



Course Number and Title: CEN 120 PC Telecommunications

Campus Location:

Dover

Effective Date:

2018-51

Prerequisite:

ENG 090 or ENG 091, SSC 100 or concurrent

Co-Requisites:

None

Course Credits and Hours:

4.00 credits

3.00 lecture hours/week

2.00 lab hours/week

Course Description:

This course provides technology students with the knowledge and skills necessary to install, maintain, and troubleshoot computer network infrastructure. Students will learn to describe computer networking technologies, apply basic design principles, adhere to computer wiring standards, and use test equipment. This course includes CompTIA Network+ certification objectives and those of Microsoft Network Fundamentals.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

USB flash drive for lab work and broadband internet access

Schedule Type:

Classroom Course

Hybrid Course

Online Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Demonstrate an understanding of the basics of computer network technologies. (CCC 1, 2, 3, 5, 6; PGC-1, 2, 3)
2. Give examples of an understanding of computer network media and topologies. (CCC 1, 2, 3, 5, 6; PGC-1, 2, 3)
3. Describe common computer network devices. (CCC 1, 2, 3, 5, 6; PGC-1, 2, 3)
4. Discuss understanding of computer network management. (CCC 1, 2, 3, 5, 6; PGC-1, 2, 3)
5. Use computer network tools. (CCC 1, 2, 3, 5, 6; PGC-1, 2, 3)
6. Demonstrate an understanding of computer network security. (CCC 1, 2, 3, 5, 6; PGC-1, 2, 3)
7. Defend the theoretical and practical knowledge necessary to successfully take the current CompTIA Network+ certification examination. (CCC 1, 2, 5, 6; PGC-1, 5)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Demonstrate an understanding of the basics of computer network technologies.
 1. Explain the function of common networking protocols.
 2. Distinguish between commonly used TCP and UDP default ports TCP ports.
 3. Distinguish between the IPv6, IPv4, and MAC addressing formats.
 4. Distinguish between common IPv4 and IPv6 routing protocols.
 5. Explain the purpose and properties of routing.
 6. Compare the characteristics of wireless communication standards.
 7. Evaluate the proper use of addressing technologies and addressing schemes for a given scenario.
2. Give examples of an understanding of computer network media and topologies.
 1. Compare standard cable types and their properties.
 2. Distinguish between common connector types.
 3. Distinguish between common physical network topologies.
 4. Distinguish between appropriate wiring standards for a given scenario.
 5. Distinguish between common WAN technology types and properties.
 6. Distinguish between common LAN technology types and properties.
 7. Explain common logical network topologies and their characteristics.
 8. Explain the components of common wiring distribution.
3. Describe common computer network devices.
 1. Explain how to install and configure common network devices.
 2. Distinguish the functions of specialized-network devices.
 3. Explain the advanced features of a switch.
 4. Perform a basic wireless network implementation.
4. Discuss understanding of computer network management.
 1. Explain the function of each layer of the OSI model.
 2. Explain types of configuration management documentation.
 3. Explain different methods and rationales for network performance optimization.
 4. Perform computer network troubleshooting methodology for a given scenario.
 5. Evaluate a network-based on configuration management documentation for a given scenario.
 6. Perform network monitoring to identify performance and connectivity issues for a given scenario.
 7. Evaluate and resolve common connectivity issues and select an appropriate solution for a given scenario.
5. Use computer network tools.
 1. Explain the purpose of network scanners.
 2. Demonstrate using appropriate hardware tools for a given scenario.
 3. Select the appropriate command-line interface tool and interpret the output to verify functionality for a given scenario.
6. Demonstrate an understanding of computer network security.
 1. Explain the function of hardware and software security devices.
 2. Explain common features of a firewall.
 3. Explain the methods of network access security.
 4. Explain methods of user authentication.
 5. Explain issues that affect device security.
 6. Compare common security threats and mitigation techniques.
7. Defend the theoretical and practical knowledge necessary to successfully take the current CompTIA Network+ certification examination.
 1. Demonstrate an understanding of the exam's design and scoring criteria.
 2. Demonstrate an acceptable score using approved test simulation and practice software.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Apply techniques, skills and usage of modern tools of a Computer Network Engineering Technician.
2. Apply analysis tools and problem-solving methods learned in the mathematics, sciences and electrical/electronics courses to conduct, interpret and analyze experiments.
3. Use critical thinking in the design or improvement of quality systems, components or processes.
4. Employ oral and written communication techniques as an integral member of a multidisciplinary work team.
5. Adhere to professional, ethical, and social issues in a diverse workplace.
6. Perform basic management and leadership skills, which will include time management and organization in the Computer Engineering Technology.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.