

6. **Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

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

1. Demonstrate understanding of computer networking, computing models, and basic network services.
2. Recognize and describe logical and physical network topologies in terms of the media and network hardware.
3. Compare current network technologies in terms of speed, access method, operation, topology, and media.
4. Define the layers of the OSI model and identify the protocols, and services associated with each layer.
5. Identify the purpose, features, and functions of current common network hardware and the OSI layer with which each is associated.
6. Explain the operation principles of current common network hardware devices.
7. Describe current common protocols in terms of their function, routing, addressing schemes, interoperability, and naming conventions.
8. Describe common network administration activities.

7. **Course Objectives** (Identify specific teaching objectives detailing course content and activities. *For some courses, the course objectives will be the same as the student learning outcomes. If this is the case, please simply indicate this in this section).*

See Student Learning Outcomes.

8. **Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, you may attach a sample course syllabus with a timeline.)

See attached topical outline.

9. **Representative Instructional Methods** (Describe instructor-initiated teaching strategies that will assist students in meeting course objectives. Include examples of out-of-class assignments, required reading and writing assignments, and methods for teaching critical thinking skills.)

1. Lecture presentations on basic networking principles using network terminology, diagrams, photos, maintenance procedures and tools available for network maintenance.
2. Research assignments to find current information relating to topics discussed in class. Resources suggested are network equipment manufacturer's web pages, networking equipment catalogs, and industry publications.
3. Class and small group discussion of research assignments and troubleshooting principles used to resolve the problems.
4. Hands-on activities using computers and network media and hardware.
5. 'Show and tell' demonstrations of network cabling, connectivity devices, and diagnostic equipment.
6. Hands-on activities using computers and network media and hardware.
7. Individual or group project presentations followed by in-class discussion and evaluation.

10. **Representative Methods of Evaluation** (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

1. Written and multiple choice quizzes to evaluate ability to define terms, identify components, and demonstrate understanding of concepts presented in the lectures, demonstrations, lab assignments, projects and reading assignments.
2. Written exams to evaluate comprehension of concepts presented in lectures, demonstrations, lab assignments, projects and reading assignments.
3. Written summaries of hand-on activities.
4. Student participation and contribution to class and group discussions
5. Student participation and contribution to group projects.

11. **Representative Text Materials** (With few exceptions, texts need to be current. Include publication dates.)

Hands-on Networking Fundamentals, Michael Palmer, CourseTechnology 2006
Network+ Guide to Networks, 6th Edition, Tamara Dean, Course Technology, 2006
Computer Networking with Internet Protocols, William Stallings, Prentice Hall 2003
The Internet Book: Everything You Need to Know About Computer Networking and How the INTERNET Works, 2E, Douglas E. Comer, Prentice Hall, 2006
Students will do extensive research on internet sites.

Prepared by:

(Signature)

Email address:

Submission Date: _____

CIS 151 – Networks and Digital Communications

Topical Outline

Course outcomes 1 - 4

- 1) Introduction to Networking
 - a) Types of networks
 - b) Network terminology
 - c) Network topologies
 - d) Designing a simple LAN

Course outcome 4

- 2) Networking Standards and the OSI Model

Course outcome 4, 5, 6, 7

- 3) Network Communication Protocols
 - a) TCP/IP
 - b) Other protocols IPX/SPX, NetBeui, AppleTalk
 - c) Proprietary protocols
 - d) IP Addressing including subnetting and subnet masks

Course outcome 3

- 4) Network Media
 - a) Types and Characteristics

Course outcome 5,6

- 5) LAN Networking Hardware
 - a) Media and connectors
 - b) Network Interface hardware
 - c) Repeaters
 - d) Hubs
 - e) Bridges
 - f) Switches
 - g) Routers
 - h) Gateways
 - i) Wireless (WiFi, BlueTooth, and other current wireless devices)
 - j) Transmission methods
 - k) Designing a switch based network
 - l) Designing a router based network
 - m) Designing a wireless network

Course outcomes 1, 2, 3, 5, 6, 7

- 6) WANs and Remote Connectivity
 - a) Hardware

- b) Protocols
- c) Transmission Methods
- d) WAN connection options

Course outcomes 1, 5, 6, 8

- 7) Peer-to-peer networking
 - a) Configuration
- 8) Client/Server networking
 - a) Server installation and configuration (Windows server and Fedora or other Unix type operating system.
- 9) Network Administration
 - a) Setting up user accounts
 - b) Server management
 - c) Monitoring and managing performance
 - d) Managing resources
 - e) Managing security
 - f) Maintenance and troubleshooting
- 10) Basic Network Design
 - a) Media and hardware selection
 - b) Operating system selection
 - c) Wiring design and installation
 - d) Network types
 - i) Small home, small office
 - ii) Organizational networks