Course number and name: CS 06417: Principles of Network Security

Credits and contact hours: 3 credits / 3 contact hours

Instructor’s or course coordinator’s name: Vahid Heydari


Specific course information

Catalog description: This course examines the fundamentals of network security and cryptography. This course will examine constantly evolving design and architecture of network security, exposing students to existing and developing technologies and standards.

Prerequisites: CA 06410 Data Communications And Networking

Type of Course: ☒ Selected Elective

Specific goals for the course:

Upon successful completion of this course, students should be able to:
1. Symmetric and asymmetric cryptosystems
2. Tools, protocols and mechanisms for providing data integrity, authentication, privacy, and key management
3. Principles of network security
4. Security threads to the network systems
5. Common network security protocols
6. Understanding some principle hacking methodologies

Required list of topics to be covered:
1. Cryptographic systems
2. Public key infrastructure
3. Principles of data integrity
4. Authentication
5. Key management
6. Internet architecture
7. TCP/ICP protocol suite
8. Application layer security
9. Secure sockets layer and transport layer security protocols
10. IPSec and distributed denial of service attacks
11. Designing secure network protocols
12. Wireless security
13. Firewalls and intrusion detection systems