SEC 511–Principles of Information Assurance and Security
Section: 01
Term: 161

INSTRUCTOR: Sultan Almuhammadi
OFFICE: 22-316
PHONE: 860-1625
E-MAIL: *muhamadi* (*@kfupm.edu.sa*)
COURSE SITE: *www.almuhammadi.com/sultan/sec555* (see also *Blackboard*)

COURSE DESCRIPTION

Introduction to information assurance and security. Information confidentiality, availability, protection, and integrity. Security systems lifecycle. Risks, attacks, and the need for security. Legal, ethical, and professional issues in information security. Risk management including identification and assessment. Security technologies and tools. Security laws, audit and control. Cryptography foundations, algorithms and applications. Physical security, security and personnel, security implementation and management. Securing critical infrastructure. Trust and security in collaborative environments. Industrial Control Systems (ICS)/SCADA Security.

PREREQUISITES

None

COURSE OBJECTIVES

To provide wide coverage of a variety of technical and administrative aspects of information security and assurance.

COURSE LEARNING OUTCOMES

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

1. Identify and describe key issues associated with information security and assurance
2. Explain potential threats, risks and attacks to information assets
3. Describe various administrative, legal, ethical and professional issues related to information security and assurance
4. Describe the lifecycle of information security systems
5. Discuss various security methods, procedures and tools for detection and reaction to threats
6. Effectively use common tools for information assurance and security
7. Demonstrate the ability to use security lingo and terminology.
8. Identify ethical, professional responsibilities, risks and liabilities in computer and network environment, and best practices to write a security policy.

EVALUATION

Coursework:	15 %
Term Paper	40 %
Midterm Exam	20 %
Final Exam	25 %

TEXTBOOKS

- Computer and Information Security Handbook, John R. Vacca, Morgan Kaufmann Series in Computer Security, Elsevier, June 2009.
- Principles of Information Security 4th Edition, Michael E. Whitman, Herbert J. Mattord, Cengage Learning, January 2011.

REFERENCES

- Cryptography & Network Security, Behrouz Forouzan, McGraw-Hill, 480 pages, ISBN-10: 0073327530, 2008.
- Security+ Guide to Network Security Fundamentals, Third edition, Mark Ciampa, Course Technology, ISBN-10: 1428340661, 2008, 562 pages.
- Computer Viruses and Malware, John Aycock, Advances in Information Security, Springer.
- Cryptography and Network Security: Principles and Practice (5th Edition) William Stallings, Prentice Hall, ISBN-10: 0136097049, 2010, 744 pages.

CONTENTS

The following schedule is tentative and subjected to changes. More details will be announced in the class and course website/Blackboard.

- Latex, GNUPlot, Writing academic papers.
- Introduction to Security and Information Assurance
- Cryptography
- Securing Organizations
- System Intrusions
- Firewalls
- Mathematical Model to Security Policies
- Malware
- Web Application Security
- Computer and Network Forensics
- Industrial Control System (SCADA) Security
- Legal, Ethical, and Professional Issues

NOTES

1. Coursework includes: participation, online and in-class discussions, attendance, assignments, presentations and quizzes. Active learning is implemented in this class. Students are expected to be positively engaged in the learning process.
2. Regular attendance will be maintained during this course. Exceeding six absences will result in a DN grade.
3. Unexcused absences may reduce your coursework score. If you find yourself unable to attend a class for some reason, you should email the instructor ahead of time (at least 12 hours before the class). If you fail to do so, send your email as soon as you get a chance (even after the class) and explain your excuses if any.
4. No makeup homework, quizzes or exams would be given.
5. Late assignments are subjected to late-penalty. See late submission policy on course website under the Assignments page.