Information Systems Security

Dr. Eng. Bader Ahmad

Objective

- The main objective of this module is to introduce threats and attacks, main types of cryptographic mechanisms and security services they provide, security solutions, security policy, and security management.

Learning Outcomes

- Be familiar with the main concepts of Information System Security (ISS).

- Have a basic understanding of security vulnerabilities.

- Have a basic understanding of means and methods that provide security.

Prerequisites

- Assumes the following background
  - Good programming experience

  - Working knowledge of
    - Operating systems, algorithms and data structures, database systems

  - Mathematics
    - Undergraduate mathematics
    - + number theory, complexity theory

Course organization

- Lectures
  - 12*3-hour lectures

- lab projects

- Lecturer
  - Dr.Eng: Bader Ahmad

- Lab responsible
  - ??

Provisional Schedule

Week No	Lectures
1	Introduction to Information Security
2	Malicious software
3	Symmetric Cryptography
4	Asymmetric Cryptography
5	Authentication and Digital Signature
6	User Authentication
7	Database security
8	Web Security
9	Information Security Management
10	Security Policy
11	Risk Management
12	Legal and Ethics issues and computer intrinsic

You have the right!

- To apply and practice what you learn only on private or home networks/machines.

- Laboratory Machines and network are private

References

- Books
  - **Introduction to Computer Security**, Addison- Wesley, 2005 (Slides are available online).
  - **Handbook of applied Cryptography** by A. Menezes, P. Van Oorschot and S. Vanstone. 5th printing, 2015
    - http://www.cacr.math.uwaterloo.ca/hac
  - **Cryptography: A Very Short Introduction (Very Short Introduction S.),** Fred Piper, Sean Murphy, Oxford University Press, 2014.
- Internet (Online courses)
  - http://www.isg.rhul.ac.uk/msc/info.shtml (Royal Holloway College)
  - http://www.sis.pitt.edu/~jjochi/IS2935 (Pittsburgh University)
  - http://www.informatics.ed.ac.uk/teaching/courses/cs (University of Edinburgh)