policies, please contact the Title VI/Title IX Coordinator/Director of Student Leadership at (757) 263-2020, 1413 Laskin Road, Virginia Beach, Virginia, 23451 (for student complaints) or the Section 504/ADA Coordinator/Chief Human Resources Officer at (757) 263-1133, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (for employees or other citizens). Concerns about the application of Section 504 of the Rehabilitation Act should be addressed to the Section 504 Coordinator/ Executive Director of Student Support Services at (757) 263-1980, 2512 George Mason Drive, Virginia Beach, Virginia, 23456 or the Section 504 Coordinator at the student's school. For students who are eligible or suspected of being eligible for special education or related services under IDEA, please contact the Office of Programs for Exceptional Children at (757) 263-2400, Laskin Road Annex, 1413 Laskin Road, Virginia Beach, Virginia, 23451.

Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write The Department of Teaching and Learning, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone 263-1070 (voice); fax 263-1424; 263-1240 (TDD) or email at Brandon.Martin@vbschools.com.

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