



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 (AWS) SENSE Training Program Certification Examination (Level 1, Entry-Level Welder)

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 Personal Qualities and Abilities

- 1 Demonstrate creativity and innovation.
- 2 Demonstrate critical thinking and problem solving.
- 3 Demonstrate initiative and self-direction.
- 4 Demonstrate integrity.
- 5 Demonstrate work ethic.

Demonstrating Interpersonal Skills

- 6 Demonstrate conflict-resolution skills.
- 7 Demonstrate listening and speaking skills.
- 8 Demonstrate respect for diversity.
- 9 Demonstrate customer service skills.
- 10 Collaborate with team members.

Demonstrating Professional Competencies

- 11 Demonstrate big-picture thinking.
- 12 Demonstrate career- and life-management skills.
- 13 Demonstrate continuous learning and adaptability.
- 14 Manage time and resources.
- 15 Demonstrate information-literacy skills.
- 16 Demonstrate an understanding of information security.
- 17 Maintain working knowledge of current information-technology (IT) systems.
- 18 Demonstrate proficiency with technologies, tools, and machines common to a specific occupation.
- 19 Apply mathematical skills to job-specific tasks.
- 20 Demonstrate professionalism.
- 21 Demonstrate reading and writing skills.
- 22 Demonstrate workplace safety.

Examining All Aspects of an Industry

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

Addressing Elements of Student Life

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

Exploring Work-Based Learning

- 35 Identify the types of work-based learning (WBL) opportunities.
- 36 Reflect on lessons learned during the WBL experience.
- 37 Explore career opportunities related to the WBL experience.
- 38 Participate in a WBL experience, when appropriate.

Applying Basic Safety Standards

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

Exploring the Basics of Welding

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

Working with Welding Documents, Drawings, and Measurements

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

Demonstrating Shielded Metal Arc Welding (SMAW)

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

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

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

Demonstrating Flux Cored Arc Welding (FCAW-G)

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

Demonstrating Manual Oxyfuel Gas Cutting (OFC)

- 86 Describe the theories behind manual OFC.
- 87 Perform safety inspections of all equipment and accessories.
- 88 Identify minor external repairs to all equipment and accessories.
- 89 Set up for manual OFC operations and base metal preparation on carbon steel.
- 90 Operate manual OFC equipment.
- 91 Perform straight-cutting operations on carbon steel.

Demonstrating Plasma Arc Cutting (PAC)

- 92 Describe the theories behind PAC.
- 93 Perform safety inspections of all equipment and accessories.
- 94 Identify minor external repairs to all equipment and accessories.
- 95 Set up for manual PAC operations.
- 96 Operate manual PAC equipment.

Demonstrating Visual Examination Procedures

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

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Produced by the Department of Teaching and Learning.
For further information, please call (757) 263-1070.

Notice of Non-Discrimination Policy

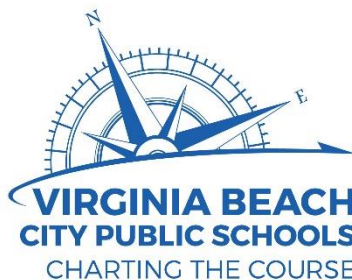
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Title IX Notice: Complaints or concerns regarding discrimination on the basis of sex or sexual harassment should be addressed to the Title IX Coordinator, at the VBCPS Office of Student Leadership, 641 Carriage Hill Road, Suite 200, Virginia Beach, 23452, (757) 263-2020, Mary.Dees@vbschools.com (student complaints) or the VBCPS Department of School Leadership, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (757) 263-1088, Elizabeth.Bryant@vbschools.com (employee complaints). Additional information regarding Virginia Beach City Public Schools' policies regarding discrimination on the basis of sex and sexual harassment, as well as the procedures for filing a formal complaint and related grievance processes, can be found in School Board Policy 5-44 and School Board Regulations 5-44.1 (students), School Board Policy 4-4 and School Board Regulation 4-4.3 (employees), and on the School Division's website at [Diversity, Equity and Inclusion/Title IX](#). 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, Plaza Annex/Family and Community Engagement Center, 641 Carriage Hill Road, Suite 200, Virginia Beach, VA 23452.

The School Division is committed to providing educational environments that are free of discrimination, harassment, and bullying. Students, staff, parents/guardians who have concerns about discrimination, harassment, or bullying should contact the school administration at their school. Promptly reporting concerns will allow the school to take appropriate actions to investigate and resolve issues. School Board Policy 5-7 addresses non-discrimination and anti-harassment, Policy 5-44 addresses sexual harassment and discrimination based on sex or gender. Policy 5-36 and its supporting regulations address other forms of harassment.

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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