CENG530
Computer Networks and Communications

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

Instructor:	Dr. Ertan Onur	**Location:**	Odtuclass: BigBlueButton
Email:	eronur@metu.edu.tr	**Class Day**	Thursdays
Office Hours:	Please email me	**Class Time**	18:00-21:00
Office Location:	CENG-B211	**Credit Hours:**	3
Office Phone:	+90 (312) 210 5534	**Term:**	2020-2021 Fall

Catalog Description: Basics of data communication, and computer networks, ISO/OSI basic reference model. physical, data-link, network, and transport layers. Routing, flow control, congestion control. Internetworking. TCP/IP suite of protocols. Higher layer protocols. Contemporary network architectures.

Course Objectives: By the end of the course, you will be able to **1)** Understand the basic principles of communication protocols in the context of the Internet, **2)** Explain the operation and architecture of the Internet including the software and hardware components to provide Internet services, **3)** Compare and contrast connection-oriented communication protocols and connectionless communication protocols at transport layer; virtual-circuit and packet switching at network layer; link-state and distance-vector routing at network layer; and multiple access at link layer, **4)** Design and implement networking protocols at any layer of the OSI communication stack above the physical layer.

Communication: Odtuclass (moodle) at https://odtuclass.metu.edu.tr is the primary means for communication. E-mail is the secondary method for official communication with students unless otherwise prohibited by law. The university has the right to send official communication to students by e-mail with the assumption that students will receive, read and, if necessary, act in a timely manner based upon these e-mails. If I need to contact you outside of class, I will use your email address registered on Odtuclass, and expect that you will read and respond to this communication in a timely manner (within 24 hours). Additionally, please recognize standard email etiquette. E-mails should contain a subject, greeting and closing. I will attempt to respond to you within 24 hours. If you have not received a reply from me within 48 hours, please resend the email. Since this is a fully online course, your communications with me and other students are critical to your learning experience. Please be respectful to others as you communicate.

Assistants:
Alperen Eroglu, alperen@ceng.metu.edu.tr, 5533, Z019
Furkan Murat, fmurat@ceng.metu.edu.tr, IBM Lab

Textbook (TB):
1. Tanenbaum, A.S., Computer Networks, 5th Ed., Prentice Hall, 2011.
2. Kurose, J.F. and Ross, K.W., Computer Networking: A Top Down Approach, 7th Ed., Pearson Education, 2016.
3. Shivendra S. P, Shiwen M., Jeong-dong R., Yihan Li, TCP/IP Essentials: A Lab-Based Approach, Cambridge University Press, 2012

In addition to the required textbook, there may be additional required resources such as lecture notes, interesting articles, websites, and case studies, that are posted onOdtuclass that you will use to study and complete your studies.

Course Conduct: The following chapters will be studied and you will carry out the following labs.

- Week 01: Courseware, Introduction to GENI platform,
- Week 02: Introduction, Tanenbaum Ch 1, ...LAB 0, 1
- Week 03: The Physical Layer, Tanenbaum Ch 2
- Week 04: The Data Link Layer, Tanenbaum Ch 3, ...LAB 2, 3
- Week 05: The Medium Access Control Sublayer, Tanenbaum Ch 4
- Week 06, 07: The Network Layer, Tanenbaum Ch 5, Kurose Ch 4, ...LAB 4, 5
- Week 08, 09: The Transport Layer, Tanenbaum Ch 6, Kurose Ch 5
- Week 10: The Application Layer, Tanenbaum Ch 7 , ...LAB 6, 7
- Week 11: Network Security, Tanenbaum Ch 8
- Week 12: Wireless and Mobile Networks, Kurose Ch 7, ...LAB 8, 9
- Week 13, 14: Multimedia Networking, Kurose, Ch 9

This **online synchronous** course requires you to meet virtually via BigBlueButton tool on **Odtuclass** on Thursdays between 18:00 and 21:00. 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. The lab activities will be announced following the above schedule. The results of the labs will be collected in **10 days** of time after announcement.

Grading:

10 × GENI Assignments	70%
Final Take-home Exam	30%

NA Grade: Regardless of your overall grade at the end of the class, you will get an NA grade if you have not submitted at least 6 satisfactory GENI assignments.

Late Submission: Work submitted late and without prior communication with the teaching assistant will not be accepted. Please communicate with the teaching assistants 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 dire circumstances of the pandemic era.

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're 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.