

Pellissippi State Community College
Master Syllabus

NETWORK SECURITY
CSIT 2720

Class Hours: 3.0
Credit Hours: 3.0
Laboratory Hours: 2.0
Revised: 12/03/2011

Instructor:
Office:
Phone:
Email:

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 network operating system. Topics include analyzing business and security requirements and designing security solutions for Windows for access between networks and for communication channels.

Entry Level Standards:

The student entering this class MUST be skilled with the Windows Professional and Server (2003/2008) operating systems, Microsoft Active Directory and be able to demonstrate advanced computer knowledge and skills. Problem solving and analytical skills are also important.

Prerequisite: CSIT 2710 or consent of instructor

Textbook(s) and Other Course Materials:

Textbook and Supplies:

- *Security+ Guide to Network Security*, by Mark Ciampa, 4th ed., Course Technology, 2012 ISBN: 978-1-111-64012-5. Online or electronic versions are acceptable.
- USB Flash memory
- USB Hard Disk for transporting virtual machine operating systems to and from the PSCC laboratories to a PC located in an alternate location (home, work, etc.)
- PC at home or alternate location capable of running a host operating system (e.g. Windows XP or Windows 7), Microsoft Virtual PC or VMware Workstation 6, 7, or 8, and a guest operating system (Windows 7/Windows Server 2003/2008)

Suggested Optional Supplementals:

Outside reading, magazines, the Internet, vendor materials.

I. WEEK/UNIT/TOPIC BASIS:

Week	Topic(s)
1	Introduction, Topic Overview, Schedule; Designing Active Directory for Security
2	Malware and Social Engineering Attacks
3	Application and Network Attacks
4	Vulnerability Assessment and Mitigating Attacks
5	Host, Application, and Data Security

Week	Topic(s)
6	Network Security
6-7	Administering a Secure Network
8	Wireless Network Security
9	Access Controls
10	Authentication and Account Management
11-12	Basic and Applied Cryptography
13	Business Continuity
14	Risk Mitigation
14	Major Laboratory Project
15	Project Presentations; Final Exam Period

II. COURSE GOALS:*

The course will

- A. Develop/enhance/expand the student's knowledge of computer systems designed for security. II,III,IV,V,VIII,IX
- B. Develop/enhance/expand the student's knowledge of designing authentication for networks. II,III,IV,IX
- C. Develop/enhance/expand the student's knowledge of planning a secure computer/network administrative structure. II,III,IV,IX
- D. Develop/enhance/expand the student's knowledge of designing group policy and security for Microsoft Windows Servers. II,III,IV,IX
- E. Develop/enhance/expand the student's knowledge of resource and file security. II,III,IV,IX
- F. Develop/enhance/expand the student's knowledge of securing an extranet and securing Internet access. II,III,IV,IX
- G. Develop/enhance/expand the student's knowledge of heterogeneous network secure access. II,III,IV,IX
- H. Develop/enhance/expand the student's knowledge of designing a comprehensive network security plan. I,II,III,IV,IX
- I. Develop/enhance/expand the student's understanding of client service, teamwork skills and good communications skills to resolve problems and complete tasks. I,II,IX,X

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

III. EXPECTED STUDENT LEARNING OUTCOMES:*

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

1. Design computer security to meet business requirements. A,B,C,D,E,F,G,H
2. Design security to meet technical requirements. A,B,C,D,E,F,G,H
3. Design an audit strategy. A,C,D,E,F,G,H
4. Design/plan administrative access to the network. A,B,C,D,E,F,G,H
5. Design/plan group security and user rights; plan deployment of group policy. C,D,E
6. Secure access to file and print resources. C,D,E
7. Design DNS security. F,G
8. Plan security for network services. F,G
9. Design/plan a Public Key (PK) infrastructure. E,F,G,H
10. Plan a certification authority hierarchy. E,F,G,H

11. Manage certification authorities. C,D,E,F,G,H
12. Plan authenticity and integrity of transmitted data. C,D,E,F,G,H
13. Plan encryption of transmitted data. C,G,H
14. Design IPSec policies and deployment; evaluate IPSec scenarios. C,E,G,H
15. Plan RADIUS security. C,E,G,H
16. Design/plan security for an Extranet. C,D,E,F,G,H
17. Identify common firewall strategies. A,B,C,D,E,F,G,H
18. Design firewall rules. F,G,H
19. Design/plan security for the Internet. Explain this policy to system users. A,H,I
20. Design an Internet acceptable use policy. Explain this policy to system users. A,H,I
21. Secure access to the Internet by private network users. A,B,C,D,E,F,G,H
22. Design, define, develop, and maintain a comprehensive security plan. A,B,C,D,E,F,G,H,I

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

IV. EVALUATION:

A. Testing Expectations: 45% of Grade

An examination will be administered after each chapter's instruction is finished and a review has been performed. If an examination is NOT completed by the student on the scheduled date/time, it WILL NOT be administered at a later time/date. One (1) chapter examination will be dropped (the lowest chapter score!) and the score not included in the examination average. If an examination has been missed, the score will be entered as a zero (0), and this will be the lowest score. Any other missed examinations will be scored as zero (0) and will be included in the end-of-course "Testing Expectations" average.

B. Laboratory Expectations: 55% of Grade

Hands-on learning activities done individually and/or in teams will also serve as a basis for course evaluation. If a laboratory exercise is not completed, a zero (0) score will be entered for that exercise. One (1) laboratory exercise will be dropped (the lowest laboratory score!) and the score not included in the laboratory score average. If a laboratory has been missed, the score will be entered as a zero (0), and this will be the lowest score. Any other missed laboratory exercises will be scored as zero (0) and will be included in the end-of-course "Laboratory Expectations" average.

C. Field Work: One or more "Field Trip Experience(s)" may be arranged during the academic term. If the "Field Experience" is scheduled during a regular class/lab period, missing the event will result in a score of zero (0) for that laboratory component.

D. Other Evaluation Methods:

E. Grading Scale: (the percentage based on the maximum number of points possible in a semester)

93 – 100%	A
88 – 92%	B+
83 – 87%	B
78 – 82%	C+

73 – 77%	C
65 – 72%	D
Below 65%	F

V. **POLICIES:**

A. **Attendance Policy:**

This course uses software and hardware not normally available out-of-class to students. Regular attendance is required for success in this class. Refer to the Class Policies document for more information.

Pellissippi State 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 Online Catalog*)

B. **Academic Dishonesty:**

Plagiarism, cheating and other forms of academic dishonesty are prohibited. A student guilty of academic misconduct, either directly or indirectly through participation or assistance, is immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions that may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination or to assign an F in the course. (*Pellissippi State Online Catalog*)

C. **Computer Usage Guidelines:**

College-owned or –operated computing resources are provided for use by students of Pellissippi State. All students are responsible for the usage of Pellissippi State's computing resources in an effective, efficient, ethical and lawful manner. (*Pellissippi State Online Catalog*)

D. **Accommodation for Disabilities:**

If you need accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Please see the instructor privately after class or in his/her office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135 or by phone: 694-6429(TTY) or 539-7153 (Voice). More information is available at www.pstcc.edu/departments/swd/.