

Course Number: CSC 650

Course Title: Secure Networked Systems

Number of Credits: 3

Schedule: 1 ½ hours of lecture discussion twice a week.

Prerequisite: [CSC 415](#) or consent of instructor.

Catalog Description

Analysis, planning, construction, and operation of secure networked computing systems: security for environments connected to the Internet, encryption, assets, risk, authentication, trust, controls, defense, routers, firewalls, law, ethics.

Expanded Description

This is a course on the construction and operation of secure networked computing environments. Methods for planning, specification, analysis, design, development, administration, testing and measurement will be covered. An emphasis will be placed on techniques for building and administering secure environments connected to the Internet.

Topic areas to be covered include secure encryption systems, protocols and practices, program security, protection services, secure operating systems, data base security, PC security, network security, communications security, physical protection, certification, risk analysis, legal issues, ethical issues.

Students taking the course can participate in projects to build and administer secure networked computing environments.

Course Objectives and Role in Program

The objectives of this course include:

- *An overview of security and how this applies to computer & network security.*
- *An introduction to techniques used to design, build, test administer and operate secure networked computing environments attached to the Internet.*

Learning Outcomes

At the end of this course students will

- know what security is and how it is achieved
- understand how access controls and defences mechanism are used to protect system assets from complex vulnerabilities
- know several design patterns for constructing firewalls.
- understand the importance of testing security systems

Method of Evaluation

Student learning will be evaluated on the basis of

- Grade on midterm examination
- Grade on final examination
- One or more written reports
- An optional oral presentation
- One or more laboratory assignments.

The weight assigned to each element of evaluation will be determined by the instructor of the course on the first day of the class.

Required Textbooks

"Security in Computing", 4th edition, Pfleeger & Pfleeger,
Prentice Hall, Pearson Education, 2006, ISBN: 0-13-239077-9.

"Computer Hack Reloaded", 2nd Edition, Ed Skoudis,
Prentice Hall, Pearson Education, 2006, ISBN:
0-13-148104-5.

Recommended Reference

"The CISSP Prep Guide: Mastering the Ten Domains of
Computer Security", Ronald L. Krutz, Russell Dean
Vines, Edward M. Stroz, John Wiley & Sons, 2001, ISBN
0471413569

"The CERT(R) Guide to System and Network Security
Practice", Julia H. Allen, Addison-Wesley Publishing
Co., 2001, ISBN: 020173723X

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