Eastern Mediterranean University
Department of Computer Engineering
2021-2022 Spring Semester

Course name & Code	Data Communications CMPE-444	
Instructor	Assoc. Prof. Dr. Muhammed salamah. Room # CMPE 114 E-mail muhammed.salamah@emu.edu.tr	
Assistant		
Course Description	This course concentrates on the exchange of data between devices. The key aspects of transmission, interfacing, link control, and multiplexing will be examined. The course then will proceed with wide area networks in examining the internal mechanisms and user network interfaces that have been developed to support voice, data, and multimedia communications. The traditional technologies of packet switching and circuit switching will be examined, as well as ATM and wireless networks technologies.	
Text Books	1- William Stallings. "*Data & Computer Communications*," Prentice-Hall 2018 2- Lecture Notes	
Recommended References	1 - A.S. Tanenbaum , "*Computer Networks*," Prentice-Hall 1996 2 - R.O. Onvural , "*Asynchronous Transfer Mode Networks: Performance Issues*," Artech House, 1995 3 - W. Beyda, "*Data Communications*", Prentice-Hall, 2000 4 - D. Bertsekas, R. Gallager, "*Data Networks*," Prentice-Hall, 1992 5 – Raj Jain, "*The Art of Computer Systems Performance Analysis*," Wiley 1991 6 - Periodicals and journals {IEEE, ACM, Communications, Computer Networks and ISDN, Performance Evaluation, …..}	
Schedule	Monday: 10:30-12:20 in CMPE036, Thursday: 14:30-16:20 in CMPE036	
Grading (Tentative)	Midterm Examination	35
	Quizes (Quiz 1: 31/03/22. Quiz 2: 23/05/22)	20
	Final	45
	NG will be given for those who miss both Midterm and Final Exams.	

Course Outline

Chapter I Introduction
- A communication model
- Data communications
- Data communication networking
- Protocols and protocol architecture

Chapter II Protocols and Architecture
- Protocols
- OSI
- TCP/IP

Chapter III Data Transmission
- Concepts and terminology
- Analog and digital data transmission
- Transmission impairments

Chapter IV Transmission Media
- Guided transmission media
- Wireless transmission

Chapter V Data Encoding
- Digital/Analog data and signals
- Modulation techniques

Chapter VI Data Communication Interface
- Asynchronous and synchronous transmission

Chapter VII Data Link Control
- Flow control
- Error detection and control
- HDLC
- Other DLC protocols

Chapter VIII Multiplexing
- Frequency-Division Multiplexing
- Time-Division Multiplexing
- Statistical TDM
- Asymmetric digital subscriber line

Chapter IX Circuit Switching
- Circuit switching concept and networks
- Routing in circuit switching networks
- Control signaling

Chapter X Packet Switching
- Packet switching principles
- Routing in packet switching networks
- X.25

Chapter XI ATM & Frame Relay
- Protocol architecture
- ATM logical connections
- Transmission of ATM cells
- ATM service categories
- ATM adaptation layer
- Frame Relay

Chapter XII LAN Systems {if time allows…}
- Wireless LANs