



*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 (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**

Welding I

**OPTIONS FOR NEXT COURSE**

None

**REQUIRED STUDENT TEXTBOOK**

None

## COMPETENCIES FOR TURF WELDING II

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

### **Working with Documents and Drawings**

- 57 Interpret elements of a drawing or sketch.
- 58 Interpret welding symbol information.
- 59 Convert metric or imperial system measurements to and from U.S. system customary (standard) measurements.
- 60 Calculate dimensions from a drawing with incomplete dimensions.
- 61 Interpret elements of a drawing or sketch.
- 62 Fabricate simple parts from a drawing or a sketch.

### **Demonstrating Machine Oxyfuel Gas Cutting (OFC Track Burner)**

- 63 Describe the theories behind machine OFC track burner.
- 64 Perform safety inspections of all equipment and accessories.
- 65 Identify minor external repairs to all equipment and accessories.
- 66 Set up for machine OFC track burner operations on carbon steel.
- 67 Operate machine OFC track burner equipment.
- 68 Perform straight-cutting operations on carbon steel.
- 69 Perform bevel-cutting operations on carbon steel.

### **Demonstrating Carbon Arc Cutting (CAC-A)**

- 70 Describe the theories behind CAC-A.
- 71 Perform safety inspections of all equipment and accessories.

- 72 Identify minor external repairs to all equipment and accessories.
- 73 Set up for manual CAC-A equipment.
- 74 Operate manual CAC-A equipment.
- 75 Perform metal removal operations on carbon steel.

### **Demonstrating Gas Tungsten Arc Welding (GTAW)**

- 76 Describe the theories behind GTAW.
- 77 Perform safety inspections of all equipment and accessories.
- 78 Identify minor external repairs to all equipment and accessories.
- 79 Set up for GTAW operations and base metal preparation on ferrous and non-ferrous materials.
- 80 Operate GTAW equipment.
- 81 Perform 1F and 2F fillet welds on various materials.
- 82 Perform 1G-groove welds on carbon steel, limited thickness.
- 83 Perform 1F–2F welds on aluminum.
- 84 Perform 1G welds on aluminum.
- 85 Perform 1F–2F welds on stainless steel.
- 86 Perform 1G–2G welds on stainless steel.

### **Demonstrating Shielded Metal Arc Welding (SMAW)**

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

### **Demonstrating Gas Metal Arc Welding (GMAW).**

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

### **Demonstrating Flux Cored Arc Welding (FCAW-G)**

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

### **Demonstrating Manual Oxyfuel Gas Cutting (OFC)**

- 92 Perform shape-cutting operations on carbon steel.
- 93 Perform bevel-cutting operations on plain carbon steel.
- 94 Remove weld metal from plain carbon steel, using weld washing techniques.

### **Demonstrating Visual Examination**

- 95 Evaluate cut surfaces and edges of prepared base metal parts.
- 96 Evaluate 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**

Virginia Beach City Public Schools does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation/gender identity, pregnancy, childbirth or related medical condition, disability, marital status, age, genetic information or veteran status in its programs, activities, employment, or enrollment, and provides equal access to the Boy Scouts and other designated youth groups. School Board policies and regulations (including, but not limited to, Policies 2-33, 4-4, 5-7, 5-19, 5-20, 5-44, 6-33, 6-7, 7-48, 7-49, 7-57 and Regulations 4-4.1, 4-4.2, 5-44.1, 7-11.1, 7-17.1 and 7-57.1) provide equal access to courses, programs, enrollment, counseling services, physical education and athletic, vocational education, instructional materials, extracurricular activities and employment.

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](mailto: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](mailto: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](mailto:Brandon.Martin@vbschools.com).

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