Course Description

This course will provide students an opportunity to assess what programs are in place and their adequacy to protect information systems and technology. This assessment will include industry standards (such as ISO 27001), governmental efforts (such as the National Infrastructure Protection Plan), and interrelationships of information systems and technology to other types of critical infrastructure (such as municipal services, finance and banking, power, etc.). By looking at current best practices students will determine these programs effectiveness and what future measures may need to be developed. Students will gain hands on exercises with implementing network policies, access protection, virtualization, and network protocols.

Course Textbook


Course Learning Outcomes

Upon completion of this course, students should be able to:

1. Identify industry and government standards.
2. Evaluate organization infrastructures for vulnerabilities.
3. Create a network policy.
5. Analyze secure cloud desktop applications.
6. Utilize virtual machines.
8. Plan network integrity and availability

Credits

Upon completion of this course, the students will earn three (3) hours of college credit.

Course Structure

1. **Unit Learning Outcomes:** Each unit contains Learning Outcomes that specify the measurable skills and knowledge students should gain upon completion of the unit.
2. **Unit Lesson:** Each unit contains a Unit Lesson, which discusses unit material.
3. **Reading Assignments:** Each unit contains Reading Assignments from one or more chapters from the textbook. Chapter presentations are provided in Units II-VI and VIII as Supplemental Reading to aid students in their course of study. Suggested Further Readings are listed in Units I-III and VII. The readings themselves are not provided in the course, but students are encouraged to read the resources listed if the opportunity arises as they have valuable information that expands upon the lesson material.
4. **Learning Activities (Non-Graded):** Non-graded Learning Activities are provided to aid students in their course of study. You do not have to submit them. If you have questions, contact your instructor for further guidance and information.
5. **Key Terms:** Key Terms are intended to guide students in their course of study. Students should pay particular attention to Key Terms as they represent important concepts within the unit material and reading.
6. **Unit Assignments:** Students are required to submit for grading Unit Assignments in each unit. Specific information and instructions regarding these assignments are provided below. Grading rubrics are included with each Unit Assignment. Specific information about accessing these rubrics is provided below.
7. **Ask the Professor:** This communication forum provides you with an opportunity to ask your professor general or course content related questions.

8. **Student Break Room:** This communication forum allows for casual conversation with your classmates.

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**CSU Online Library**

The CSU Online Library is available to support your courses and programs. The online library includes databases, journals, e-books, and research guides. These resources are always accessible and can be reached through the library webpage. To access the library, log into the myCSU Student Portal, and click on “CSU Online Library.” You can also access the CSU Online Library from the “My Library” button on the course menu for each course in Blackboard.

The CSU Online Library offers several reference services. E-mail (library@columbiasouthern.edu) and telephone (1.877.268.8046) assistance is available Monday – Thursday from 8 am to 5 pm and Friday from 8 am to 3 pm. The library’s chat reference service, *Ask a Librarian*, is available 24/7; look for the chat box on the online library page.

Librarians can help you develop your research plan or assist you in finding relevant, appropriate, and timely information. Reference requests can include customized keyword search strategies, links to articles, database help, and other services.

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**Unit Assignments**

**Unit I Essay**

**Critical Infrastructures Industry and Government Standards**

The purpose of this assignment is to allow you to examine some of the industry and government standards that deal with the interrelationships of information systems and technology to other types of critical infrastructures in regards to information security. Thus, this reinforces a technique you can utilize as a life-long learner as well as a professional.

Begin by researching and identifying an industry and government standard that deals with the interrelationships of information systems and technology to other types of critical infrastructures, such as power, finance and banking, or municipal services. After conducting the online research, be sure to include the following information in your paper:

1. Provide an overview of the government and industry standard explaining how it is intended to affect the interrelationships of information systems and technology to other types of critical infrastructures.
2. Does adhering to the standard include any nuisances? Does it place a hardship or burden on organizations? List them.
3. Provide your own thoughts about the effectiveness of the standards. Does it actually accomplish its intentions?

Your paper should be at least 750 words in length. You may use your textbook as source material for your response. You must also use three outside sources. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit II Essay**

**TCP/IP protocols**

Critique the following question, “Does the OSI model conform to the TCP/IP protocols or vice versa”?

