

HIBBING COMMUNITY COLLEGE COURSE OUTLINE

COURSE NUMBER & TITLE: CNT1010: Networking Fundamentals

CREDITS: 3 (2 Lec / 1 Lab)

PREREQUISITES: MCT1543: A+ Hardware and MCT1545: A+ Software, or instructor consent Web browsing experience helpful for browsing online curriculum from web server and taking online web based exams. Basic mathematical operations of whole numbers are necessary; binary to decimal to hexadecimal conversions and exponential functions desired.

CATALOG DESCRIPTION:

This introduces the architecture, structure, functions, and components, and models of the Internet and other computer networks. The principles and structures of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing.

OUTLINE OF MAJOR CONTENT AREAS:

- I. Configuring a Network Operating System
- II. Network Protocols and Communications
- III. Network Access
- IV. Ethernet
- V. Network Layer
- VI. Transport Layer
- VII. IP Addressing
- VIII. Subnetting IP Networks
- IX. Application Layer

COURSE GOALS/OBJECTIVES/OUTCOMES:

Students will

1. understand and describe the devices and services used to support communications in data networks and the Internet.
2. understand and describe the role of protocol layers in data networks.
3. define the key internetworking functions of the OSI model and TCP/IP protocol stack layers.
4. understand and describe the importance of addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments.
5. design, calculate, and apply subnet masks and addresses to fulfill given requirements in IPv4 and IPv6 networks.
6. describe data link and network addresses and identify key differences between them.
7. explain fundamental Ethernet concepts such as media, services and operations.

8. build a simple Ethernet network using routers and switches.
9. use Cisco command-line interface (CLI) commands to perform basic router and switch configurations.
10. utilize common network utilities to verify small network operations and analyze data traffic.

MNTC GOALS AND COMPETENCIES MET:

N/A

HCC COMPETENCIES MET:

Communicating Clearly and Effectively
Working Productively and Cooperatively

STUDENT CONTRIBUTIONS:

The student is expected to prepare for class, attend all lectures and labs, participate in all class activities, complete everything on time, and request assistance if needed.

**STUDENT ASSESSMENT SHALL TAKE PLACE USING INSTRUMENTS
SELECTED/DEVELOPED BY THE COURSE INSTRUCTOR.**

**SPECIAL INFORMATION: (SPECIAL FEES, DIRECTIVES ON HAZARDOUS
MATERIALS, ETC.)**

AASC APPROVAL DATE: May 13, 2014

REVIEW DATE: May 2019

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