

San Bernardino Valley College

Curriculum Approved: February 2, 2004

Last Updated: January 2004

I. COURSE DESCRIPTION:

A. Department Information:

Department: Computer Information Technology
Division: Business & Information Technology
Course ID: CIT 232
Course Title: Data Communications and Networks
Units: 3
Lecture: 3 hours
Laboratory: None
Prerequisite: CIT 101

B. Catalog and Schedule Descriptions:

An introduction to human-to-computer and computer-to-computer communications. Topics include data transmission, modems, network configurations, protocols and software, telecommunication, teleprocessing, security, and the control and management of LAN's and WAN's. (Formerly CSYS 232)

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS

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

- A. Analyze and assess communication trends, issues, and technology
- B. Explain the principles involved in data communications
- C. Examine the history, structure, and applications of the Internet
- D. Recall the important aspects of LANs, WANs, and distributed networks
- E. Recognize and analyze the different types of communications media, equipment, and protocols

IV. CONTENT

- A. Introduction to Communications
 1. What is Data communications
 2. The Telephone Systems
 3. Governmental and Regulatory Agencies
 4. Standard Organizations
 5. Applications of Data Communication
- B. Fundamentals of Data Communications
 1. Signal Representation
 2. Digital Signals Versus Analog Signals
 3. Data Codes
 4. UNICODE
- C. Communications Media, Servers, and Clients
 1. Conducted Media
 2. Radiated Media
 3. Selection of Media
 4. Computers and Terminals in a Communication Network
 5. Network Configurations
- D. Communications Equipment
 1. Multiplexers
 2. Concentrator
 3. Front-End Processor

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4. Controllers
5. Protocol Converters
- E. Data Transmission
 1. Analog Modulation
 2. Digital
 3. Transmission Direction
 4. Transmission Modes
 5. Synchronization
- F. Protocols
 1. The Role of Software in a Network Protocols
 2. Wide Area Network Protocols
 3. Internet Protocols
 4. Local Area Network Protocols
 5. Wireless Protocols
- G. Network Concepts
 1. Basic Network Concepts
 2. Networking Techniques
 3. Routing
 4. Network Ownership
 5. Distributed Systems
- H. Wide Area and Metropolitan Area Networks
 1. Network Connections
 2. Topologies
 3. Systems Network Architecture
 4. Digital Network Architecture
 5. Electronic Commerce
- I. Communication Services
 1. Switched Circuits
 2. Dedicated Circuits
 3. Fast Packet Services
- J. The Internet
 1. Early Internet Commands
 2. How the Internet Works
 3. World Wide Web (WWW)
 4. Other Internet Services
- K. e-Business Applications and the Business Data Communication Industry
 1. The Impact of e-Business on Data Communication
 2. Standards
 3. Intranets and Extranets
 4. Groupware
- L. Local Area Networks
 1. LAN Hardware
 2. LAN Topologies
 3. Protocols
 4. Types of Networks
 5. LAN Software
- M. Network Security
 1. Physical Security
 2. Software Security
 3. Digital Signatures

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4. Security Issues
 - N. Network Management
 1. Objectives of Network Management
 2. Meeting the Objective
 3. Network Management for Wireless Networks and e-Commerce
 4. General Network Monitoring Tools
 - O. Addressing the Challenge of Living in a Connected World
 1. Emerging Initiatives
 2. Living in a Connected World
 3. Careers in a Connected World
- V. METHODS OF INSTRUCTION:**
- A. Lecture
 - B. Discussion
 - C. Demonstration
- VI. TYPICAL ASSIGNMENTS:**
- A. Read chapter on Wide Area Networks (WANS) and answer the end of chapter questions.
 - B. Class discussion: Different types of equipment, communication media, and protocols
- VII. EVALUATION(S)**
- A. Methods of Evaluations
 1. Short essay
 - a. Differentiate between WANS, LANS, and Distributed Networks
 2. Definitions
 - a. Define each of the following:
 1. Protocols
 2. Networks Basics
 3. Data Transmissions
 3. Objective and subjective examinations (for lecture and reading assignments). Typical questions include:
 - a. The most likely place to find values in an argument is the
 1. grounds
 2. warrant
 3. support for warrant
 4. qualifier
 - b. Discuss the various considerations in choice of style in argumentation.
 - B. Frequency of Evaluations
 1. Six tests
 2. Mid-term
 3. Final Exam
- VIII. TYPICAL TEXT(S)**
- Shelly, Gary B. and Cashman, Thomas J. Business Data Communication: Introductory Concepts and Techniques. Cambridge, MA: Course Technology Publisher, 2002.
- Fitzgerald, Jerry and Dennis, Alan. Business Data Communications and Networking. New York, NY: John Wiley and Sons Inc., 2002.
- Tittel, Ed and Johnson, David. Guide to Networking Essentials. 2nd ed. Boston, MA: Thomson Course Technology, 2001.

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IX. OTHER SUPPLIES REQUIRED OF STUDENTS:

None.