

**INVER HILLS COMMUNITY COLLEGE  
INVER GROVE HEIGHTS, MINNESOTA**

**COURSE OUTLINE**

**COURSE TITLE:** Introduction to Networking  
**COURSE NUMBER:** CS 1104  
**CREDIT HOURS:** 3 hours of lecture weekly  
**DEPARTMENT:** Computer Science

**CATALOG DESCRIPTION**

**CS 1104**

Introduction to Networking

3 credit hours – Three hours of lecture weekly; one term

This course is designed for managers and users interested in learning the basics of working with networks and internetworks. The topics covered are taken from Cisco's Semester 1 networking curriculum as well as the curriculum providing preparation for Microsoft's MCSE Networking Essentials examination.

Prerequisites: None

**LEARNING OBJECTIVES**

Upon completion of this course, the student will be able to:

- a. Identify and define the 7 layers of the OSI model
- b. Understand the difference and function of networking devices
- c. Be able to define and describe network topologies and architectures
- d. Be able to apply LAN cabling standards and techniques
- e. Gain the skills necessary to design a LAN
- f. Receive training in the first semester of a four semester sequence leading to
- g. Cisco Certified Network Associate (CCNA) certification.
- h. Provide background for the COMPTIA Network+ examination.
- i. Provide the basic skills for further study in networking.

**DIVISION OF SUBJECT MATTER**

<b><u>Main Topic</u></b>	<b><u>Time Allocation</u></b>
1.0 Networking Standards and the OSI model	15%
2.0 Function of networking devices	10%
3.0 Network topologies and architectures	15%
4.0 Transmission basics and networking media	10%
5.0 Gain the skills necessary to design a LAN	5%
6.0 Network protocols	10%
7.0 WANS, Internet Access, and Remote connectivity	10%
8.0 Networking with Microsoft	5%
9.0 Networking with UNIX	10%
10.0 Troubleshooting Network Problems	10%

**DETAILED COURSE OUTLINE**

- 1.0 Networking Standards and the OSI model
  - 1.1 Networking standards organizations

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- 1.2 OSI model
- 1.3 Applying the OSI model
- 1.4 IEEE networking specifications
  
- 2.0 Function of networking devices
  - 2.1 NICs
  - 2.2 Repeaters and Hubs
  - 2.3 Bridges
  - 2.4 Switches
  - 2.5 Routers
  - 2.6 Gateways
  
- 3.0 Network topologies and architectures
  - 3.1 Simple physical topologies
  - 3.2 Hybrid physical topologies
  - 3.3 Backbone networks
  - 3.4 Logical topologies
  - 3.5 Switching
  - 3.6 Ethernet
  - 3.7 Token ring
  - 3.8 FDDI
  - 3.9 ATM
  - 3.10 Wireless Networks
  
- 4.0 Transmission basics and networking media
  - 4.1 Transmission Basics
  - 4.2 Common media characteristics
  - 4.3 Coaxial cable
  - 4.4 Twisted-Pair cable
  - 4.5 Fiber-Optic cable
  
- 5.0 Gain the skills necessary to design a LAN
  - 5.1 Designing TCP/IP-based networks
  - 5.2 Project management
  - 5.3 Hardware and physical plant implementation
  - 5.4 Ensuring integrity and availability
  - 5.5 Network security
  
- 6.0 Network protocols
  - 6.1 TCP/IP
  - 6.2 IPX/SPX
  - 6.3 NetBIOS and NetBEUI
  - 6.4 Appletalk
  
- 7.0 WANS, Internet Access, and Remote connectivity
  - 7.1 WAN Topologies
  - 7.2 PSTN
  - 7.3 X.25
  - 7.4 ISDN
  - 7.5 T-Carriers
  - 7.6 DSL
  - 7.7 SONET
  - 7.8 Remote connectivity
  - 7.9 VPNs

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8.0 Networking with Microsoft

- 8.1 NOS services and functions
- 8.2 Microsoft server hardware requirements
- 8.3 Planning for installation
- 8.4 Internetworking with other NOS

9.0 Networking with UNIX

- 9.1 Varieties of UNIX
- 9.2 UNIX servers
- 9.3 UNIX command sampler
- 9.4 Installing Linux
- 9.5 Administering UNIX

10.0 Troubleshooting Network Problems

- 10.1 Troubleshooting methodology
- 10.2 Troubleshooting tools

**TEXTBOOKS**

**TITLE:** Network+ Guide to Networks  
**AUTHOR:** Tamara Dean  
**PUBLISHER:** Thomson Course Technology  
**ISBN:** 0-619-21743-x