Class Hours: 3.0  Credit Hours: 4.0  Labor Hours: 3.0  Date Revised: Spring 02

NOTE: This course is not intended for transfer credit.

Catalog Course Description:

Topics include address and encapsulation, access lists, Novell protocol and interfaces, LAN segmentation and internetworking devices, switching methods, Ethernet operation, Fast Ethernet, LAN switching and virtual LANs. Other topics include differentiating WAN services, frame relay features and sub-interfaces, frame relay router operation, PPP operations, and ISDN implementation.

Entry Level Standards:

The student MUST be familiar with the architecture and operation of standard PCs. Mastery of the first two Cisco semesters is required. The student must have math, writing, verbal, and English language skills at the college level.

Prerequisites:

NETW 1510 or consent of instructor
Helpful: A++ certification; Microsoft Office skills; introductory programming or multimedia courses; introductory electronics

Textbook(s) and Other Reference Materials Basic to the Course:

Online curriculum at Cisco web site: http://cisco.netcad.net. No text is required.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Review of Semesters 1 &amp; 2</td>
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<tr>
<td>2</td>
<td>LAN Switching</td>
</tr>
<tr>
<td>3</td>
<td>VLANs</td>
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<tr>
<td>4</td>
<td>LAN Design; TCS</td>
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<tr>
<td>5</td>
<td>Interior Gateway Routing Protocol (IGRP)</td>
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<tr>
<td>6</td>
<td>Access Control Lists (ACLs); TCS</td>
</tr>
</tbody>
</table>
II. Course Objectives*:

A. Demonstrate proficiency in different LAN technologies. I II IV V VI
B. Demonstrate knowledge of the process of routing. II III VI IX X
C. Demonstrate knowledge of switch implementation and configuration. I II VI VIII
D. Demonstrate use of VLANS, STP, switch setup, and software configuration. I VIII IX X XI
E. Explain the theory and benefits of VLANS. I IV VII XII
F. Write well-documented methods of configuring VLANS on a switch. I II VI VIII
G. Use troubleshooting skills to solve complex switch and router problems. I II IV X

*Roman numerals after course objectives reference goals of the NETW program.

III. Instructional Processes*:

Students will:

1. Design a complex networking plan which incorporates advanced EP address planning. *Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Information Literacy Outcome*
2. Examine and implement solutions to challenging routing processes. *Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Transitional Strategy*
3. Use professional diagnostic tools to produce successfully implemented bridges, switches, and routers. *Technological Literacy Outcome, Transitional Strategy*
4. Participate in team projects involving, installation and configuration of switch software and hardware. *Communication Outcome, Problem Solving and Decision Making Outcome, Active Learning Strategy*
5. Prepare documents explaining the route for troubleshooting, VLAN configurations.
Communication Outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Transitional Strategy, Active Learning Strategy

6. Practice elements of the work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. Personal Development Outcome

*Strategies and outcomes listed after instructional processes reference Pellissippi State’s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

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

1. Describe in detail the OSI layers. A, E, G
2. Utilize IP addressing planning, in a complex networking. B, C, G
3. Understand the basic operation of a switch. C, D
4. Understand simple hardware setup and software configuration of a switch. C, D, E
5. Explain the theory and benefits of VLANS. E, F
6. Explain Layer 1, Layer 2, and Layer 3 network design. A, B, C
7. Create physical topologies, site wiring diagrams, and logical topologies. D, F
8. Explain the operation and methods of IGRP. B, G
9. Migrate a router from RIP to IGRP. B, G
10. Explain and configure standard access control lists on a router. A, B, G
11. Address configuration and monitor a network using IPX. A, G

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures: 70% of grades

Fourteen concept-based exams
Exams 40% On-Line Exams
Final Exam 30% Comprehensive Written, Oral, and Lab Practical Exams
There will be no make-up tests unless prior arrangements are made with the instructor.

B. Laboratory Expectations:

Skills Exams  pass/fail
PC hardware & software; making of cables; structured wiring, installations; building and troubleshooting simple LANS. Individual router configuration; configuring networks of routers; building and troubleshooting simple LANS.
Lab attendance is required. Assignments must be completed and submitted by the assigned deadline. This is a coordinated laboratory class, and assignments must be completed as scheduled.
C. Field Work:

N/A

D. Other Evaluation Methods: 30% of grade

- Homework 10% practice problems and designs
- Journal 10% document all laboratory and project work completely
- Portfolio 10% Semester Online Portfolio; posting physical and logical topologies
- Pop-Quizzes and take-home assignments may be given.

E. Grading Scale:

- 90 - 100%  A
- 80 - 89%   B
- 70 - 79%   C
- 60- 69%    D
- 0 - 59%    F

VI. Policies:

A. Attendance Policy:

Students are expected to promptly attend all lecture and lab classes as assigned. Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. (Pellissippi State Catalog)

B. Academic Dishonesty:

Plagiarism, cheating, software piracy, non-educational use of computer systems and other forms of academic dishonesty are strictly prohibited.