



**VIRGINIA BEACH CITY PUBLIC SCHOOLS**  
CHARTING THE COURSE

*Department of Teaching & Learning*  
*Parent/Student Course Information*

*Technical Design and Illustration Program*  
*Basic Technical Drawing*  
*(TE 8435)*  
*Grades 9 - 12*  
*One Credit, One Year*

*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**

The courses in engineering and technology provide opportunities for students to acquire skills and knowledge necessary for technological literacy, entry-level careers and lifelong learning. Students learn Virginia's 21 Workplace Readiness Skills within the content area. Those who are completing a two-year sequence have the opportunity to verify their knowledge of the workplace readiness skills through an industry assessment. This course provides students with the opportunity to learn the language of engineering and technology. Students gain skills in mechanical drawing and computer assisted design and drawing (CADD). They study geometric construction, orthographic projection, pictorial drawings and dimensioning. The course is recommended for the future engineering, architecture or technology student.

**CERTIFICATION**

Students successfully completing the Technical Design and Illustration Program of Study will be prepared for the AutoCAD Certified user and or the SolidWorks CSWA industry certification.

**STUDENT ORGANIZATION**

Technology Student Association (TSA) is a co-curricular organization for all students enrolled in engineering and technology courses. Students are encouraged to be active members of their youth organization to develop leadership and teamwork skills and to receive recognition for their participation in local, regional, state and national activities.

**PREREQUISITE**

None

**OPTIONS FOR NEXT COURSE**

Architectural Drawing, Engineering Drawing

**REQUIRED STUDENT TEXTBOOK**

*Mechanical Drawing 13<sup>th</sup> edition*

## COMPETENCIES FOR BASIC TECHNICAL DRAWING

### **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.

### **Introducing the Design Process**

- 34 Describe the design process.
- 35 Apply the design process.
- 36 Analyze design solutions.

- 37 Construct a prototype.
- 38 Refine the design solution.

### **Exploring Technical Drawing Foundations**

- 39 Define technical drawing.
- 40 Describe the history of drawing and design.
- 41 Maintain a reference library of technical data.
- 42 Maintain drawing equipment.
- 43 Select drawing-related media and materials to effectively communicate a solution for a design problem.
- 44 Apply geometric construction principles.
- 45 Apply mathematical calculations to technical drawings.
- 46 Apply English and metric measuring devices and systems to technical drawings.
- 47 Interpret Technical Documentation.
- 48 Apply principles of dimensioning, annotation, and lettering.
- 49 Create a title block.

### **Producing Illustrations**

- 50 Apply technical drawing and design standards.
- 51 Develop 2-D patterns from 3-D objects.
- 52 Prepare technical sketches.
- 53 Revise drawings.
- 54 Prepare multi-view drawings, using orthographic projections.
- 55 Prepare sectional view drawings.
- 56 Prepare pictorial drawings.
- 57 Prepare an architectural drawing.
- 58 Create solutions, using computer-aided drafting and design (CADD).

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Produced by the Department of Media and Communications for the  
Department of Teaching and Learning.  
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 [Charles.Hurd@vbschools.com](mailto:Charles.Hurd@vbschools.com).

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