Introduction to Computer Security Management
Computer Engineering 538
Lane Department of Computer Science and Electrical Engineering

Course Syllabus

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Course Abstract: This course is an introduction to the management of computer and information security. Imagine being hired as a new CIO or corporate security officer and finding that your first task is to develop an information security plan and program for your company. Worse still, you discover that not much in the way of a previous plan exists, so you are starting from scratch. What do you do? Needless to say, computing and information resources are mission critical assets for most companies and organizations. The security of such assets is vitally important and the failure of an organization to protect these resources can have dire consequences. This course will explore the various aspects of security in the context of computer and information systems that support companies, government agencies, and other organizations. In particular, it will focus on the analysis of security issues within organizations and the development and articulation of policies, plans, procedures and organizational structures to assure the integrity of computer and information resources. In other word, it is about the management of information security. This course is not, it should be noted, about specific information or computer system security controls, although these issues will be part of the discussion. Rather, this course is intended to take a higher level view and examine information security management from a corporate, organizational or governmental perspective.

Course Goals: The goals of this course are that, at the completion of the course and the activities that are part of the course, the successful student should:

- Have an understanding of the broad issues associated with computer and information security at the corporate, organizational or government departmental level.
- Have a general understanding of the ISO 27000 standards and other tools with respect to corporate and organization information security practices and how these standards and tools can guide the development of an information security management system.
• Have an understanding of how to develop an information security management system based on broad corporate or communal participation.
• Have an understanding of the role of the CEO, board of directors, corporate managers and organizational employees in developing, subscribing to and executing an information security management system.
• Be familiar with contemporary events and issues in the area of computer and information security management.

Course Topics: Generally, this course will cover and discuss the topics listed below. The actual topics covered may evolve somewhat over the semester based on the need to elaborate on specific issues and subtopics.
• Course orientation and the importance of computer and information systems security
• Basic concepts in security
• Legislative basis for security management
• International issues in security management
• ISO 27000 standards
• Policy principles and plan development, review of sample policies
• Information Classification
• Risk assessment and Risk management
• Human Resources and computer/information system security management
• Managing security with external parties
• Facilities and physical security
• Network security
• Information systems and workstation security
• Applications security
• Incident management
• Note: topics include discussions of current security topics

Course Format: This course will be conducted, to a large degree, as a seminar. Primarily that means that the class requires an engaged participation on the part of the student. In addition to assigned readings, lectures and guest speakers, learning will occur through active discovery, discussion and independent investigation.

Note: This is a dynamic document. This document and some of its linked documents will change periodically throughout the semester. Students should check the course website on a regular basis for updates and revisions to this and other course materials.

Course Requirements: Students must read and study identified reading materials and course resources on a weekly basis. Students will also meet with the class and the instructor at scheduled weekly meeting times, as well as participate in course discussions and activities. Additionally, students must complete and submit to the instructor or satisfy the following:

• Active participation in course activities
• Homework – generally consisting of brief review papers on selected topics or assigned readings
• Topical whitepaper and presentation
• Term project/Plan–The term project for this course will consist of the development and submission of a comprehensive computing and information security plan for a moderate to large organization
• Presentation on the proposed information security management system plan
• Mid-term exercise
• Final Exam/Project

Term Project: The successful completion of this project will require
  o The development of a plan to address the computing and information security issues of a moderate to large organization. This plan must be comprehensive in nature addressing all major aspects of information and computing security including such topics as security policies, security infrastructure, network and communications security, information asset management, disaster recovery, incident response, and physical security. The plan must also address organizational, personnel and training issues associated with implementing an effective computing and information security plan
  o The submission of the plan described in the previous item
  o An in-class presentation of the security plan to the “Board of Directors”

Note on Course Participation: The mode of instruction for this course is intended to be largely seminar in nature. That means that active participation by all students enrolled in the course is critical. In fact, a portion of the student’s grade will be based on the quantity and quality of their course participation. This participation can take several forms. These include: active participation in class discussions, leading group discussions on assigned and impromptu topics, contributing substantive comments and input to course blogs and on-line discussions; and contributing information and materials to the class that will help foster a better understanding of issues and topics under discussion by the class as a whole. Each scheduled week during the semester students will be assigned course participation score. The score will use a three point scale with 0=no participation, 1=minimal participation, 2=substantive participation. Collectively, the total of the participation “points” will be factored into the overall student grade for the semester.