You are required to defend your thoughts in this paper using research on TCP/IP protocols functions in relation to the OSI model. Summarize your thoughts and research in a paper at least 750 words in length.

You may use your textbook as source material for your response. You must also include three outside sources. All sources used, including the textbook, must be paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.
Unit II Project

Posture Assessment

Follow the instructions for the posture assessment, Case Project 11-1, on pages 553 and 554 of your textbook. Be sure to answer the following requirements in the case study to include the network diagram.

Requirements:

- Create a checklist of items on this network that should be evaluated for security.
- Sketch a network diagram for the credit union (remember to include connectivity devices necessary for the LAN and the WAN connections). NOTE: You may hand sketch and scan a network diagram, or create one using tools in a word document.
- Describe any entry points (physical or data transmission related) or situations that constitute potential security risks.
- Explain how the credit union manager could better train his employees to understand network security.

Summarize your description and explanation in a paper at least 250 words in length. You may use your textbook as source material for your response. All sources used, including the textbook, must be paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

Unit III Web Assignment

Cloud Computing Services

Research the Internet and use your textbook as a reference to identify and differentiate between the different types of service models for cloud computing services. The paper should include advantages and disadvantages of each model.

Your paper should be at least 750 words in length. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

Unit III PowerPoint Presentation

Cloud Computing Security Benefits

Conduct a study using your textbook and outside sources on cloud computing security benefits. In this presentation, find at least one graphic illustrating a secure cloud configuration and utilize in your presentation.

Create a five-seven slide PowerPoint presentation with a separate title page and reference page (not included in your number count). Be sure to include notes in your presentation where necessary. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

Unit IV Assignment

Virtualization

Follow the instructions for the virtualization exercise, Project 10-1, on pages 480-483 of your textbook.

Write at least a one page reflective summary of what occurred during this lab exercise for you. Include any suggestions you may have about this exercise or any surprises that occurred during this lab.

Be sure to include a screen shot of the Oracle VM VirtualBox Manager window in step 33.

All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.
Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit IV PowerPoint Presentation**

Conduct a study using your textbook and outside sources on virtual private networks (VPNs) and the products they rely on. Also include in this presentation techniques for incorporating virtual components in virtual local area networks (VLANs).

Create a six-eight slide PowerPoint presentation with a separate title and reference page (not included in your number count). Be sure to include notes in your presentation where necessary. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit V Web Assignment**

*Simple Network Management Protocol*

Research the Internet and use your textbook to identify the three different Simple Network Management Protocol (SNMP) versions. List the advantages and disadvantages of each version.

Your paper should be at least 500 words in length and include an introduction, a body, and a conclusion. You are required to use at least your textbook as source material for your response. You must also use two outside sources. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit V Assignment**

Follow the instructions for the event log Project 15-1, found on pages 725-726 in the textbook.

After you complete the project to explore the event log. Write a reflective essay at least 250 words in length on what you learned from this experience. Include any issues or problems that might have arisen during the project. Also include any suggestions that you may have for this exercise.

Be sure to include a screen shot of the Windows logs listing in Event Viewer in step nine.

All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit VI Project**

*Disaster Recovery Plan*

Create a disaster recovery plan by including all the elements described in your textbook on page 674. Also include in your disaster recovery plan suggestions for anti-malware guidelines, discussed on pages 651-652 in your textbook.

Be sure to include the following information in your disaster recovery plan:

- Contact names and phone and pager numbers for emergency coordinators who will execute the disaster recovery response in case of disaster, as well as roles and responsibilities of other staff.
- Details on which data and servers are being backed up, how frequently backups occur, where backups are kept (off-site), and, most important, how backed-up data can be recovered in full.
- Details on network topology, redundancy, and agreements with national service carriers, in case local or regional vendors fall prey to the same disaster.
- Regular strategies for testing the disaster recovery plan.
• A plan for managing the crisis, including regular communications with employees and customers. Consider the possibility that regular communications modes (such as phone lines) might be unavailable.
• In addition to considering every single point of failure, to protect a network you must be aware of potential threats from malware that can affect a computer's programs, operating system, and storage. Consider ways in which the network could be threatened by malware and how to guard against such threats.

