



**College of Business**

Name of College

**Office Management Technology**

Course/Department

**1.0 Course Title: Computer Network with Internet**

**2.0 Course Code: IT 123**

**3.0 Course Credit: 3 units (3 hrs.)**

**4.0 Course Description**

This course covers communication hardware and software, network operating systems, and reliability enhancement techniques. This also introduce design and analysis of computer communication networks which includes application layer protocols, Internet protocols, network interfaces, local and wide are networks.

Upon completion of this course the students should be equipped with the current trends in Information Network in order to bridge the gap between theory and practice. Familiarize the student with current topics such as security, network management, and others.

**5.0 Pre-requisites Course/s:**

**6.0 Vision and Mission Statements of the University**

**7.0 Goals of the College**

**8.0 Objectives of the Program**

**9.0 Course Objectives**

**General:**

- A. Provide foundation knowledge related to computer networks and the internet.
- B. Determine reasons to create an onsite network for a company/related business establishment.
- C. Analyze basic network security principles and assessment of potential solutions for disaster recovery.
- D. Explore and apply a variety of methods used in the workplace to communicate information.
- E. Acquired knowledge about information security and how to relate and use them in the workplace.
- F. Gain knowledge on network architecture and its significance for learning about OSI and TCP/IP.
- G. Understand the necessity of network architecture, standardization, types of architecture, and de facto standards
- H. Obtain understanding of the network equipment and cabling.
- I. Practice network planning and designing by presenting their network project design for a specific company

**Values Objectives:**

- A. Develop creative and independent learning strategy to further utilize the inputs and relate them necessarily to become productive future professionals.
- B. Appreciate the use and importance of using Information Technology based instructional materials and develops oneself on how to become responsible citizen and information users.
- C. Become responsive individuals in making recommendations – to increase the facility to make and justify recommendations in relation to IT architecture.



## **10.0 COURSE CONTENTS**

**10.1** Class orientation; IT resources of the university

### **10.2 DATA COMMUNICATION and COMMUNICATION CHANNELS**

10.2.1 Data Communication

- a. Analog
- b. Digital
- c. Asynchronous
- d. Synchronous

10.2.2. Communication Channels

- a. Wired Transmission
- b. Telephone Lines
- c. Coaxial Cable
- d. Microwave
- e. Infrared
- f. Laser
- g. Radio
- h. Satellite
- i. Fiber Optics

10.2.3 Data Compression

10.2.4 Data Encryption

10.2.5 Data Storage Technology

10.2.6 Data Transmission

### **10.3 COMPUTER NETWORK**

10.3.1 Overview of Networks and Terminology

- a. Network
- b. Uses of Network
- c. Drawbacks of Network
- d. Computers in a Network (Client/Server)

10.3.2 Types of Network based on Physical Scope

- a. Local Area Network
  1. Personal Area Network
  2. Home Area Network
- b. Wireless Local Area Network (WLAN)
- c. Wide Area Network (WAN)
  1. Campus Area Network
- d. Metropolitan Area Network (MAN)
  1. Enterprise Private Network
  2. Virtual Private Network
  3. Internetwork
- e. Backbone Network
  1. Global Area Network
  2. Internet
  3. Intranets and Extranets
  4. Overlay Network
- f. Storage, System, Server or sometimes Small Area Network (SAN)

10.3.3 Network Topologies

- a. Physical Topology
  1. Bus
  2. Ring
  3. Star
  4. Extended Star
  5. Hierarchical
  6. Mesh
  7. Hybrid
- b. Logical Topology

10.3.4 Network Protocols

10.3.5 Function of Protocols

10.3.6 Bandwidth



- a. Importance of Bandwidth
  - b. Unit of Bandwidth
  - c. Bandwidth Limitations
  - d. Throughput
  - e. Data Transfer Calculation
- 10.3.7 TCP/IP Reference Model
  - 10.3.8 ISO – OSI seven layer communication protocol
  - 10.3.9 Networking Hardware
  - 10.3.10 Network Design Techniques
  - 10.3.11 pros and cons of various network design techniques
  - 10.3.12 Comprehensive Network Design Plan and Implementation(Practicum)
  - 10.3.11 Network Administration
  - 10.3.12 Security in Computer Networks
  - 10.3.13 Network Security Considerations in Internet
  - 10.3.14 Backup and Recovery

#### **10.4 THE INTERNET**

- 10.4.1 What is Internet
- 10.4.2 History of the Internet
- 10.4.3 World Wide Web
- 10.4.4 Netiquette
- 10.4.5 Browsers and Search Engines (Communications Applications)
- 10.4.6 Internet Services
  - a. E-Mail
  - b. Chat and Talk
  - c. Internet Phones
  - d. Newsgroup
  - e. Information Retrieval
  - f. Other Internet Services Available
- 10.4.7 Data Integrity, integration, Security and protection
- 10.4.8 The Internet Explorer
- 10.4.9 Searching Information on the Web

#### **11. COURSE REQUIREMENTS:**

- 11.1 Class Recitations
- 11.2 Assignments
- 11.3 Quizzes
- 11.4 Mid-Term and Final Examinations
- 11.5 Network Design and Implementation (Practicum)
- 11.6 Network Security and Administration (Practicum)

#### **12. EVALUATION TECHNIQUES:**

Written and interactive quizzes and examinations, actual computer operation, actual networking and administration and web surfing exercises.

#### **13. COURSE GRADING SYSTEM:**

Midterm and Final Term Examination	30%
Quizzes (Mostly Interactive)	25%
Projects/Exercises/Practicum	35%
Class Participation/ Attendance	10%
<b>TOTAL</b>	<b>100%</b>
<b>Final Rating</b>	
First Grading      50%	
Second Grading <u>50%</u>	
<b>100%</b>	



**14. Suggested Teaching Methodologies/Strategies**

Lectures, discussion, hands-on, develop and use interactive instructional materials, and facilitate online tools and services to deliver inputs to the students. Demonstration on networking and network administration.

**15. Suggested Learning Activities**

Hands-on: Internet surfing, familiarize the OSI layer, Network Design and Administration.

**16. REFERENCES:**

**16.1 TEXTBOOKS:**

- Albano, Gisela May A. et. al. Introduction to Information Technology. Bulacan: Trinitas Publishing Inc. 2003.  
Andes, Antonio M. Sr. Simple Internet. Bitano Legazpi City: ConvergeLink Books Corp. May 2006.  
Andes, Antonio M. Sr. Introduction to Computer. Valenzuela City: World Class Printing and Packaging. May 2003.  
TERENA (Trans-European Research and Education Networking Association) and Netskills. Great Britain. Pearson Education Limited. 2002.  
Williams, B. et al. Using Information Technology. January 1998.

**16.2 INTERNET SOURCES:**

- <http://en.wikipedia.org/>  
<http://about.com/>  
<http://www.igcseict.info/links/index.html>

**16.3 E-Books:**

- CCIE Professional Development Routing TCP/IP, Volume I, Second Edition  
CCNA Networking Fundamentals  
TCP/IP Standards and Communication Protocols  
Cisco. Network Security Fundamentals. Sept. 2004  
Cisco. Firewall Fundamentals. June 2006  
Cisco. Router Configuration, Second Edition  
Cisco. IPSec VPN Design  
Cisco. Routing. First Step  
Cisco. 802.11 Wireless LAN Fundamentals

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