

Tentative Syllabus for a Hybrid Course
CENG489 Introduction to Computer Security
2021-2022 Fall

Instructor: Ertan Onur, eronur@metu.edu.tr, 5534, B211

Office Hours: Mondays 14:30-15:30 e-mail me for appointment

Logistics Tuesdays, 15:40-17:30 in class (BMB1)

Thursdays, 9:40-10:30 on Zoom

Zoom Link: <https://zoom.us/j/91813945734?pwd=M2xvQkkvd3BKTnE4RDUzakN4R3dTQT09>

Catalog Description: Computer security concepts. Evolution of cryptography. Symmetric encryption algorithms. Public key cryptography. Authentication and access control. Database security. Malicious software. Intrusion detection. Software security. Secure programming. Operating systems security. Network security. Legal and organizational aspects of computer security. Advanced topics in computer security.

Course Objectives: By the end of the course, you will be able to

- **Describe** security terms and concepts,
- **Discuss** cryptographic primitives and **apply** them,
- **Evaluate** security requirements of computer and communication systems,
- **Implement** well-known attacks and measures against networks, software and operating systems.

Communication: Moodle at <https://odtuclass.metu.edu.tr>

Textbook: Stallings, W. and Brown, L., Computer security: principles and practice. Pearson, 2018.

Supplemental Books: Anderson, Ross. Security engineering. John Wiley & Sons, 2020.

Prerequisites: CENG334, Programming experience in python.

Grading:

Online quizzes (x3)	15%
Term project, video presentation and peer assessment .	30%
Midterm.....	20%
Final	35%

NA Grade: Those who do not deliver an acceptable term project or do not deliver a video presentation or do not attend at least two quizzes will get an NA grade.

Course Outline:

- Week 1, Courseware and Introduction, Chapter 1, Overview
- Week 2, Cryptographic Tools, Chapter 2, Cryptographic Tools
- Week 3, Symmetric Schemes and Confidentiality, Chapter 20, Symmetric Encryption and Message Confidentiality
- Week 4, Asymmetric Schemes and Message Authentication, Chapter 21, Public-Key Cryptography and Message Authentication
- Week 5, User Authentication, Chapter 3, User Authentication
- Week 6, Access Control, Chapter 4, Access Control
- Week 7, MIDTERM EXAM (in class in person)
- Week 8, Data Security, Chapter 5, Database and Data Center Security
- Week 9, Malware, Chapter 6, Malicious Software
- Week 10, Intrusion Detection and Prevention, Chapter 8, Intrusion Detection, Chapter 9, Firewalls and Intrusion Prevention Systems
- Week 11, Software Security, Chapter 11, Software Security
- Week 12, Operating System Security, Chapter 12, Operating System Security
- Week 13, Internet Security, Chapter 22, Internet Security Protocols and Standards
- Week 14, Internet Authentication, Chapter 23, Internet Authentication Applications
- Week 15, FINAL EXAM (in class in person)

Teaching Policy: For this hybrid course, the departmental policies will be applied. Lectures on Thursdays will be online. Depending on the progress of the pandemic, course conduct may change. The in-class sessions will not be recorded.

Late Submission: Work submitted late and without prior communication with the teaching assistant or lecturer will not be accepted. Please communicate with the teaching assistants or the lecturer as soon as you know you cannot meet a deadline if you would like to request an extension on a specific assignment. Extensions will be permitted on a case-by-case basis considering the pandemic.

Attendance Policy: Attendance to lectures and accomplishing activities are compulsory.

Accommodation Policy: If you have special needs, please inform the instructor ASAP.

Mutual Expectations: Please remember, if you have any questions, concerns, or comments, to let me know right away. I welcome any feedback you are willing to offer. Mutual expectations are the following: **1)** Please be active and participate in class, ask questions, raise concern and make remarks, **2)** Listen and respect others, **3)** Be comfortable taking risks, **4)** Complete all assignments, **5)** Turn off your cell phones and communication devices during the lectures, **6)** Be punctual for all classes, **7)** Discuss class concerns either after class or during designated office hours, **8)** Be prepared for class by reading chapter prior to lesson.

About Online Videos: It is **strictly** forbidden to distribute the videos and other resources uploaded on ODTUCLASS. Our class sessions may be audio-visually recorded for students who are unable to attend at the scheduled time. Students who participate with their camera engaged or who utilize a profile image are agreeing to have their audio/video or image recorded. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. Recordings of the classes will be made online in a couple of hours after the class on Odtuclass. The recordings will be available on Odtuclass throughout the semester. The recordings will be deleted permanently, after the final grades are announced officially. The exams in this course will be recorded as well. By taking this course, you agree that the class sessions and exams that may contain your avatar, picture, video and/or voice will be recorded and shared on Odtuclass for those students and instructors taking part in this specific course.

Academic Honesty: There will be no tolerance to cheating in the exam and to plagiarism (copying someone else's work as if it is yours). The student who cheats will fail the course and be punished according to METU regulations.

METU Code of Honour: As reliable, responsible and honorable individuals, all members of Middle East Technical University embrace only the success and recognition they deserve, and act with integrity in the use, evaluation and presentation of facts, data and documents.

Reminders: **1)** Carefully read the documents concerning academic integrity which have been issued to you and the related regulations on the University's website. **2)** Learn in detail which situations fall into the scope of plagiarism in academic studies from relevant resources (e.g. ODTU UEAM website). In cases of plagiarism, excuses such as "I wasn't aware that what I've done is within the scope of plagiarism" are unacceptable. Be informed that the responsibility for such behavior is entirely yours. **3)** Use your own ideas in all of your work such a piece of homework, project etc. Indicate the source of any thought, idea, text, document or finding which does not belong to you. **4)** Prepare all your homework, projects, reports etc. by referring to the accessible original (primary) sources. **5)** During examinations, abide by the rules in the Middle East Technical University Guide for Rules To Be Followed in an Examination Environment as well as the rules determined by the instructor of the course.