Your paper should be at least five pages in length. The paper will include a separate title and reference page which is not to be included in your number count of pages. You are required to use at least your textbook as source material for your response. You must also use two outside sources. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit VII PowerPoint Presentation**

**Network Access Protection**

Conduct a study on Network Access Protection (NAP) using various sources including the required reading for this unit. Be sure to include the following:

• NAP defined
• four basic aspects
• NAP fundamentals
• NAP advantages
• NAP components and their subcomponents

Create a seven-ten slide presentation with a separate title and reference page (not included in your number count). Be sure to include notes in your presentation where necessary. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**Unit VIII Web Assignment**

**Encryption Methods**

There are many popular encryption methods such as PGP, SSL, SSH, OpenSSH, and IPSec. Choose one of these encryption methods and include the history, purpose, definition, advantages and disadvantages of the selected method in your paper.

Your paper should be at least 1050 words in length and will include a separate title and reference page. You must also use two outside sources. All sources used, including the textbook, must be referenced; paraphrased and quoted material must have accompanying citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

**APA Guidelines**

The application of the APA writing style shall be practical, functional, and appropriate to each academic level, with the primary purpose being the documentation (citation) of sources. CSU requires that students use APA style for certain papers and projects. Students should always carefully read and follow assignment directions and review the associated grading rubric when available. Students can find CSU’s Citation Guide by clicking here. This document includes examples and sample papers and provides information on how to contact the CSU Success Center.
Grading Rubrics

This course utilizes analytic grading rubrics as tools for your professor in assigning grades for all learning activities. Each rubric serves as a guide that communicates the expectations of the learning activity and describes the criteria for each level of achievement. In addition, a rubric is a reference tool that lists evaluation criteria and can help you organize your efforts to meet the requirements of that learning activity. It is imperative for you to familiarize yourself with these rubrics because these are the primary tools your professor uses for assessing learning activities.

Rubric categories include: (1) Assessment (Written Response) and (2) Assignment. However, it is possible that not all of the listed rubric types will be used in a single course (e.g., some courses may not have Assessments).

The Assessment (Written Response) rubric can be found embedded in a link within the directions for each Unit Assessment. However, these rubrics will only be used when written-response questions appear within the Assessment.

Each Assignment type (e.g., article critique, case study, research paper) will have its own rubric. The Assignment rubrics are built into Blackboard, allowing students to review them prior to beginning the Assignment and again once the Assignment has been scored. This rubric can be accessed via the Assignment link located within the unit where it is to be submitted. Students may also access the rubric through the course menu by selecting “Tools” and then "My Grades."

Again, it is vitally important for you to become familiar with these rubrics because their application to your Assessments and Assignments is the method by which your instructor assigns all grades.

Communication Forums

These are non-graded discussion forums that allow you to communicate with your professor and other students. Participation in these discussion forums is encouraged, but not required. You can access these forums with the buttons in the Course Menu. Instructions for subscribing/unsubscribing to these forums are provided below.

Once you have completed Unit VIII, you MUST unsubscribe from the forum; otherwise, you will continue to receive e-mail updates from the forum. You will not be able to unsubscribe after your course end date.

Click here for instructions on how to subscribe/unsubscribe and post to the Communication Forums.

Ask the Professor

This communication forum provides you with an opportunity to ask your professor general or course content questions. Questions may focus on Blackboard locations of online course components, textbook or course content elaboration, additional guidance on assessment requirements, or general advice from other students.

Questions that are specific in nature, such as inquiries regarding assessment/assignment grades or personal accommodation requests, are NOT to be posted on this forum. If you have questions, comments, or concerns of a non-public nature, please feel free to email your professor. Responses to your post will be addressed or emailed by the professor within 48 hours.

Before posting, please ensure that you have read all relevant course documentation, including the syllabus, assessment/assignment instructions, faculty feedback, and other important information.

