

<b>Course Description</b>					
<b>Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A Hour</b>	<b>Credit</b>	<b>ECTS</b>
DATA COMMUNICATION and COMPUTER NETWORKS	COE4249640	Spring Semester	3+2	4	8
<b>Prerequisites Courses</b>	OLASILIK VE RASSAL DEĞİŞKENLER; PROGRAMLAMAYA GİRİŞ				
<b>Recommended Elective Courses</b>	COE323409 COMMUNICATION SYSTEMS				
<b>Language of Instruction</b>	English				
<b>Course Level</b>	First Cycle (Bachelor's Degree)				
<b>Course Type</b>	Required				
<b>Course Coordinator</b>	Prof.Dr. Mehmet Kemal ÖZDEMİR				
<b>Name of Lecturer(s)</b>	Prof.Dr. Mehmet Kemal ÖZDEMİR, Lect.Dr. Arzu KİLİTCİ CALAYIR				
<b>Assistant(s)</b>					
<b>Aim</b>	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.				
<b>Course Content</b>	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).				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
1. Explain the concepts of OSI layering, networking, internet, ISP □□□			1, 10, 13	A, C	
2. Learn and analyze application layer protocols			1, 10, 13, 18, 4	A, B, C, D	
3. Learn and analyze transport layer protocols			1, 10, 13, 18, 4	A, B, C	
4. Explain the concepts of IP addressing, subnet, routing, and routing algorithms.			1, 13, 18	A, C, D	
5. explain the concept of MAC addressing, and learn and analyze link layer protocols.			1, 13	A	
6. Explain Wireless Medium Access Protocols.			1, 13	A	
<b>Teaching Methods</b>	1: Lecture, 10: Brainstorming, 13: Experiment / Laboratory, 18: Case Study, 4: Exercise, Practice				
<b>Assessment Methods</b>	A: Written Exam, B: Oral Exam, C: Homework, D: Project / Design				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
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			
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		30			
General Exam		70			
<b>Resources</b>					
Computer Networking: A Top Down Approach, James Kurose and Keith Ross, 7th Ed., ISBN-13: 978-0133594140, Pearson. various handouts					