

Course name	ECE 56401 Computer Security
Credit and contact hours	(3 cr.) Class 3
Course coordinator's name	Brian King
Textbook	Vacca, <i>Computer+ Information Security Handbook, Elsevier</i> , 3rd Ed. ISBN-9780128038437
Course information	<p>ECE 56401 Computer Security (3 cr.) P: Graduate Standing, or Senior standing in the degree program and ECE 30200 and ECE 36200. Class 3. In this course we will discuss the following topics: (not necessarily in this order) security policies, confidential policies, integrity policies, security models, security design, access control, cryptography, key management, authentication, program and software, security, malicious logic, intrusion detection, network security, security attacks and countermeasures, operation system security, smartcard tamper-resistant devices, phishing, legal and ethical issues in computer security, and selected topics.</p> <p>Prerequisites/ Co-Requisite: P: Senior standing in the degree program and ECE 30200 and ECE 36200, or Graduate Standing</p> <p>Required, Elective, or Selected Elective: EE Elective, CE Elective</p>
Goals for the course	<p>Upon successful completion of the course, students should be able to</p> <ol style="list-style-type: none"> 1. Analyze the security vulnerabilities of a computer / information systems. [1, 2] 2. Design a secure system. [2] 3. Analyze a software program/development environment for security weaknesses. [1 ,2, 6] 4. Analyze a given system/network/application and determine the appropriate security mechanisms for it. [1,2,6]
List of topics to be covered	<ol style="list-style-type: none"> 1. Introduction, Overview of Security 2. Cryptographic Tools 3. User Authentication, Access Control, Database security 4. Database security (cont'd),Intrusion Detection, malicious Software 5. Message Confidentiality, public key cryptography, message authentication 6. Network and Network security 7. Network security, SSL, 8. Internet Protocols , Midterm 9. Trusted Computing, Confidentiality and Integrity Models 10. Buffer Overflow, Software security 11. Legal & ethical aspects 12. Internet authentication principles. OS System security 13. Digital Rights, Tamper resistant devices 14. advanced topics, 15. Student's presentations

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Syllabi approved by	Brian King
Date of approval	04/21/2022