PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

WAN SERVICES
NETW 2520

Class Hours: 3.0  Credit Hours: 4.0
Laboratory Hours: 3.0  Date Revised: Spring
01

Catalog Course Description:
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 three Cisco semesters is required. The student must have math, writing, verbal, and English language skills at the college level. It is helpful to have: A++ certification; Microsoft Office skills; introductory programming or multimedia courses; introductory electronics

Corequisite:
NETW 2500

Textbook(s) and Other Reference Materials Basic to the Course:
Online curriculum at Cisco web site: http://cisco.netacad.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 Semester 3; Threaded Case Study (TCS)</td>
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<tr>
<td>2</td>
<td>WANs</td>
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<td>3</td>
<td>WANs; TCS</td>
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<td>4</td>
<td>WAN Design; TCS</td>
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<td>5</td>
<td>WAN Design; TCS</td>
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<tr>
<td>6</td>
<td>WAN Design; TCS</td>
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<tr>
<td>7</td>
<td>Point-to-Point Protocol (PPP); TCS</td>
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<tr>
<td>8</td>
<td>Integrated Services Digital Network (ISDN)</td>
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</table>
II. Course Objectives*:

A. Demonstrate substantial conceptual understanding of LAN design. I II IV V VI VII
B. Demonstrate knowledge of switch and router configurations. II III IV V IX X
C. Demonstrate knowledge of the carrier network options. I II III VI VIII XI
D. Demonstrate application of the WAN design process. I IV VIII IX
E. Explain LAN and WAN router configuration. I III IV VII IX
F. Write well-documented methods of configuring ISDN and Frame Relay. I II VI X
G. Use troubleshooting skills to solve complex WAN-related network tasks. I II IV V

*Roman numerals after course objectives reference goals of the Business and Computer Technology department.

III. Instructional Processes*:

Students will:

1. Design a complex networking plan which incorporates advanced WAN planning. Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Transitional Strategy, Active Learning Strategy
2. Examine and implement solutions to challenging switching mode processes. Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Transitional Strategy, Active Learning Strategy
3. Use professional diagnostic tools to produce successfully implemented ISDN and Frame Relay technologies. Technological Literacy Outcome, Personal Development Outcome, Transitional Strategy, Active Learning Strategy
4. Participate in team projects involving installation, configuration, and upgrading of LAN and WAN software and hardware. Communication Outcome, Problem Solving and Decision Making Outcome, Transitional Strategy, Active Learning Strategy
5. Prepare documents explaining the route for troubleshooting WAN-related network management. Communication Outcome, Problem Solving and Decision Making Outcome,
Technological Literacy Outcome, Information 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. Design and explain TCP/IP, Ethernet LANs with routing and switching. A, B, D, G
2. Configure a secure Ethernet LAN. A, D, E
3. Explain WAN technology options. A, B, E
4. Identify and use WAN-related router commands. B, E
5. Design and explain a school district WAN case study. A, B, E
6. Configure routers to implement basic district WAN functions. A, C, E
7. Explain and implement PPP on routers. F, G
8. Configure and verify ISDN on a router. D, E
9. Configure and verify Frame Relay on routers. D, E, G

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

V. Evaluation:

A. Testing Procedures:

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:

Skill Exams: pass/fail
Mastery of Skills: 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:

   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 "Outside-Class" 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.

B. Academic Dishonesty:

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