Performance Evaluation: Student performance in this course will be evaluated based on the successful completion of all course projects and assignments, active engagement in course discussions and activities, and the results a final examination. In general, the planned course activities, assignments and examination and their respective weights in determining the final grade in the course are:

<table>
<thead>
<tr>
<th>Activity or Task</th>
<th>Max Point Value</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISMS Plan</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>ISMS “Board” Presentation</td>
<td>100</td>
<td>10%</td>
</tr>
<tr>
<td>Topical Whitepaper</td>
<td>100</td>
<td>10%</td>
</tr>
<tr>
<td>Activity</td>
<td>Points</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------------------</td>
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<td>------------</td>
</tr>
<tr>
<td>Whitepaper presentation</td>
<td>50</td>
<td>5%</td>
</tr>
<tr>
<td>Mid-Term Exercise</td>
<td>100</td>
<td>10%</td>
</tr>
<tr>
<td>Issue Briefs/Short Papers/Homework</td>
<td>10 pts ea. No. TBD</td>
<td>20%</td>
</tr>
<tr>
<td>Course Participation</td>
<td>0-2 /week Max 30</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
<td>15%</td>
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Homework will be due by the posted date and time as assigned. Issue briefs, short papers and other routine homework assignments will not be accepted after the assigned deadline, unless there is a prior arrangement with the instructor.

The overall course performance will be determined based on a weighted total of the evaluation scores for the activities or tasks described above.

**Attendance Policy:** Students are encouraged to attend and participate in class lectures and discussions, and should note that students will be responsible for course material and information that may be conveyed through lectures and class discussion whether or not that material or information is contained in handouts, instructor provided notes, or assigned or optional readings. Students should also note that a significant portion of the course content will be conveyed through class lectures, in-class activities and class discussions. Students should also note that a portion of the student’s grade will be based on course participation.

**Academic Integrity Policy:** Students are expected to adhere to all University standards for academic integrity and honesty. Please see the WVU statement on Academic Integrity. Unless instructed otherwise students may confer with each other to identify resources for problem solutions, test preparation and project development. However, all students are, unless instructed otherwise, required to carryout homework assignments, take examinations and complete class projects independently. Copying and submitting the work of others, in part or whole, or the use of unapproved reference materials during examinations will be considered a violation of this course’s academic integrity policy. Any single violation of the academic integrity policy by a student will result in an automatic score of zero for the activity in which the violation occurred. A second violation by the same student will result in a grade of F for the course for that student. Students are responsible to refrain from sharing homework, test responses and project components with others students. In cases where students submit the work of others, whether homework, test responses or projects, both the originator and the submitter will be charged with an academic integrity violation.

Students are also expected to adhere to conventional standards regarding the published and unpublished works of others. In particular, all works of others used by students in this course must be appropriately attributed and cited.

**Electronic Communications Policy:** WVU MIX email addresses will be the official email addresses used in this course. All email communications between the instructor and class participants (individually or the class as a whole) will be done using MIX addresses. Homework or project submissions made using something other than WVU MIX and not received by the instructor will be treated as “not-submitted”. Note: that some assignments should be submitted through Ecampus.
All student email must clearly identify the sender using either the sender's name or a University assigned username abbreviation. Nicknames or pseudonyms (such as those used by outside email services) may not be used. For example, SMARTGUY9356@XYZMAIL.COM is not appropriate sender identification.

eCampus and the respective eCampus site for this course will be the official website for this course. This eCampus site will serve as a core communications facility for this course. Students should log-on and check this website on a daily basis. Students are also advised to check their email every day. Notices, announcements and course related information will be disseminated through email or on the eCampus course site.

**Inclusivity and Accommodation:** The West Virginia University Community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Disability Services (293-6700). For more information on West Virginia University’s Diversity, Equity and Inclusion initiatives, please see http://diversity.wvu.edu

**Homework and Project Submissions:** All homework, report and project submissions must (unless previously approved or directed by the instructor) be done through this course’s eCampus website or by electronic mail as instructed by the instructor. All course material email submissions must include the course name (CpE538) and the specific submission title in the subject line of the email message. For example, homework exercise number one would be submitted with **CpE538 Homework 1** as the subject line. The submission, then, will typically be included as an attachment.

**Course Primary Resources:**

**Required Texts:**


Computer Security Resource Center, National Institute of Standards and Technology: Special Publications (800 Series).
http://csrc.nist.gov/publications/PubsSPs.html

SP800-100-Mar07-2007.pdf

…and ???

Additional Primary Resources:

  http://books.google.com/books?id=x-O4f11rq8QC&pg=PT63&lpg=PT63&dq=ISO+27002+academic&source=bl&ots=ZcMMqwO-_Y&s=8suUYGXdn3AMm1GBIM85UAtq6Es&hl=en&ei=FKAcTpnrAcTVgQf0lODRCQ&sa=X&oi=book_result&ct=result&resnum=10&ved=0CH0Q6AEwCQ#v=onepage&q&f=false

- Essays about Computer Security by Steward Lee --

- Instructor provided materials
- Resource Materials available on websites as referenced in class
- Lectures
- Guest Lectures as announced

Course Lectures and Notes:

Course lectures, notes and other materials may be found under the Course Materials section on Ecampus. Please be aware that these files may be Powerpoint, pdf, or HTML files. They may also be MS Word files. Download them for local viewing.