CSCE 5550  Introduction to Computer Security

Instructor: Kirill Morozov (Department of Computer Science and Engineering)

Course description: The aim of this course is to introduce the concepts and principles of computer security and privacy. It covers both theoretical and practical aspects of computer security, including security models and assurance, OS and network security, common security threats and countermeasures against them, cryptography, risk management and data privacy.

Course syllabus

Week 1  08/24  Course introduction and overview of computer security
                     08/26  Fundamentals of secure systems design
Week 2  08/31  Access control
                     09/02  OS Security I
Week 3  09/07  OS Security II
                     09/09  Security policies, multilevel confidentiality and integrity models
Week 4  09/14  Cryptography I
                     09/16  Cryptography II
Week 5  09/21  Key management and network security
                     09/23  User authentication
Week 6  09/28  Control hijacking attacks and countermeasures
                     09/30  Internet protocols and their security I
Week 7  10/05  Internet protocols and their security II
                     10/07  Denial of service attacks and countermeasures
Week 8  10/12  Summary of the material covered so far
                     10/14  Midterm Exam
Week 9  10/19  Firewalls and VPNs
                     10/21  Auditing and Intrusion Detection
Week 10 10/26  Wireless network security
                     10/28  Isolation and confinement
Week 11 11/02  Web security I
                     11/04  Web security II
Week 12 11/09  Malware
                     11/11  Database security
Week 13 11/16  Secure software analysis and secure coding
                     11/18  IT security management and risk assessment
Week 14 11/23  Data privacy and anonymization
                     11/25  No class – Thanksgiving break
Week 15 11/30  Legal and ethical aspects of computer security
                     12/02  Summary of the course material
Week 16 12/07, 1:30-3:30pm: Final Exam
Recommended textbooks: