

Based on ABET CAC Student Learning Outcomes

1. Course Number and Name:

CSET 2200 PC & Industrial Networks

2. Credits and Contact hours:

Credits: 4 hours, Contact: 3 lecture hours; 1 lab hour

3. Instructor's or course coordinator's name:

Jared Oluoch

4. Text book, title, author, and year:

Computer Networks and Internets, 5th Edition, Douglas Comer, 2008

a. Other supplemental materials:

Course Web Site and various web references assigned by instructor

5. Specific Course Information:

a. Brief description of the content of the course (catalog description):

Current concepts and technologies used with personal computers and PLCs in both industrial (factory-floor) and commercial data networks. Topics include PC networking hardware and software, PLC hardware and programming and PLC networking alternatives.

b. Pre-requisites, or co-requisites:

CSET 2100 or EET 2230

6. Specific goals for the course:

a. Specific outcomes of instruction:

1. Use Cisco switch networking to plan and deploy local area networks.
2. Provide an understanding of sub-networks
3. Work with the Basic Internetworking concepts: Understand and analyze the functions of the Internet protocol suite TCP/IP, debug transport level services, and basic understanding of application services: E-mail, FTP, Rlogin etc.
4. Gain hands-on experience with network hardware: Switches
5. Gain an understanding and hands on experience with the network analytical tool Wireshark, troubleshoot Local and wide area connectivity problems and diagnose packets, frames and segments traversing a network.
6. Gain hands-on experience with real-world Cisco switches: Implement Basic IOS Configuration, Describe Remote Management, Develop and implement network designs

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course: b, i, j

- b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- i. An ability to select and apply current techniques, skills, and tools necessary for computing practice.

j. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

7. Brief list of topics to be covered:

1. Networks and Inter-networks
2. The OSI Model
3. Physical Layer
4. Data Link Layer: ARP, Bridge, CSMA/CD, Virtual LAN
5. Transport Layer and Session Layer: TCP , UDP
6. Presentation and Application Layer
7. Network Layer: IP, ICMP, Traceroute,
8. IP Addressing and Sub-netting: IPv4, DHCP,IPv6
9. Basic Router Operations and Configuration
10. Network Security: Basic Cryptology, Secure Communication