Inver Hills Community College

ITC 2510: Introduction to Networks (CCNA1)

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites:
READ 0093 - Reading College Texts (Minimum grade: 1.67 GPA equivalent) AND ENG 0099 - Introduction to Academic Writing (Minimum grade: 1.67 GPA equivalent) AND CIS 1400 - Windows Operating Systems Fundamentals; OR
READ 0094 - Reading Workshop (Minimum grade: 1.67 GPA equivalent) AND ENG 0099 - Introduction to Academic Writing (Minimum grade: 1.67 GPA equivalent) AND CIS 1400 - Windows Operating Systems Fundamentals; OR
CIS 1400 - Windows Operating Systems Fundamentals AND ITC 1400 - IT Fundamentals

Corequisites: None

MnTC Goals: None

Introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The various protocols and models used in modern network communication are introduced including network media, Ethernet switching, IP addressing, address resolution, and related technologies in order to provide a foundation for understanding networking and security. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, implement IPv4 and IPv6 addressing schemes, and test network connectivity.
Course Note: The prerequisite for this course can be waived upon proof of passing an IT fundamentals examination administered by the department. Contact the instructor or department for more information.

B. COURSE EFFECTIVE DATES: 08/26/2013 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Networking Today, Network Security Fundamentals 11%
   Basic Switch, Router, and Device Configuration, Building a Small Network 18%
   Ethernet Switching, Address Resolution, and ICMP 18%
   Network Protocols & Models, Physical, Data Link, Network, Transport, and Application Layers 35%
   Number Systems, IPv4 and IPv6 Addressing 18%

D. LEARNING OUTCOMES (General)

1. The student will be able to:
   -Explain the advances in modern network technologies.
   -Implement initial settings including passwords, IP addressing, and default gateway parameters on a network switch and end devices.
   -Explain how network protocols enable devices to access local and remote network resources.
   -Explain how physical layer protocols, services, and network media support communications across data networks.
   -Convert numbers between decimal and binary systems.
   -Explain how media access control in the data link layer supports communication across networks.
2. -Explain how Ethernet operates in a switched network.
   -Explain how routers use network layer protocols and services to enable end-to-end connectivity.
   -Explain how ARP and ND enable communication on a local area network.
   -Implement initial settings on a router and end devices.
   -Calculate an IPv4 subnetting scheme to efficiently segment your network.
   -Implement an IPv6 addressing scheme.
   -Use various ICMP tools to test network connectivity.
   -Compare the operations of transport layer protocols in supporting end-to-end communication.
3. -Explain the operation of application layer protocols in providing support to end-user applications.
   -Configure switches and routers with device hardening features to enhance security.
   -Implement a network design for a small network to include a router, a switch, and end devices.

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted