بسم الله الرحمن الرحيم

Kingdom of Saudi Arabia
Ministry of Education
Umm Al-Qura University
University College in Adham

المملكة العربية السعودية
وزارة التعليم
جـامعـة أم القرى
الكلية الجامعية بأضم

Computer Security Systems

6803532-3 - Computer Security Systems (3 credits)

Catalog Description

This course is the first level of computer and network security. The course will cover various topics related to computer security, data privacy, network protection against various attacks. The course gives students enough knowledge and a reasonable background to understand network security, active and passive attacks, Internet privacy, secure communications. Students are expected to practice biweekly homeworks, develop critical thinking about computer and network security, and apply learned materials in different contexts of various attacks, wireless and Internet security.

Prerequisites

6803411-3 – Operating Systems

Major Topics Covered in the Course (14 week semester)

Topic	Week
Overview of computer security services	1
Passive and active attacks	2
Cryptographic public and symmetric keys: DES	3-4
Advanced Encryption Standard AES	5
Public key cryptography, and RSA algorithm	6-7
El-Gamal cryptosystem	8
Digital signatures and message authentication protocols	9-10
Transport layer security, SSL protocol, MAC scheme	11-12
Wireless security protocols, WPA, WEP	13
Viruses, and Internet attacks	14

Weekly Hours

3 x 50 mins lectures, 0 lab hours

Textbook/References

Network Security Essentials, Fourth Edition, William Stallings, 2011 Additional materials will be distributed during the course.

Assessment Methods

Home works **20 %** Quiz **20%** Midterm **20 %** Final Exam **40 %**

Course Learning Outcomes (CLOs)

1. Appreciate the need for computer security and computer protection, including the tradeoffs between different security and protection methods
2. Able to apply concepts of public keys, private keys, cryptosystem, authentication, digital signatures to secure simple systems.
3. Implement some network security protocols such as SSL, MAC, and wireless security, WEP, WAP, and computer viruses, and Internet attacks, and utilize them in real applications to secure Internet traffic.à