Department of Teaching & Learning
Parent/Student Course Information

Telecommunications II
(AT8681)
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
While participating in this course of study, students may begin preparation for careers with corporations such as Cox Communications, Verizon, Nortel or Direct TV. Students learn to install telephone, television, surround sound, security systems, closed-circuit television and internet connections. Students work in a lab setting and install current technology.

CERTIFICATION
Residential Satellite Technician
Certified Fiber Optics Installer (FOI)
Data Cabling Installer (DCIC)

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
Telecommunications I

OPTIONS FOR NEXT COURSE
None

REQUIRED STUDENT TEXTBOOK
None

COMPETENCIES FOR TELECOMMUNICATIONS 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.

Examining Customer Relations
39   Explain how a customer service specialist may encounter problems with customers, fellow workers, or allied personnel.
40   Describe ways to resolve customer conflicts.
41   Explain outages and other weather or natural phenomena and ways to soothe customer complaints regarding them.
42   Analyze the costs to perform in-house and outside service work.
43   Demonstrate "customer orientation" procedures used with customers who may be unfamiliar with the equipment you have installed.
44   Contrast poor cabling and wire-dressing work with good-quality wiring and installation.
45   Describe ways the service technician can help his company by assisting the sales or marketing functions of the business.

Practicing Cabling and Splicing
46   Contrast unshielded twisted pair (UTP), shielded twisted pair (STP), and screened twisted pair (ScTP) cable.
47   Demonstrate ability to install RJ-45, RJ-11, F-type, and BNC connectors.
48   Construct a cable TV network capable of transferring data and voice services.
49   Differentiate among coaxial cables.
50   Compare signal transmission capabilities of coaxial cable, CAT-5 cable, and fiber cabling.
51   Explain signal losses associated with long cable runs.
52   Construct a grounding subsystem for a telecommunications system.
53   Describe usage of cables for special applications (e.g., plenum, aerial, direct burial).
54   Analyze the effects of common cable casualties.
55   Explain impedance and impedance-matching requirements.

Working with Wireless Networks
56   Explore home and commercial wireless networking solutions.
57   Construct a wireless network.

Working with Optical Wiring
58   Execute the steps in handling and disposal of optical fiber.
59   Classify types of optical cables, including different parameters of each.
60   List the components used in the construction of fiber optic cable.
61   Identify components of fiber optic cable.
62   Terminate different types of fiber cable (loose-tube, break-out, armored, etc.).
63   Demonstrate splicing methods.
64   Identify different types of fiber connectors.
65   Describe the effect of distance on copper and fiber service.
66   Demonstrate the use of light meters and light sources.
67   Explain the electrical to optical conversion process.
68   Explain synchronous optical network (SONET) and dense wavelength division multiplexing (DWDM).

Examining Digital Telephones
69   Research historical voice and data solutions.
70   Compare the advantages of bundled and unbundled telephone services from the perspective of providers and customers.

Exploring Satellite Telecommunication
71   Describe the C and Ku frequency bands.
72   Describe the function of a Low Noise Block Downconverter (LNBD).
73   Explain the components of common satellite signals.
74   Explain the functions of a common satellite receiver.
75   Describe the focal point and the focal distance of a dish.
76   Explain the function of fixed, diode-switching, and dual-feed feedhorns.
77   Describe the installation, calibration and testing of different types of dishes.
78   Analyze distribution problems in the input and output feeds.
79   Compare different types of antennas for distribution of satellite feeds.

Examining Building and Office Wiring
80   Research wiring standards.
81   Distinguish among the methods of pre-wiring and ways to wire existing structures.
82   Explain the National Electrical Code (NEC) or other safety rules pertaining to structural wiring.

Developing Employability Skills
83   Investigate careers in the information technology field.
84   Create a printed résumé, including a résumé format suitable for posting online.
85   Research certification and educational opportunities.
86   Compose a letter of application.
87   Complete an electronic application form.
88   Compose an interview follow-up letter.
89   Identify the steps to follow in resigning from a position.
90   Develop a portfolio containing representative samples of a student's work and make an oral presentation.
91   Identify potential employment barriers for nontraditional groups and ways to overcome the barriers.
92   Research opportunities for government or government contractor employment.

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 Brandon.Martin@vbschools.com.

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