

**King Fahd University of Petroleum and Minerals**  
**College of Computer Sciences and Engineering**  
Department of Computer Engineering

COE 451 Computer and Network Security (3-0-3)

**Instructor:** Dr. Marwan Abu-Amara ([marwan@kfupm.edu.sa](mailto:marwan@kfupm.edu.sa))      **Phone:** 1632      **Office:** 22-145  
**Term:** 142 (2<sup>nd</sup> term 2014–2015)  
**Day & Time:** UTR 09:00 AM – 09:50 AM  
**Location:** 24-115  
**Prerequisite:** COE 344 (Computer Networks)  
**Textbook:** *Information Security: Principles and Practice*, Mark Stamp, Wiley, 2<sup>nd</sup> Edition, 2011.  
**Office Hours:** MW 11:00 AM – 11:55 AM or by appointment  
**Web Site:** <http://faculty.kfupm.edu.sa/COE/marwan>

**Description**

Introduction to computer security (concepts, threats, attacks, assets, scope, trends). Cryptographic protocols and standards. Integrity verification mechanisms. Wireless network security and associated protocols. Software tools to apply security in user environments. Access Control models and mechanisms. Database security, Intrusion detection systems, Firewalls. Malicious software, DoS attacks, Trusted computing and multilevel security.

**Tentative Grading Policy:**

- Homeworks .....**30%** (8 homework assignments, and 1 programming assignment)
- Midterm Exam .....**30%** (Week 07 – Saturday March 14, 2015 between 9 AM and 11 AM)
- Final Exam .....**40%** (*Comprehensive* – Sunday May 17, 2015, 8:00 AM)

**IMPORTANT NOTES:**

- All KFUPM regulations and standards will be enforced. Attendance will be checked each class. The KFUPM rule pertaining to a DN grade will be strictly enforced (i.e. > **9 absences** will result in a DN grade).
- If you are late to the class for more than 5 minutes (i.e. arrive after 09:05 AM), you will **NOT be allowed to enter** the classroom and you will be considered absent for that class.
- Only university approved/official/certified excuses will be accepted.
- Use of cell phones, smart phones, and tablets during class period and during exams is absolutely **prohibited**.
- Homeworks are to be submitted **in class** on the due date. Late homeworks will **NOT be accepted**.
- The best 6 out of 8 homework assignments will be counted towards your grade. The **programming assignment is mandatory** (i.e., it is **NOT** part of the best 6 out of 8 homework assignments).
- You have up to the next class period to object to the grade of a homework or an exam from the end of the class time in which the graded papers were distributed back. If for some reason you cannot contact me within this period, send me an email requesting an appointment. The email should be sent before the next class period.
- **NO make-up exams.**
- Final exam is **comprehensive**.

**Tentative schedule (3 hours equal 1 week of class time)**

- *Introduction*
  - Chapter 1 (2 hours)
- *Crypto*
  - Chapter 2: Crypto Basics (4 hours)
  - Chapter 3: Symmetric Key Crypto (5 hours)
  - Chapter 4: Public Key Crypto (5 hours)
  - Chapter 5: Hash Functions and Other Topics (6 hours)
- *Access Control*
  - Chapter 7: Authentication (5 hours)
  - Chapter 8: Authorization (4 hours)
- *Protocols*
  - Chapter 9: Simple Authentication Protocols (6 hours)
  - Chapter 10: Real-World Security Protocols (6 hours)
- *Software*
  - Chapter 11: Software Flaws and Malware (2 hours)