



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

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

***Communications Technology Program***  
***Computers and Communications Technology***  
***(TE 8418)***  
***Grades 9 - 12***  
***One-half Credit, One Semester***

*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. Students obtain knowledge and skills in desktop publishing, computer systems, lasers, and audio/video productions. Activities include computer graphics; digital photography; multi-media communications; and the printing of note pads, business cards and garments. This course is designed for students who are seeking careers in information technology, commercial art, video production and electronic publishing.

**CERTIFICATION**

Students successfully completing the Communications Technology Program of Study will be preparing for the Adobe Photoshop CS5 certification and the NOCTI Design Industry Credential.

**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**

Graphic Communications

**REQUIRED STUDENT TEXTBOOK**

*Adobe Photoshop CS5 Revealed*

## COMPETENCIES FOR COMPUTERS AND COMMUNICATIONS

### **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 Communication Systems**

- 34 Explain ethics as they relate to digital multimedia to communication systems.
- 35 Define communication technology.
- 36 Identify the types of communication.

- 37 Define digital communication technology.
- 38 Research the history and development of various types of communication systems.\*
- 39 Analyze the impact of communication systems.
- 40 Describe career clusters and pathways related to communication systems.
- 41 Solve communication systems problems/challenges, using the universal systems model and a communication systems model.
- 42 Describe elements of design and principles of design.
- 43 Create a portfolio including work from Communication Systems.
- 44 Explain the design process.

### **Exploring Communication Data**

- 45 Describe geographical information systems (GIS) and global positioning system (GPS) and the applications of these systems.\*
- 46 Use GIS and GPS.\*
- 47 Identify the different types of coding used to create data communication systems.\*
- 48 Identify basic concepts of developing a Web page.\*
- 49 Create a Web page.\*
- 50 Describe telecommunication processes for communicating among various types of channels.\*

### **Examining Technical Design**

- 51 Define technical design.
- 52 Produce technical sketches.
- 53 Generate a simple technical drawing.
- 54 Explain CAD, CAM and rapid prototyping.
- 55 Generate a simple three-dimensional model.\*

### **Exploring Imaging Technology**

- 56 Identify various imaging systems.
- 57 Examine the theories and properties of light.
- 58 Explore possible photographic and other imaging media.\*
- 59 Incorporate composition elements.
- 60 Identify the processes of film and print development.
- 61 Develop continuous tone photographic images.\*
- 62 Capture a digital image.
- 63 Manipulate digital images.
- 64 Mount a photograph.\*

### **Examining Graphic Production**

- 65 Explain graphic production.
- 66 Describe the different methods of graphic production.
- 67 Prepare images for appropriate output.
- 68 Produce a finished graphic product.

### **Examining Video and Media Technology**

- 69 Describe the concepts of audio and video communication.
- 70 Describe audio and video production equipment and terminology.
- 71 Describe the production process.
- 72 Produce a video or an animation, using the production process.
- 73 Output video to analog or digital format.\*

\*These competencies are considered optional by the Commonwealth of Virginia.

Aaron C. Spence, Ed.D., Superintendent  
Virginia Beach City Public Schools  
2512 George Mason Drive, Virginia Beach, VA 23456-0038

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

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 and activities 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, 6-7, 6-33, 7-48, 7-49, 7-57 and Regulations 2-33.1, 4-4.1, 4-4.2, 4-4.3, 4-6.1, 5-44.1, 7-11.1, 7-17.1 and 7-57.1) provide equal access to courses, programs, counseling services, physical education and athletic, vocational education, instructional materials and extracurricular activities.

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).

vbschools.com  
your virtual link to Hampton Roads' largest school system



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

No part of this publication may be produced or shared in any form without giving specific credit to Virginia Beach City Public Schools.

(Revised August 2018)