CIS522: Computer Security and Cryptography

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Course Description: The major objective of this course is to introduce the basic concepts of computer security. The course covers general security concepts, TCP/IP, communications security, infrastructure security, basics of cryptography, and operational/organizational security. The course provides students with knowledge to create a more secure computing environment. To enable students to pass the industrial Security+ certification is the sub-goal of this course.

Learning Goals:

This course is to achieve the following Global Learning Goals of KSI:

Students must acquire both a conceptual and operational understanding of the development of sophisticated programming applications including: knowledge of advanced application development in at least two upper level object oriented developer languages, and familiarity with advanced principles of networks and databases.

Students must acquire the ability to be creative, analytical, and critical thinkers in the arenas of information technology and computer science engineering.

Students must acquire knowledge of new and various methods and technologies as appropriate to the discipline.

Class Objectives:

The student will:
1. demonstrate knowledge of general security concepts.
2. demonstrate knowledge of TCP/IP, communications security.
3. demonstrate knowledge of basics of cryptography.
4. demonstrate knowledge of operational/organizational security.
5. be able to apply the security measures in the E-Business infrastructure.
6. be able to use cryptography algorithms to do problem solving related to enterprise computer security for their E-Business.

To achieve the above objectives, we will cover the following topics in details:

<topic>Identifying Threats</topic>  
<topic>Intrusion Points</topic>  
<topic>Defending Against Threats</topic>  
<topic>Organizational and Operational Security</topic>  
<topic>Basic TCP/IP Vulnerabilities</topic>  
<topic>Cryptography</topic>  
<topic>Communications Security and Network Infrastructure Security</topic>
Textbook:


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Grading Policy:

Homework Assignments: 15%  A: 80-100
Quizzes            15%  B: 70-79
Midterm Examination 35%  C: 60-69
Final Examination    35%  D: 50-59
                    F: 0-49

1. Students must submit assignments/projects before the due date to avoid grading deductions for lateness.

2. Students who miss the midterm exam will not be allowed to take the final exam, but can obtain permission to make up the midterm exam within seven (7) days after the scheduled midterm.

3. Students will receive an “I” (incomplete) grade if he/she:
   - Fails to submit assignments/projects
   - Misses the final exam

4. Students will receive an “F” (failing) grade if he/she:
   - Fails to submit less than half of the assignments/projects
Receives an “I” (incomplete) grade but still fails to submit the makeup coursework within thirty (30) calendar days beyond the end date of the course.

5. An “I” (incomplete) grade may be converted to a non-failing grade according to the quality of any makeup work submitted within thirty (30) days. On the thirty-first (31st) day after an “I” grade is given, the grade will automatically be converted to an “F” grade if no makeup work has been submitted.

6. Students are expected to attend every class on time without arriving late or leaving early.

   - An absence due to a personal emergency or illness may be considered “excused” so long as the student provides official documentation (e.g., a doctor’s note) giving reason for the absence. See section 7.4 for further detail.

   - If a student misses the first 3 consecutive classes of a course, unexcused, the student will receive an F grade for the course. This will immediately effect the student’s authorization to work the following semester, if applicable.

   - If a student misses 5 or more classes, unexcused, the student will receive an F grade for the course. This will immediately effect the student’s authorization to work the following semester, if applicable.

   - Students are required to attend classes on time. A “Late” will be recorded for students who arrive more than 10 minutes after the class is scheduled to begin. Two recorded “Late”s are equivalent to one class absence on a student’s attendance record.

   - Students are required to remain in class for the entire class duration. An “Early Leave” will be recorded for any student who leaves before a class is scheduled to end. Two “Early Leave”s are equivalent to one class absence on a student’s attendance records.

*Oral or written presentation policy:*

*Students may be required to present some of their coursework in oral or written form.*

*In some courses this will be a term paper of 2 to 5 pages in length. In others, programs or other assignments will be presented orally.*

**ATTENDANCE POLICY**

**ATTENDANCE POLICY FOR SUMMER SEMESTER**

* Students cannot miss three (3) or more classes throughout the entire semester. Excused absences still count as an absence. Once a student has reached 3 absences for a specific course, they automatically fail the course based on attendance.
  o Ex: Absent on Week 1, Week 3, and Week 7

* Students cannot miss two weeks (2) in a row at any given time during the semester. Excused absences still count as an absence. Once a student misses two weeks in a row, they automatically fail the course based on attendance.
  o Ex: Absent on Week 5 AND Week 6

* All semesters: Arriving late, leaving early, attending to phone calls will be marked negatively. Three marks of the prior mentioned will count as one (1) full absence.
* All semesters: Excused absences will be held against students final absences count during the duration of the semester. A medical note must be submitted to the Office in order for the excused absence to not be held against the student.

* All semesters: Students will be charged a $40 missed class penalty fee on the third absence. For every absence after the third absence (ex. 4th, 5th, etc.), an additional $40 per absence will also be charged.

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**UPDATED EXAM/PLAGIARISM POLICY**

There are no cell phones, flash drives, pen drives, or miscellaneous electronic devices permitted during tests/exams/quizzes for any course. Any students caught with a phone during the exam will be perceived as cheating and will automatically receive an 'F' for that exam. No excuses will be accepted for why you must keep your phone. If your class will be having an exam, you must turn off your phone and submit it to the professor until the exam is over. During an exam, students are not permitted to leave the classroom. If you need to use the restroom or make an important phone call, you must do so before the test. You cannot leave the classroom until all tests are turned in. If you leave your seat while testing is going on, you will be given an automatic 'F'. Furthermore, if students are caught cheating by their professor, both parties will be penalized by receiving automatic F's on the assignment/project/exam/test/quiz. Further information is available in KSI's Student Handbook.