
MIDDLESEX COUNTY COLLEGE

COURSE SYLLABUS

Department:	Engineering Technologies
Program:	Electrical Engineering Technology
Course Number:	ELT 239
Title of Course:	Digital/Data Communications and Networking
Curriculum Coordinator:	James Finne
Designation:	Required Course

Course Description:

A study of various types of data communication systems including WANS and LANS, system components, network structures and interface techniques are examined. Transmission codes and multiplexing methods are emphasized. Extensive laboratory work includes use of protocol analyzers, installation of networks, hardware and software troubleshooting.

Prerequisite:

ELT 111 Digital Electronics

Co-requisite:

Textbooks and /or other required material:

Networking, 2004, by Beasley; Pearson Publisher

Course Learning Outcomes and their relationships to Student Outcomes:

1. Demonstrate knowledge of the OSI model and the TCP/IP equivalence (a, e)
2. Build and test Ethernet cables (c,d,j)
3. Explain the advantages/disadvantages various network topologies (a)
4. Configure CISCO Routers and switches via telnet, console and tftp servers (a,c,d,e,f,j)
5. Capture and analyze Ethernet frames using a protocol analyzer (a,c,d,e,f)
6. Perform IP addressing calculations to satisfy various strategies (a,b,d,e,f,g)
7. Configure routers to use alternate routing protocols and/or static routes (a,b,c,d,f)
8. Change router configuration to permit VoIP communication (a,b,c,d,f)
9. Install basic Access lists to provide network security (a,b,c,d,f)
10. Demonstrate knowledge of digitized voice and video methods (a,b,c,d,e,f)
11. Set-up a wireless 802.11 network, as an alternative to the wired network, via a CISCO Access Point device (a,b,c,d,j)

Topics Covered:

- The OSI model
- Ethernet cabling and protocol
- Network topologies, LANS, WANS, etc.
- Hubs, switches, bridges and routers
- Router memories
- Router configuration
- Protocol analysis of Ethernet and TCP/IP packets
- RIP vs. IGRP
- VoIP
- Network Security
- Digitized voice
- Wireless LANs

Class/Laboratory schedule. Number of sessions each week and duration of each session:
5 Studio hours per week for 14 weeks

Criterion 5 Contribution:

Technical Content

Prepared By:	Steven Foster	Date:	8-26-08
Rev 1:	T. Sabol Update mapping of course outcomes to ABET 2014-2015 student outcomes	Date:	3/25/14