Student Break Room

This communication forum allows for casual conversation with your classmates. Communication on this forum should always maintain a standard of appropriateness and respect for your fellow classmates. This forum should NOT be used to share assessment answers.
Grading

- Essay (2 @ 9%) = 18%
- Project (2 @ 9%) = 18%
- Web Assignment (3 @ 8%) = 24%
- PowerPoint Presentation (3 @ 8%) = 24%
- Assignment (2 @ 8%) = 16%
- Total = 100%

Course Schedule/Checklist (PLEASE PRINT)

The following pages contain a printable Course Schedule to assist you through this course. By following this schedule, you will be assured that you will complete the course within the time allotted.
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<table>
<thead>
<tr>
<th>Unit I</th>
<th>National Infrastructure Protection Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review:</td>
<td>- Unit Study Guide</td>
</tr>
<tr>
<td>Read:</td>
<td>- <strong>Required Reading</strong>: See Study Guide</td>
</tr>
<tr>
<td></td>
<td>- <strong>Suggested Further Reading</strong>: See Study Guide</td>
</tr>
<tr>
<td>Submit:</td>
<td>- Essay</td>
</tr>
</tbody>
</table>

Notes/Goals:

<table>
<thead>
<tr>
<th>Unit II</th>
<th>Network Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review:</td>
<td>- Unit Study Guide</td>
</tr>
<tr>
<td></td>
<td>- <strong>Learning Activities (Non-Graded)</strong>: See Study Guide</td>
</tr>
<tr>
<td>Read:</td>
<td>- <strong>Chapter 2</strong>: Networking Standards and the OSI Model, pp. 37-74</td>
</tr>
<tr>
<td></td>
<td>- <strong>Chapter 11</strong>: Network Security, pp. 493-473</td>
</tr>
<tr>
<td></td>
<td>- <strong>Supplemental Reading</strong>: See Study Guide</td>
</tr>
<tr>
<td></td>
<td>- <strong>Suggested Further Reading</strong>: See Study Guide</td>
</tr>
<tr>
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<td>- Essay</td>
</tr>
<tr>
<td></td>
<td>- Project</td>
</tr>
</tbody>
</table>

Notes/Goals:

<table>
<thead>
<tr>
<th>Unit III</th>
<th>Virtual Networks and Remote Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review:</td>
<td>- Unit Study Guide</td>
</tr>
<tr>
<td>Read:</td>
<td>- <strong>Chapter 10</strong>: Virtual Networks and Remote Access, pp. 468-473</td>
</tr>
<tr>
<td></td>
<td>- <strong>Supplemental Reading</strong>: See Study Guide</td>
</tr>
<tr>
<td></td>
<td>- <strong>Suggested Further Reading</strong>: See Study Guide</td>
</tr>
<tr>
<td>Submit:</td>
<td>- Web Assignment</td>
</tr>
<tr>
<td></td>
<td>- PowerPoint Presentation</td>
</tr>
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</table>

Notes/Goals:
## Unit IV
**Virtualization, Virtual Network Components and Virtual Networks and VLANs**

**Review:**
- Unit Study Guide

**Read:**
- Chapter 10: Virtual Networks and Remote Access, pp. 468-473
- Supplemental Reading: See Study Guide
- Suggested Further Reading: See Study Guide

**Submit:**
- Assignment
- PowerPoint Presentation

## Unit V
**Network Management**

**Review:**
- Unit Study Guide

**Read:**
- Chapter 15: Network Management, pp. 701-706.
- Supplemental Reading: See Study Guide

**Submit:**
- Web Assignment
- Assignment

## Unit VI
**Ensuring Integrity and Availability**

**Review:**
- Unit Study Guide
- Learning Activities(Non-Graded): See Study Guide

**Read:**
- Chapter 14: Ensuring Integrity and Availability, pp. 643-692
- Supplemental Reading: See Study Guide

**Submit:**
- Project

## Unit VII
**Configuring Network Access Protection**

**Review:**
- Unit Study Guide
- Learning Activities(Non-Graded): See Study Guide

**Read:**
- Suggested Further Reading: See Study Guide

**Submit:**
- PowerPoint Presentation

**Notes/Goals:**
<table>
<thead>
<tr>
<th>Unit VIII</th>
<th>Network Operating System Security</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review:</strong></td>
<td>□ Unit Study Guide</td>
</tr>
</tbody>
</table>
| **Read:** | □ Chapter 11: Network Security, pp. 514-530  
□ Supplemental Reading: See Study Guide |
| **Submit:** | □ Web Assignment |

Notes/Goals: