

Course Description						
Name	Code	Semester	T+A Hour	Credit	ECTS	
DATA COMMUNICATION and COMPUTER NETWORKS		COE4249640	Spring Semester	3+2	4	8
Prerequisites Courses	OLASILIK VE RASSAL DEĞİŞKENLER; PROGRAMLAMAYA GİRİŞ					
Recommended Elective Courses	COE323409 COMMUNICATION SYSTEMS					
Language of Instruction	English					
Course Level	First Cycle (Bachelor's Degree)					
Course Type	Required					
Course Coordinator	Prof.Dr. Mehmet Kemal ÖZDEMİR					
Name of Lecturer(s)	Prof.Dr. Mehmet Kemal ÖZDEMİR, Lect.Dr. Arzu KİLİTCİ CALAYIR					
Assistant(s)						
Aim	Data communications and networking is a subject that involves many concepts, protocols, and technologies in today's modern computer networks. This course aims to teach student the principles and protocols of computer networks in a structured manner with hands-on Ethereal lab applications, which are organized around the "top down layers" of a network architecture. The course also aims to show relationships between OSI layers and how each layer addresses a subset of requirements of a computer networks.					
Course Content	This course contains; Computer Networks and Internet,Application Layer -Part 1 (Principles, The Web and HTTP, FTP, SMTP),Application Layer -Part 2 (DNS, P2P, Socket Programming with TCP and UDP),Ethereal Lab 1: Application Layer,Transport Layer- Part 1 (Services, Multiplexing-Demultiplexing, UDP),Transport Layer- Part 2 (Reliable Data Transfer, TCP, Congestion Control) ,Ethereal Lab 2: Transport Layer,Midterm,Network Layer-Part 1 (VC-Datagram Networks, Router, Teh Internet Protocol (IP)),Network Layer-Part 2 (Routing Algorithms,RIP,OSPF,BGP,Broadcast-Multicast Routing),Ethereal Lab 3: Network Layer,Link Layer - Part 1(Error Detection-Correction, Multiple Access, Link-Layer Addressing),Link Layer -Part 2 (Ethernet, Link Layer Switches, PPP, ATM, MPLS),Wireless and Mobile Networks(Wireless Links, 802.11 WLAN, Overview of Cellular Standards).					
Course Learning Outcomes			Teaching Methods	Assessment Methods		
1. Explain the concepts of OSI layering, networking, internet, ISP □□□			17, 19, 9	A, E		
2. Learn and analyze application layer protocols			17, 19, 4, 6, 9	A, D, E, F		
3. Learn and analyze transport layer protocols			17, 19, 4, 6, 9	A, D, E		
4. Explain the concepts of IP addressing, subnet, routing, and routing algorithms.			17, 4, 9	A, E, F		
5. explain the concept of MAC addressing, and learn and analyze link layer protocols.			17, 9	A		
6. Explain Wireless Medium Access Protocols.			17, 9	A		
Teaching Methods	17: Experimental Technique, 19: Brainstorming Technique, 4: Inquiry-Based Learning, 6: Experiential Learning, 9: Lecture Method					
Assessment Methods	A: Traditional Written Exam, D: Oral Exam, E: Homework, F: Project Task					
Lecture Schedule						
Sequence	Topics	Preliminary Preparation				
1	Computer Networks and Internet	Textbook Chapter 1				
2	Application Layer -Part 1 (Principles, The Web and HTTP, FTP, SMTP)	Textbook Chapter 2				
3	Application Layer -Part 2 (DNS, P2P, Socket Programming with TCP and UDP)	Textbook Chapter 2				
4	Ethereal Lab 1: Application Layer	Textbook Chapter 2				
5	Transport Layer- Part 1 (Services, Multiplexing-Demultiplexing, UDP)	Textbook Chapter 3				
6	Transport Layer- Part 2 (Reliable Data Transfer, TCP, Congestion Control)	Textbook Chapter 3				
7	Ethereal Lab 2: Transport Layer	Textbook Chapter 3				
8	Midterm	Textbook Chapter 1, 2, 3				
9	Network Layer-Part 1 (VC-Datagram Networks, Router, Teh Internet Protocol (IP))	Textbook Chapters 4				
10	Network Layer-Part 2 (Routing Algorithms,RIP,OSPF,BGP,Broadcast-Multicast Routing)	Textbook Chapter 4				
11	Ethereal Lab 3: Network Layer	Textbook Chapter 4				
12	Link Layer -Part 1(Error Detection-Correction, Multiple Access, Link-Layer Addressing)	Textbook Chapter 5				
13	Link Layer -Part 2 (Ethernet, Link Layer Switches, PPP, ATM, MPLS)	Textbook Chapter 5				
14	Wireless and Mobile Networks(Wireless Links, 802.11 WLAN, Overview of Cellular Standards)	Textbook Chapter 6				
Evaluation Methods		Weight(%)				
Midterm Exam		30				
General Exam		70				
Resources						
Computer Networking: A Top Down Approach, James Kurose and Keith Ross, 7th Ed., ISBN-13: 978-0133594140, Pearson. various handouts						