North Hennepin Community College

CSCI 2040: Introduction to Networking Protocols and Analysis

A. COURSE DESCRIPTION

   Credits: 4
   Lecture Hours/Week: 4
   Lab Hours/Week: 0
   OJT Hours/Week: *.*
   Prerequisites: None
   Corequisites: None
   MnTC Goals: None

   This class examines the basic principles of networking, transitioning from Transmission Control Protocol, User Datagram Protocol, Internet Control Message Protocol, and Internet Protocol (TCP, UDP, ICMP, and IP), network architecture, and the Open Systems Interconnection (OSI) model into network defense. Networks are essential for organizational success, and cybersecurity professionals must understand network processes, protocols, and administration. This course will focus on developing skills in creating network architecture, network administration, network analysis, and how to apply this knowledge to improve the network security posture through defense in depth.

B. COURSE EFFECTIVE DATES: 05/08/2024 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

   1. Design network architecture focusing on security and performance. (ELOs 2a, 4a, 4d)
   2. Classify networking devices, discuss their limitations resulting in impacts to network security at an organizational level, and analyze recommended resolutions. (ELOs 1, 2a, 4d)
   3. Distinguish among the seven layers of the OSI model and what protocols are involved at the various levels. (ELOs 4a, 4d)
   4. Interpret network packets and identify signs of threats to the organization, (ELOs 1, 2a, 4d)
   5. Identify network threats through protocol and device analysis and the impacts on the security of the enterprise. (ELOs 2a, 4a, 4d)
   6. Define and implement network hardening practices. (ELOs 4a, 4d)
   7. Discern the differences among and analyze TCP, UDP, IP, ICMP, and other networking protocols. (ELOs 2a, 4a, 4d)

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

   None

F. LEARNER OUTCOMES ASSESSMENT

   As noted on course syllabus

G. SPECIAL INFORMATION

   None noted