EEE456-Computer Networks

Course Code	Course Name	Semester	
EEE456	Computer Networks	Fall ☒ Spring ☐ Summer ☐	
Hours		**Credit**	**ECTS**
Theory	**Practice** / **Lab**	3	4
3	0 / 0		

Course Details	
Department	Electrical and Electronics Engineering
Course Language	English
Course Level	Undergraduate ☒ Graduate ☐
Mode of Delivery	Face to Face ☒ Online ☐ Hybrid ☐
Course Type	Compulsory ☐ Elective ☒
Lecturer(s)	Prof. Dr. İsmail Avcıbaş
Course Objectives	The objective of this course is to introduce the students with theoretical and practical aspects of computer networks using the Internet as a framework. Homeworks and simulations will be used for shedding light on the basics, applications and design of computer networks.
Course Content	This course is an introduction computer networks with Internet as the primary focus. Topics include application layer, transport layer, network layer, data link layer; the protocols used in each of these layers; wireless and mobile networks; and network security.
Course Method/ Techniques	Lecture ☒ Question & Answer ☒ Presentation ☐ Discussion ☒
Prerequisites/ Corequisites	None

Work Placement(s)	

Textbook/References/Materials

- Computer Networking: A Top Down Approach, J. F. Kurose & K.W. Ross, 7th Ed. Pearson.
- Computer Networking with Internet Protocols and Technologies, William Stallings, Prentice Hall.

Course Category				
Mathematics and Basic Sciences	☐		Education	☐
Engineering	☒		Science	☐
Engineering Design	☐		Health	☐
Social Sciences	☐		Profession	☐

Weekly Schedule

No	Topics	Materials/Notes
1	Introduction to Computer Networks	Chapter 1, Kurose & Ross,7th Ed.
2	Application Layer	Chapter 2, Kurose & Ross,7th Ed.
3	Application Layer	Chapter 2, Kurose & Ross,7th Ed.
4	Transport Layer	Chapter 3, Kurose & Ross,7th Ed.
5	Transport Layer	Chapter 3, Kurose & Ross,7th Ed.
6	Network Layer	Chapter 4, Kurose & Ross,7th Ed.
7	Network Layer	Chapter 5, Kurose & Ross,7th Ed.
8	Midterm	
9	Network Layer	Chapter 5, Kurose & Ross,7th Ed.
10	Link Layer	Chapter 6, Kurose & Ross,7th Ed.
11	Link Layer	Chapter 6, Kurose & Ross,7th Ed.
12	Wireless and Mobile Networks	Chapter 7, Kurose & Ross,7th Ed.
13	Wireless and obile Networks	Chapter 7, Kurose & Ross,7th Ed.
14	Network Security	Chapter 8, Kurose & Ross,7th Ed.
15	Network Security	Chapter 8, Kurose & Ross,7th Ed.
16	Final Exam	

Assessment Methods and Criteria		
In-term studies	**Quantity**	**Percentage**
Attendance	14	5
Lab		
Practice		
Fieldwork		
Course-specific internship		
Quiz/Studio/Criticize		
Homework	5	25
Presentation / Seminar		
Project		
Report		
Seminar		
Midterm Exam	1	30
Final Exam	1	40
	Total	**100%**
Contribution of Midterm Studies to Success Grade		60%
Contribution of End of Semester Studies to Success Grade		40%
	Total	**100%**

ECTS Allocated Based on Student Workload			
Activities	**Quantity**	**Duration (Hrs)**	**Total Workload**
Course Hours	16	3	48
Lab			
Practice			
Fieldwork			
Course-specific Work Placement			
Out-of-class study time	15	1	15
Quiz/Studio/Criticize			
Homework	5	5	25
Presentation / Seminar			
Project			
Report			
Midterm Exam and Preparation for Midterm	1	15	15
Final Exam and Preparation for Final Exam	1	15	15
Total Workload			**118**
Total Workload / 25			**4.72**
ECTS Credit			**5**

Course Learning Outcomes	
No	**Outcome**
L1	Understand and describe the layered protocol model
L2	Demonstrate understanding of datalink, network, and transport layer protocols
L3	Demonstrate understanding of wireless and mobile networking principles
L4	Understand and describe network security issues

Contribution of Course Learning Outcomes to Program Competencies/Outcomes

Contribution Level: 1: Very Slight, 2: Slight, 3: Moderate, 4: Significant, 5: Very Significant

	P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**P11**					**Total**
L1				3	4		4	3			3					
L2				3	4		4	3			3					
L3				3	4		4	3			3					
L4				4	4		4	4			4					
															Total	

i. Sufficient knowledge in the fields of mathematics, natural sciences, and related engineering disciplines; the ability to apply theoretical and practical knowledge in solving complex engineering problems.

ii. The ability to identify, formulate, and solve complex engineering problems; the ability to select and apply appropriate analysis and modeling methods for this purpose.

iii. The ability to design a complex system, process, device, or product to meet specific requirements under realistic constraints and conditions; the ability to apply modern design methods for this purpose.

iv. The ability to select and use modern techniques and tools required for the analysis and solution of complex problems encountered in engineering applications; the ability to effectively use information technologies.

v. The ability to design experiments, conduct experiments, collect data, analyze results, and interpret findings for the investigation of complex engineering problems or discipline-specific research topics.

vi. The ability to work effectively in intra-disciplinary and multidisciplinary teams; the ability to work independently.

vii. The ability to communicate effectively both orally and in writing; proficiency in at least one foreign language; the ability to write effective reports, understand written reports, prepare design and production reports, make effective presentations, and give and receive clear and understandable instructions.

viii. Awareness of the necessity of lifelong learning; the ability to access information, track developments in science and technology, and continuously renew oneself.

ix. Acting in accordance with ethical principles, knowledge of professional and ethical responsibilities, and the standards used in engineering applications.

x. Knowledge of business practices such as project management, risk management, and change management; awareness of entrepreneurship and innovation; knowledge of sustainable development.

xi. Knowledge of the impact of engineering practices on health, environment, and safety at global and societal levels, and awareness of contemporary engineering issues; awareness of the legal consequences of engineering solutions.