PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

DESIGNING SECURITY (LAN)
NETW 2020

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

NOTE: This course is not designed for transfer credit.

Catalog Course Description:

This course provides instruction in the analysis of business requirements for resource security and the designing of security solutions in a Windows 2000 network operation system. Topics include analyzing business and security requirements; and designing security solutions for Windows 2000, for access between networks and for communication channels.

Entry Level Standards:

The entering student should be skilled with the Windows 2000 Professional and Server operating systems, Microsoft Active Directory and be able to demonstrate advanced computer knowledge. Problem solving and analytical skills are also important.

Prerequisite:

NETW 1215 or consent of instructor

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

Textbook and Supplies:
3 2” HD Diskettes
3-ring notebook w/pocket
Suggested Optional Supplementals:
Outside reading, magazines, the Internet, vendor materials.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction, Topic Overview, Schedule; Designing Active Directory for Security</td>
</tr>
<tr>
<td>2</td>
<td>Designing an Organizational Unit Structure; Designing Authentication; NTLM Authentication; Planning an Administrative Structure; Designing Group Security; Securing File Resources</td>
</tr>
<tr>
<td>3</td>
<td>Designing Group Policy; Securing Microsoft Windows 2000-Based Computers</td>
</tr>
<tr>
<td>4</td>
<td>Designing Windows 2000 Services Security; Exam #1 review</td>
</tr>
<tr>
<td>5</td>
<td>Exam #1: Planning a Public Key Infrastructure</td>
</tr>
</tbody>
</table>
II. Course Objectives*:

A. Demonstrate knowledge of an active directory structure designed for security. II,III,IV
B. Demonstrate knowledge of designing authentication for a Microsoft Windows 2000 network. II,IV
C. Demonstrate knowledge of planning a Microsoft Windows 2000 administrative structure. III,IV
D. Demonstrate knowledge of designing group policy and security for Microsoft Windows 2000. III,IV
E. Demonstrate knowledge of resource and file security. II,IV
F. Demonstrate knowledge of securing Microsoft Windows 2000-based computers. II,IV,VIII
G. Demonstrate knowledge of designing services security for Windows 2000. II,III,IV,VII
H. Demonstrate knowledge of planning a PK (Public Key) infrastructure. III,IV
I. Demonstrate knowledge of securing data at the application layer of the OSI model. III,IV
J. Demonstrate knowledge of securing data with IPSec (Internet Protocol Security). III,IV
K. Demonstrate knowledge of securing access for remote users and networks. III,IV
L. Demonstrate knowledge of securing an extranet and securing Internet access. III,IV
M. Demonstrate knowledge of heterogeneous network secure access. III,IV
N. Demonstrate knowledge of designing a comprehensive network security plan. III,IV
O. Demonstrate client service, teamwork skills and good communications skills to resolve problems and complete tasks. I,II,IX
*Roman numerals after course objectives reference goals of the Business and Computer Technology department.

III. Instructional Processes*:

Students will:

1. Use Windows 2000 operating systems commands and utilities to perform practical tasks for network computing. Technological Literacy Outcome, Problem Solving and Decision Making Outcome, Transitional Strategy, Active Learning Strategy
2. Demonstrate knowledge of networking, electronic communication, and associated subjects. Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Information Literacy Outcome
5. Handle and examine modern computing devices. Technological Literacy Outcome, Personal Development Outcome, Transitional Strategy, Active Learning Strategy
6. Prepare documents and presentations for management explaining computer networks and communications hardware/software, etc. to meet user requirements. Communication Outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Information Literacy Outcome, Transitional Strategy, Active Learning Strategy
7. 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 computer security to meet business requirements. A,B,C,D,O
2. Design security to meet technical requirements. A,B,C,D,O
3. Design a forest structure. A,C,O
4. Design a domain structure. A,C,O
5. Design an organizational unit structure. A,C,O
6. Design an audit strategy. A,C,D,E,F,G,O
11. Design/plan administrative group membership. C,D,O
12. Design/plan administrative access to the network. C,D,O
13. Design/plan group security and user rights; plan deployment of group policy. C,D,
14. Secure access to file and print resources. B,C,D,E,F,O
15. Plan EFS security. E,F,G,O
17. Plan/deploy of security by using security templates. E,F,G,O
25. Design/plan a Public Key (PK) infrastructure. H,I,K,O
28. Plan authenticity and integrity of transmitted data. F,G,I,J,O
29. Plan encryption of transmitted data. J,O
30. Design IPSec policies and deployment; evaluate IPSec scenarios. J,O
31. Design/plan remote access security (for users and networks). J,K,L,O
32. Design remote access policy. K,L,M,N,O
33. Plan RADIUS security. K,L,M,N,O
34. Design/plan security for an Extranet. K,L,M,N,O
35. Identify common firewall strategies. K,L,M,N,O
36. Secure Internet-accessible resources in a DMZ; secure data flow through a DMZ. K,L,M,N,O
38. Design/plan security for the Internet. J,K,M,N,O
39. Design an Internet acceptable use policy. M,N,O
40. Secure access to the Internet by private network users. G,J,K,M,N,O
41. Restrict access to content on the Internet. E,F,G,I,M,O
42. Audit Internet access. M,N,O
43. Design secure Internet access. M,N,O
44. Design interoperability between Windows 2000 and heterogeneous networks. M,N,O
45. Design directory synchronization and integration. M,N,O
46. Secure Windows 2000 user access to heterogeneous networks. M,N,O
47. Design, define, develop, and maintain a comprehensive security plan. A,C,D,E,F,G,K,L,M,N,O

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

V. Evaluation:

A. Testing Procedures:

Three (3) examinations each worth 200 points will be given. Each will be cumulative.

B. Laboratory Expectations:

Hands-on learning activities done individually and in teams will also serve as the basis for course evaluation.

C. Field Work:

N/A

D. Other Evaluation Methods:

Other assessment activities worth 400 points will consist of special projects, research papers, team activities, essays, short answer documents, or other work assigned.

E. Grading Scale:

920 - 1000 points A (92%-100%)
820 - 919 points B (82%-91.9%)
700 - 819 points C (70%-81.9%)
650 - 699 points D (65%-69.9%)
< 649 points F (0%-64.99%)

VI. Policies:

Attendance Policy:
Pellissippi State Technical Community College expects students to attend all scheduled required 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.