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 22 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 13th edition

COMPETENCIES FOR BASIC TECHNICAL DRAWING

Demonstrating Workplace Readiness Skills: 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 Workplace Readiness Skills: 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 Workplace Readiness Skills: 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.

Introducing the Design Process
39   Describe the design process.
40   Apply the design process, including prototyping or modeling.
41   Analyze design solutions.
42   Refine the design solution.

Exploring Technical Drawing Foundations
43   Define technical drawing.
44   Compare architectural and engineering drawings.
45   Describe the history of drawing and design.
46   Prepare technical sketches.
47   Maintain a reference library of technical data.
48   Demonstrate care and use of drawing equipment.
49   Select drawing-related media and materials to communicate a solution for a deign problem.
50   Apply geometric construction principles.
51   Apply mathematical calculations to technical drawings.
52   Apply U.S. Customary Systems and metric measuring devices and systems to technical drawings.
53   Interpret technical documentation.
54   Perform lettering exercises.
55   Apply principles of dimensioning, annotation, and lettering.
56   Utilize a title block.

Producing Technical Drawings
57   Apply technical drawing and design standards.
58   Prepare multi-view drawings, using orthographic projections.
59   Prepare sectional view drawings.
60   Create 2D patterns from 3D objects, using the processing of parallel lines, radial lines, and triangulation developments.
61   Prepare pictorial drawings.
62   Create solutions, using CAD.
63   Revise drawings.
64   Prepare a set of architectural drawings.

Producing Prototypes
65   Construct a prototype.

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 (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 Charles.Hurd@vbschools.com.

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