

COURSE INFORMATION						
Course Title	Code	Semester	L+P Hour	Credits	ECTS	
DATA COMM. AND COMPUTER NETWORKS	CSE 571	1,2	3 + 0	3	10	

Prerequisites

Language of Instruction	English
Course Level	Graduate Degree
Course Type	Elective
Course Coordinator	
Instructors	Tacha Serif
Assistants	
Goals	The aim of this course is to provide students with the latest Internet technologies knowledge and abilities to design and implement client and server side web programs using modern development environments.
Content	Data transmission basics, multiplexing, analog and digital transmission, transmission media, computer communications architecture, data communications networks, ISO OSI reference model, switching techniques, LAN protocols, data link layer, framing, flow control, error control, sliding window protocols. High speed networking, network layer services and protocols, routing, internetworking, transport services, open systems, TCP/IP protocol suite, presentation and application layers

Learning Outcomes	Program Outcomes	Teaching Methods	Assessment Methods
Basic knowledge of networking components; ability to identify and compare modern networking structures based on their speed, medium type and topology	1,6	1,2	A,C,D
Ability to identify and describe urban area access network topologies (PPP, dial-up, xDSL, Cable). Also understanding of protocols, client/server model, Application layer services (telnet, FTP, DNS, HTTP, SMTP).	3,4,6	1,2,3	A,B,C,D

Ability to understand, analyze and derive solutions for Transport layer services – Reliable and Non-reliable Data Transfer, TCP and UDP protocols	1,6	1,2,3	A,B
Ability to analyze and implement new IP/Network solutions using IP protocol foundations, IP addressing, routing and forwarding knowledge from the Networking layer.	1,6	1,2,3	B,D
Knowledge and ability to identify and compare Data Link Layer services, Ethernet, Token Rings, error detection and correction techniques and ARP.	1,6	1,2,3	A,B,D
Knowledge and ability to implement network applications using various computer programming languages and modern application development techniques.	3,4,5,6,11	1,2,3	B,C,D

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Lab
Assessment Methods:	A: Testing, B: Experiment, C: Homework, D: Term Project

COURSE CONTENT	
Week Topics	Study Materials
1 INTRODUCTION TO COMPUTER NETWORKS	
2 APPLICATION LAYER	
3 APPLICATION LAYER: PROTOCOLS	
4 TRANSPORT LAYER: TRANSPORT SERVICES	
5 TRANSPORT LAYER: RELIABLE DATA TRANSFER	
6 TRANSPORT LAYER: TRANSPORT PROTOCOLS	
7 MIDTERM EXAM I	
8 NETWORK LAYER: ADDRESSING	
9 NETWORK LAYER: ROUTING & FORWARDING	
10 DATA LINK LAYER: SERVICES	
11 DATA LINK LAYER: ERROR CHECKING AND CORRECTION	
12 DATA LINK LAYER: MAC	
13 MIDTERM EXAM II	

RECOMMENDED SOURCES

Textbook	COMPUTER NETWORKING, BY J. F. KUROSE & K.W. ROSS (6TH EDITION)
	COMPUTER NETWORKS, BY ANDREW S. TANENBAUM (5TH EDITION)
	INTERNETWORKING WITH TCP/IP: PRINCIPLES, PROTOCOLS AND ARCHITECTURE, BY DOUGLAS E. COMER, ISBN: 0130183806
Additional Resources	Lecture Notes: http://cse.yeditepe.edu.tr/v2/en/academic/course-pages Lab material: http://cse.yeditepe.edu.tr/v2/en/academic/course-pages

MATERIAL SHARING

Documents	http://cse.yeditepe.edu.tr/coadsys
Assignments	http://cse.yeditepe.edu.tr/coadsys
Exams	http://cse.yeditepe.edu.tr/coadsys

ASSESSMENT

IN-TERM STUDIES	NUMBER	PERCENTAGE
Mid-terms	2	43
Quizzes	2	7
Assignment	6	21
Term Project	2	29
Total		100
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		30
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		70
Total		100

COURSE CATEGORY

Expertise/Field Courses

COURSE'S CONTRIBUTION TO PROGRAM

No	Program Learning Outcomes	Contribution
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		0	1	2	3	4	5
1	Ability to reach wide and deep knowledge through scientific research in the field of Computer Science and Engineering, evaluate, interpret and apply.					X	
2	Ability to use scientific methods to cover and apply limited or missing knowledge, and to integrate the knowledge of different disciplines.						
3	Ability to construct Computer Science and Engineering problems, develop methods to solve the problems and use innovative methods in the solution.						X
4	Ability to develop new and/or original ideas and algorithm; develop innovative solutions in the design of system, component or process.					X	
5	Ability to have extensive knowledge about current techniques and methods applied in Computer Engineering and their constraints.				X		
6	Ability to design and implement analytical modeling and experimental research, solve and interpret complex situations encountered in the process.			X			
7	Ability to use a foreign language (English) at least at the level of European Language Portfolio B2 in verbal and written communication.						
8	Ability to lead in multidisciplinary teams, develop solutions to complex situations and take responsibility.						
9	Ability to pass process and the results in Computer Science and Engineering field, in national and international area in or outside of the field, systematically and clearly in written or oral form.						
10	Awareness of the social, legal, ethical and moral values, and the ability to conduct research and implementation work within the framework of these values.						
11	Awareness of the new and emerging applications in Computer Science and Engineering field, and the ability to examine them and learn if necessary.				X		
12	Ability to describe the social and environmental dimensions of Computer Science and Engineering applications.						

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Including the exam week: 16x Total course hours)	14	3	42
Hours for off-the-classroom study (Pre-study, practice)	14	5	70
Mid-terms	2	3	6
Homework	6	8	48
Term Project	2	40	80
Final examination	1	3	3

Total Work Load	249
Total Work Load / 25 (h)	9.96
ECTS Credit of the Course	10