PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

NETWORK SECURITY
CSIT 2720

Class Hours: 3.0 Credit Hours: 3.0
Laboratory Hours: 2.0 Revised: 1/20/2015

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 (7,8,10) and Server (2008/2012/2012r2) 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 1740

Textbook(s) and Other Course Materials:

Textbook and Supplies:
- 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 7/8/10), Microsoft Virtual PC or VMware Workstation 10/11, and a guest operating system (Windows 7 or 8 or 10/Windows Server 2008/2012/2012r2)

Suggested Optional Supplementals:
Outside reading, magazines, the Internet, vendor materials.
I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic(s)</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction, Topic Overview, Schedule; Designing Active Directory for Security</td>
</tr>
<tr>
<td>2</td>
<td>Malware and Social Engineering Attacks (Chapter 2)</td>
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<tr>
<td>3</td>
<td>Application and Networking-based Attacks (Chapter 3)</td>
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<tr>
<td>4</td>
<td>Host, Application, and Data Security (Chapter 4)</td>
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<tr>
<td>5-6</td>
<td>Basic and Applied Cryptography (Chapters 5 &amp; 6)</td>
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<tr>
<td>6</td>
<td>Network Security Fundamentals; Firewalls, part 1 (Chapter 7)</td>
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<td>6-7</td>
<td>Administering a Secure Network; Firewalls, part 2 (Chapter 8)</td>
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<td>8</td>
<td>Wireless Network Security (Chapter 9)</td>
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<td>8-9</td>
<td>Mobile Device Security (Chapter 10)</td>
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<td>9</td>
<td>Access Controls (Chapter 11)</td>
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<td>10</td>
<td>Authentication and Account Management (Chapter 12)</td>
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<td>11</td>
<td>Business Continuity (Chapter 13)</td>
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<td>12</td>
<td>Risk Mitigation (Chapter 14)</td>
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<td>13</td>
<td>Vulnerability Assessment (Chapter 15)</td>
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<tr>
<td>14-15</td>
<td>Major Security Laboratory Project</td>
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<tr>
<td>15</td>
<td>Project Presentations; Final Exam Period</td>
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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 CSIT program.
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
11. Manage certification authorities. C,D,E,F,G,H
12. Plan authenticity and integrity of transmitted data. C,D,E,F,G,H
14. Design IPSec policies and deployment; evaluate IPSec scenarios. C,E,G,H
15. Plan RADIUS security. C,E,G,H
17. Identify common firewall strategies. A,B,C,D,E,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: 50% 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: 50% 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:
Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:
Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

• Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one’s own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.
Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for disabilities:
Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. Disability Services may be contacted by sending email to disabilityservices@pstcc.edu, or by visiting Alexander 130. More information is available at http://www.pstcc.edu/sswd/.