

ELEC 6150/6156 - INFORMATION SECURITY

2002 Catalog Data: ELEC 6150/6156. INFORMATION SECURITY (3). Pr., Senior standing and departmental approval. Emerging protocols, standards and technologies of information security; Design of information network security, firewall, virtual private networks and secured applications.

Textbook: Designing Network Security by Merike Kaeo, Cisco Press

Reference: Papers in recent journals and proceedings

Coordinator: Chwan-Hwa Wu, Professor of Electrical Engineering

Goals: To understand the emerging standards and technologies for information network security

Prerequisites by topic:

1. Computer architecture
2. Programming in C

Topics:

1. Introduction to network security (3 classes)
2. Design a PKI (Public Key Infrastructure) to secure Internet, intranet and extranet applications (3 classes)
3. Generating, using and validating digital signatures (3 classes)
4. Building a Certification Authority and extending trust through PKI (3 classes)
5. Build a PKI environment that secures applications (2 classes)
6. Proxy-based and stateful-filtering firewalls (5 classes)
7. Implement publicly accessible servers without compromising security (3 classes)
8. Virtual private networks (VPNs) (3 classes)
9. Authenticate remote users with passwords, security servers and digital certificates (3 classes)
10. A firewall-to-firewall VPN (3 classes)
11. Develop an Internet/intranet security policy to protect your organization's systems and data (4 classes)
12. Protect network users from hostile applications and viruses (4 classes)
13. Reduce your susceptibility to an attack by deploying firewalls, data encryption and decryption and other countermeasures (5 classes)
14. Test (1 class)

Typical Methods for Evaluating Student Performance:

Homework: 10%
Term project: 30%
Midterm Exam: 30%
Final Exam: 30%

Typical Grading Scale:

A: 90-100%
B: 80-89%
C: 70-79%
D: 60-69%
F: 0-59%

Policy on Unannounced Quizzes: See Auburn University Tiger Cub

Policy on Attendance: See Auburn University Tiger Cub

Computer Usage:

Each student is to carry out the term project using a single workstation or a network system (the engineering network of SUN workstations).

Laboratory projects:

None

ABET category content as estimated by faculty member who prepared this course description:

Engineering science: 2 credits or 67%

Engineering design: 1 credit or 33%

Justification for Graduate Credit:

The material in this course is beyond the scope of what is typically presented in undergraduate electrical and computer engineering programs, and will be appropriate for both advanced undergraduates and graduate students.

Prepared by: Chwan-Hwa Wu Date: Feb. 10, 2001