CS 573 Fundamentals of Cybersecurity Syllabus

The syllabus below describes a recent offering of the course, but it may not be completely up to date. For current details about this course, please contact the course coordinator. Course coordinators are listed on the course listing for undergraduate courses and graduate courses.

Text Books

Required
Dieter Gollmann , *Computer Security* , 2010

Recommended
Ross Anderson , *Security Engineering* , 2008

Week-by-Week Schedule

Week	Topics Covered	Reading	Assignments
1	Security principles, threats and attack techniques; Introduction to security; Information Security; Security triad: Confidential, Integrity, Availability; Focus of control; Security threats and attacks; Security management	Chapters 1 and 2	
2	Authentication and access control; Identification; Authentication; Authentication by passwords; Protecting passwords; Access control structures	Chapters 3 and 4	
3	Lattice and reference monitors; Security Levels and Categories; Lattice Diagram; Reference Monitors; Security Kernel; Hardware Security Features; Protecting Memory	Chapters 4 and 5	
4	Security models; Bell-LaPadula; Biba; Non-deducibility; Non-interference; Other models	Chapters 8 and 9	
5	UNIX security, Windows security; Subjects, objects and access control; General security principles; Access components; Access decisions; Administration and management issue	Chapters 6 and 7	
6	Cryptography; Cryptographic mechanisms; Digital signatures; Encryption Certificates	Chapter 11	
7	Project discussions; Midterm exam		
8	Authentication in distributed systems; Key establishments and authentication; Kerberos; Public key infrastructures; Single sign-on	Chapter 12	
9	Software security and database security; Memory management; Data and code; Relational databases; Access control in databases; Statistical database security	Chapters 14 and 17	
10	Network security; Protocol design principles; ISO architecture; IP security; SSL/TLS; Firewalls; Intrusion detection	Chapter 13	
11	Java Security; Mobile Security; GSM security; Wireless LAN security	Chapters 15 and 16	

Week	Topics Covered	Reading	Assignments
12	Protection measures; Business risk analysis; Prevention, detection and response; Information classifications; Security evaluation	Chapter 10	
13	Security evaluation; Orange/Red book, TNI; ITSEC; Common criteria	Notes	
14	Project presentations and reviews		