CSCE 5550  Introduction to Network 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 analysis and data privacy.

Course syllabus

Week 1  08/28  Course introduction
        08/30  Overview of computer security and its design principles

Week 2  09/04  Mathematical foundations
        09/06  Access control models

Week 3  09/11  OS Security I
        09/13  OS Security II

Week 4  09/18  Security Policies, confidentiality, and integrity models I
        09/20  Security Policies, confidentiality, and integrity models II

Week 5  09/25  Hybrid models, RBAC
        09/27  Identity and authentication

Week 6  10/02  Cryptography I
        10/04  Cryptography II

Week 7  10/09  Key management and network security
        10/11  Key management and network security

Week 8  10/16  Midterm exam
        10/18  In-class lab

Week 9  10/23  Auditing, IDS, firewall, VPN I
        10/25  Auditing, IDS, firewall, VPN II

Week 10 10/30  Secure coding I
        11/01  Secure coding II

Week 11 11/06  Web security I
        11/08  Web security II

Week 12 11/13  Database security I
        11/15  Database security II

Week 13 11/20  Vulnerability analysis I
        11/22  No class – Thanksgiving break

Week 14 11/27  Risk analysis
        11/29  Evaluation standards

Week 15 12/04  Data privacy and anonymization
        12/06  Legal aspects and regulations

Week 16 12/11  Final exam