Arab Academy for Science and Technology and Maritime Transport
Information Systems Curriculum
Course Syllabus

Course Code: IS421	**Course Title:** Information Systems Security	**Classification:** R	**Coordinator:** Prof. Dr. Ayman Adel **Lecturer:** Dr. Hesham El-zouka	**Credit Hours:** 3
Pre-requisites: • CS322 (Operating Systems) • CE231 (Introduction to Networks)	**Co-requisites:** None	**Schedule:** Lecture: 2 hours Tutorial: 2 hours		

Office Hours: (Office 340)
Sunday 10:30 – 12:30

Course Description:
The course is an introduction to computer and network security. The course encompasses the study of security mechanisms for secrecy, integrity, and availability. Topics include basic cryptography and its applications, security in computer networks and distributed systems and control and prevention of viruses and other rogue programs. In addition, hands-on experience will be provided through a series of programming assignments.

Textbook:

W. Stallings, *Cryptography and Network Security, Principles and Practices*, Prentice Hall.

References:

- William Stallings, Network Security Essentials: Applications and Standards, Prentice Hall.
- Charles P. Pfleeger and Shari Lawrence Pfleeger, Security in Computing, Prentice Hall.

Contribution to Program Student Outcomes:

(SO-2) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.

(SO-6) Support the delivery, use, and management of information systems within an information systems environment.

Course Objective/Course Learning Outcome:	**Contribution to Program Student Outcomes:**
1. Identify threats and security attacks to computer systems.	(SO-6)
2. Master symmetric and asymmetric cryptography techniques.	(SO-2) (SO-6)
3. Experiment with symmetric and asymmetric key distribution protocols.	(SO-2)(SO-6)
4. Experiment with message authentication mechanisms	(SO-6)
5. Experiment with system security	(SO-6)

Course Outline:

Week 1. Course Introduction
Week 2. Classical Encryption Techniques
Week 3. Data Encryption Standard (DES)
Week 4. Block cipher design principles/modes of operation and Triple DES (3DES)
Week 5. Introduction to Number Theory
Week 6. Public Key cryptography
Week 7. 7th Week Exam
Week 8. Key Distribution for Symmetric Encryption
Week 9. Key Distribution for Asymmetric Encryption
Week 10. Key Distribution for Asymmetric Encryption (cont.)
Week 11. Message Authentication
Week 12. 12th Week Exam
Week 13. Digital Signatures
Week 14. Firewalls
Week 15. Intrusion Detection
Week 16. Final Exam

Grade Distribution:

7th Week Assessment (30%):
25 Exam + 5 assignments

12th Week Assessment (20%):
15 Exam + 5 presentation

Term Work (10%):
Assignments/quizzes/homeworks

Final Exam (40%)

Policies:

Attendance:
AASTMT Education and Study Regulations (available at aast.edu)

Academic Honesty:
AASTMT Education and Study Regulations (available at aast.edu)

Late Submission:
Late submissions are graded out of 75% (1 week late), 50% (2 weeks late), 25% (3 weeks late), 0% (more than 3 weeks late)