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, 6th Edition, Douglas Comer, 2014
   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 1100 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: 1**
      1. An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

      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