Course Number and Title: CNE 191 Router Configuration

Campus Location:
Georgetown, Dover, Wilmington

Effective Date:
2018-51

Prerequisite:
CIS 141, SSC 100 or concurrent

Co-Requisites:
None

Course Credits and Hours:
3.00 credits
2.00 lecture hours/week
2.00 lab hours/week

Course Description:
This course provides an in-depth view of essential perimeter function regarding routers. Configuration, packet filtering, protocols, troubleshooting, and fortification are covered.

Required Text(s):
Obtain current textbook information by viewing the campus bookstore - 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
Online Course

Disclaimer:
None

Core Course Performance Objectives (CCPOs):

1. Explain the functions of each layer of the Open Systems Interconnection (OSI) model. (CCC 6; PGC 1, 6)
2. Explain the functions of a router. (CCC 2, 6; PGC 1, 2, 6)
3. Design and implement a network with routing according to current industry guidelines. (CCC 1, 5, 6; PGC 1, 2, 3, 5)
4. Set up a network using defense-in-depth strategies. (CCC 1, 4, 6; PGC 1, 2, 3, 5, 6)

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. Explain the functions of each layer of the Open Systems Interconnection (OSI) model.
    1. Define the OSI model layers.
    2. Identify protocols associated with the OSI model.
    3. Describe the process of sending and receiving data using the OSI model.
    4. Distinguish between the OSI and the Transport Control Protocol/Internet Protocol (TCP/IP) models.
2. Explain the functions of a router.
    1. Explain the functions of a router.
    2. Describe the different protocols and their functions in data communications.
    3. Discuss IP addressing in different layers of the OSI model.
    4. Distinguish between physical and logical network topologies.
3. Design and implement a network with routing according to current industry guidelines.
    1. Identify current industry guidelines associated with the design and implementation of a network with routing.
    2. Develop a plan to create a network with a given scenario.
    3. Create and test a network with routing according to current industry guidelines.
    4. Troubleshoot a network.
4. Set up a network using defense-in-depth strategies.
    1. Explain the components of defense-in-depth strategies.
    2. Develop a plan to strengthen the network security.
    3. Reconstruct a network using defense-in-depth strategies.
    4. Troubleshoot the fortified network.

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 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 the modern tools of a Computer Network Engineering Technician.
2. Apply analysis tools and problem-solving methods learned in the mathematics, computer, and electrical/electronic courses to troubleshoot network problems.
3. Diagnose and resolve network issues.
4. Install, configure, administer and troubleshoot network services for file access and storage, web-content hosting, network communications, network gateways and proxies, and security services on networking servers.
5. Design, install, configure and operate Wide Area Networks (WAN) and Local Area Networks (LAN).
6. Explain the functions and the workings of common communications protocols, and how such protocols are developed by standards organizations.

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 web page or visit the campus Advising Center.