EET 343  
Network Switches & Routers  
Spring 2006

Instructor:  
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Class schedule:  
Section 002, CRN 27463; Friday: By arrangement (1 pm – 4.30 pm), in Room 400

Office Hours:  
MW: 8 - 10 am, MTWR: 4.30 pm - 6 pm. If my office door is open at other times I will most likely be available for discussion. Come right in.

Credit hours:  
3

Prerequisite:  
EET303

COURSE DESCRIPTION:  
This course covers Cisco internetworking, switching, IOS, routing, VLAN’s, access lists, and WAN protocols are covered in a combination of lecture, demonstration, and laboratory.

TEXTBOOK:  

COURSE OBJECTIVES:  
1. Demonstrate a basic understanding of Internetworking.  
2. Demonstrate a basic understanding of Internet Protocols.  
3. Design and implement networks utilizing IP Subnets with VLSMs.  
4. Demonstrate the ability to configure and manage routers and switches using IOS.  
5. Configure and troubleshoot static routes in a network.
COURSE OBJECTIVES (continued):
6. Configure and troubleshoot EIGRP and OSPF.
7. Configure and troubleshoot layer 2 switches.
8. Configure and troubleshoot VLANs.
9. Configure and troubleshoot an internetwork.
10. Configure, troubleshoot and manage access lists.
11. Demonstrate a basic understanding of WAN protocols.

COURSE OUTLINE:
1. Internetworking
   i. Models of internetworking
   ii. OSI model
   iii. Cisco Three-lay hierarchical model

2. Internet Protocols
   i. TCP/IP and DoD (Department of Defense) model
   ii. IP addressing
   iii. Network address Translation

3. Implement networks utilizing IP Subnets
   i. Subnetting
   ii. Variable length subnet masks (VLSMs)
   iii. Troubleshooting IP addressing

4. Configure and manage routers and switches using IOS
   i. Cisco router user interface
   ii. Command-Line Interface (CLI)
   iii. Router and switch administration
   iv. Modifying router and switch configuration

5. Static routes in a network
   i. IP routing
   ii. Configuring IP routing on a network
   iii. Routing protocols
   iv. Routing Information Protocol (RIP)
   v. Interior Gateway Routing Protocol (IGRP)

6. EIGRP and OSPF.
   i. Enhanced IGRP (EIGRP) features and operation
   ii. Neighbor discovery in EIGRP
   iii. Reliable Transport protocol (RTP)
   iv. EIGRP for supporting large networks
   v. Open Shortest Path First (OSPF) – configuration, verification, troubleshooting
   vi. Summary routes
COURSE OUTLINE (continued):

7. Layer 2 switches
   i. Switching services
   ii. Bridging vs. LAN switching
   iii. Spanning Tree Protocol (STP)
   iv. LAN switch types – cut-through, modified cut-through, store-and-forward
   v. Configuring Switches

8. VLANs
   i. Virtual LAN (VLAN) configuration, security and operation
   ii. VLAN memberships and identification
   iii. VLAN Trunking Protocol (VTP)

9. Cisco Internetwork configuration and troubleshooting
   i. Components of a Cisco router
   ii. Router boot sequence
   iii. Managing configuration registers
   iv. Backing up Cisco IOS and configuration
   v. Cisco Discovery Protocol (CDP)
   vi. Telnet
   vii. Resolving hostnames
   viii. Network connectivity

10. Access lists
    i. Managing traffic using access lists
    ii. Standard and extended access lists
    iii. Monitoring access lists

11. WAN protocols
    i. WAN connections
    ii. Cabling in WANs
    iii. High-level Data-Link Control (HDLC) protocol
    iv. Point-to-Point (PPP) protocol
    v. Link Control Protocol (LCP) configuration
    vi. Frame relay
    vii. Integrated Services Digital Network (ISDN)
    viii. Dial-on-Demand Routing (DDR)

COURSE REQUIREMENTS:

1. Complete all reading assignments, simulation experiments and submit these on the prescribed dates.
2. Complete assigned laboratory work and assignments as prescribed by the instructor.
3. Complete the assessments covering material from: homework, labs, and from assigned readings in the text.
4. Maintain a 3-ring binder or folder for organizing class materials.
EVALUATION:
Each student will be evaluated as follows:
- Assessments (50%) – 2 assessments (one mid-term and a final, both take-home type)
- Lab assignments (50%) – between 10-15 lab assignments, including network simulations

Mid-term assessment – covering chapters 1 – 5. To be held around Week 7 of the semester (Feb. 27 – Mar. 3).
Final Assessment – Comprehensive, covering chapters 1 – 11. To be held around Finals week (May 8 – 12).

The final assessment will be weighed more than the mid-term assessment.

You may rework and resubmit your assessments (excluding the final), labs for limited partial credit.

Attendance Policy:
After the second unexcused absence, each unexcused absence will cause one percent deduction from the “Attendance and Professional Evaluations” average. Eight (8), and nine (9) unexcused absence, will result in one letter grade lower. Your grade will be an automatic F if you have more than ten (10) unexcused absences. Makeup labs/exams will be permitted only if you had sought and received my approval prior to the absence which caused you to miss the related lab/exam.

Grades:

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<tr>
<th>Percentage</th>
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<tbody>
<tr>
<td>100-90%</td>
<td>A</td>
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<td>89-80%</td>
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<td>79-70%</td>
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<td>69-60%</td>
<td>D</td>
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<td>Below 60%</td>
<td>F</td>
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Mid-term grades will be made available to students before Sat., March 4, 2006.

CEN/CET majors enrolled in EET343 are required to attend the College of Business & Technology Professional Skills Conference, Friday, April 7, 2006.

STATEMENT OF DISABILITY:

ADA
If you are registered with the Office of Services for Individuals with Disabilities, please make an appointment with the course instructor to discuss any academic accommodations you need. If you need academic accommodations and are not registered with the Office of Services for Individuals with Disabilities, please contact the office on the third floor of the Student Services Building, by email at disabilities@eku.edu or by telephone at (859) 622-2933 V/TDD. Upon individual request, this syllabus can be made available in alternative forms.

☺ The work you do in the laboratory, and the grade you earn, should reflect your personal abilities, and accomplishments. Individual homework and lab reports are required from each student. I encourage you to discuss your assignments with other students. However any work you submit must be your own.

☺ Any suggestions leading to improvements in the content or presentation of the course, especially in the laboratory work, are most welcome.