CSC 355 - NETWORK ADMINISTRATION

CREDIT HOURS: 3
PREREQUISITES: CSC 353
GRADE REMINDER: Must have a grade of C or better in each prerequisite course.

CATALOG DESCRIPTION

Network Administration principles, tools and techniques, including network installation, configuration, operation and maintenance. Exploration of current issues, topics and trends in network development. May not be used to satisfy computer science requirements for a major or minor in computer science or computer information systems.

PURPOSE OF COURSE

The purpose of this course is to enable the student to develop an understanding of the principles of networks and the skills required to install, configure, and manage those networks. The concepts, terminology, techniques, and tools of computer networking will be presented. Responsibilities and legal, ethical, and professional issues will be addressed. Current practices and platforms will be explored.

EDUCATIONAL OBJECTIVES

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

1. Demonstrate an understanding of the computer networking field through identification of models, concepts, and technologies.
2. Demonstrate a thorough understanding of the procedures required to install, configure, and maintain computer networks.
3. Identify user requirements and activities.
4. Identify the tools and techniques of computer networking.
5. Describe relevant current practices, procedures and policies in the computer networking field.

CONTENT

Overview: network to internetwork ............................................................... 3
   Goals, Services, Terminology
   Designing and Planning
Network Technology – Systems, Components, Media
Environment – Corporate, Personnel, Responsibility Issues

Models & Protocols ..................................................................................... 3
   OSI stack: the model
   Ethernet & TCP/IP: the actuality

Ethernet: the link .......................................................................................... 10
   History
   Current practice
Framing
Hubs, bridges, switches

IP: network to network
Interface: ARP/RARP
ICMP, ping
IP addressing, subnetting
Routing, packet header: TTL, addresses

TCP: host to host
Connectionless/connection-oriented, datagram/streams
Error correction, flow control
Interface: Ports

Application: message to packet
Packetizing, headers
DNS, DHCP, FTP, Telnet/SSH, Mail
SNMP

Wireless LANs

Security
Packet sniffers/Protocol analyzers

Process and Policies
Administration and User Responsibilities
Applications – Installation and Configuration
Training
Analysis and Tuning

Exams (plus final)

TOTAL 45

REFERENCES


Halsall, F., Computer Networking and the Internet, 5th Ed., Addison-Wesley, 2005
http://www.aw-bc.com/catalog/academic/EZPrint_Product/0,2989,0321263588,00.html


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