



## Computer Science Department

# Course Syllabus

## CS432 - Network Security

**Catalog Description:** This course aims to provide students with an academic overview of Information Security covering its main domains (e.g. Cryptography, Network Security, Authentication , etc.). Each domain will be comprehensively studied in an undergrad suitable depth. By completion of this course, students should appreciate the significance of Information Security in the IT realm, and be able to demonstrate in depth knowledge of Information Security management key principles and techniques.

**Credit Hours:** **3 Credit hours:** 3 Lectures per week 0 Labs. per week 0 Recitation per week

**Prerequisites:** CS330 - Computer Networks

**Course Learning Outcomes:**

1. Explain the concept of Information Security and its significance and identify the major types of threats to information security and the associated attacks.
2. Understand the role of cryptography in information security. Explain the concept of Cryptography and its mechanisms (encryption, DS, MAC, etc.).
3. Practice, and analyse a number of cryptographic schemes (historical, symmetric, and asymmetric).
4. Identify the major techniques, approaches and tools used to discover network and system vulnerabilities.
5. Understand Network Security Devices (IDS, Firewall, and IPS) design and implement firewall solutions.
6. Understand user authentication and internet security protocols, processes and standards.
7. Understand the different types of computer crime and intellectual property.
8. Identify key issues in the area of privacy and comprehend various approaches to codifying computer ethics.

**Major Topics:**

- Overview
- Symmetric Encryption and Message Confidentiality
- Public-Key Cryptography and Message Authentication
- User Authentication
- Intrusion Detection
- Firewalls and Intrusion Prevention Systems
- Internet Security Protocols and Standards
- Internet Authentication Applications
- Legal and Ethical Aspects
- IT Security Management and Risk Assessment

**Text Books:** - William Stallings and Lawrie Brown, Computer Security: Principles and Practice, Second Edition, Pearson, 2011.



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- William Stallings, Cryptography and Network Security Principles and Practices, Sixth Edition, Pearson, 2013

**Grading:**

⊙ The grading scale for this course is:

- . 95 - 100 A+ Passing
- . 90 - 94 A Passing
- . 85 - 89 B+ Passing
- . 80 - 84 B Passing
- . 75 - 79 C+ Passing
- . 70 - 74 C Passing
- . 65 - 69 D+ Passing
- . 60 - 64 D Passing
- . 0 - 59 F Failing

⊙ Final grades will be determined based on the following components:

- . 60% Semester Work
- . 40% Final Exam

⊙ Students may not do any additional work for extra credit nor resubmit any graded activity to raise a final grade.

⊙ Late submissions will not be accepted for any graded activity for any reason.

⊙ Students have one week to request the re-grading of any semester work.

**Attendance Policy:**

Students should attend 80% of the overall course hours taught in the semester as per the University regulations.

If a student fails to achieve this portion, he/she shall not be allowed to appear in the final exam and shall be awarded "DN" grade and repeat the course.

**Cheating and Plagiarism Policy:**

The instructor will use several manual and automated means to detect cheating and/or plagiarism in any work submitted by students for this course.

When a student is suspected of cheating or plagiarism, the instructor raises the issue to the disciplinary committee.



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**Communications:** Registered students will be given access to a section of the Blackboard Learning System for this course. Bb will be used as the primary mechanism to disseminate course information, including announcements, lecture slides, assignments, and grades.

Communication with the instructor on issues relating to the individual student should be conducted using CIS email, via telephone, or in person.