

CSCE 522 - Information Security Principles

Credit Hours: 3 hours

Contact Hours: 3 lecture hours

Instructor: Dr. Farkas

Required Textbooks: Charles P. Pfleeger and Shari Lawrence Pfleeger, Security in Computing (5th Edition) (Hardcover), Prentice Hall PTR; ISBN: 9780134085043

Bulletin Description: Threats to information resources and appropriate countermeasures. Cryptography, identification and authentication, access control models and mechanisms, multilevel database security, steganography, Internet security, and intrusion detection and prevention.

Prerequisites: CSCE 146; MATH 374 or MATH 174

Required Course in CIS program, and SE in CE,CS programs

Learning Outcomes: Students will be able to:

1. Identify common risks, threats, and countermeasures related to computing systems.
2. Apply knowledge of computer security to personal computer use.
3. Analyze computing situations with respect to security risks, threats, and countermeasures, including the tradeoffs between security and system functionality.
4. Work with others to design and/or implement security measures.

Student (Program) Outcomes addressed by course (Detailed mappings of these course outcomes to the Student Outcomes of the programs are in the detailed syllabus and the Assessment plan.)

Student Program Outcomes	SOs supported	SOs Moderately supported
Computer Engineering	c, e, f, h,	
Computer Information Systems	b, c, e, g, h, IS-j	
Computer Science	b, c, e, g, h	

Topics covered and approximate weight:

1. Basic security concepts
2. Cryptography, Secret Key
3. Cryptography, Public Key
4. Identification and Authentication, key-distribution centers, Kerberos
5. Security Policies -- Discretionary Access Control, Mandatory Access Control
6. Access control -- Role-Based, Provisional, and Logic-Based Access Control
7. The Inference Problem
8. Program Security -- Viruses, Worms, etc.
9. Network and Internet Security, E-mail security, User Safety
10. Firewalls
11. Intrusion Detection, Fault tolerance and recovery
12. Information Warfare
13. Security Administration, Economic impact of cyber attack