



CENG513 Wireless Communication and Networks

Middle East Technical University
Department of Computer Engineering
2020-2021 Spring

Instructor:	Dr. Ertan Onur	Location:	Odtuclass
Email:	eronur@metu.edu.tr	Class Day	Thursdays
Office Hours:	Wed 16:00-16:30 or email me	Class Time	09:40-12:30
Office Hours:	96404356818/eonur (zoom)	Credits:	3
Phone:	+90 (312) 210 5534	Term:	2020-2021 Spring

Catalog Description: Introduction to transmission and networks. Antennas, multipath propagation, frequency hopping. Satellite communication. Overview of current systems for cellular for networks, wireless LANs, mobile IP, Ad Hoc networks, the Bluetooth technology and the IEEE802.11 standard.

Course Objectives: By the end of the course, you will be able to **1) describe** the fundamental concepts of wireless transmission, **2) compare and contrast** centralized and distributed approaches in wireless networks, **3) evaluate and devise** various medium access control and routing protocols and **justify** applicability of those protocols in various network design challenges, **4) infer and solve** specific challenges of wireless systems related to network and transport layers.

Communication: Odtuclass (moodle) at <https://odtuclass.metu.edu.tr> is the primary means for communication. E-mail is the secondary method for official communication.

Zoom Info: <https://zoom.us/j/94217046201?pwd=TXRUODNCdTVGODBobnR4Q0UwRTc4Zz09>

Textbook (TB): C. Beard and W. Stallings, Wireless Comm. Networks and Systems, Pearson 2016.

Topics:

- **18MAR-Week 01:** Courseware, syllabus and background
- **25MAR-Week 02:** Transmission Fundamentals
- **01APR-Week 03:** Networks and TCP/IP
- **08-15APR-Week 04-05:** Wireless Communication
- **22APR-Week 06:** Wireless Local Area Networks
- **29APR-Week 07:** *deep breath* [Midterm 1]
- **06MAY-Week 08:** Bluetooth and Zigbee
- **13MAY:** Spring Break
- **20MAY-Week 09:** Cellular Networks: 1G, 2G, 3G
- **27MAY-Week 10:** Cellular Networks: 4G (LTE)
- **03JUN-Week 11:** Mobile IP
- **10JUN-Week 12:** Long-range Communication [Midterm 2]
- **17JUN-Week 13:** (Student Presentations)
- **24JUN-Week 14:** (Student Presentations)

This **online synchronous** course requires you to meet virtually via Zoom tool on Thursdays at 09:40-12:30. This course is designed to be highly interactive and collaborative, thus you are expected to participate on a regular basis and attend all the scheduled online sessions. Participation means being an active contributor and responder in class activities.

Grading:

Term project	40%
Term project presentations	10%
Midterm 1	25%
Midterm 2	25%

Prerequisite: Python programming is a must for carrying out the term project. If you do not master Python, please drop the course.



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NA Grade: Regardless of your overall grade at the end of the class, you will get an NA grade if you have not submitted a satisfactory term project or give a presentation or at least one midterm.

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. An online course unlike a face-to-face course attendance is not taken as roll call or a checklist. Instead, attendance is demonstrated by your participation and engagement in activities and completion of the given assignments. It is essential that you are present and engage in the course and discussion forums.

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 will 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.