CENG 314 Computer Networks

Course Code	Course Name		Semester	
CENG 314	Computer Netwoks		Fall ☐ Spring ☒ Summer ☐	
Hours			**Credit**	**ECTS**
Theory	**Practice**	**Lab**	3	5
3	0	0		

Course Details	
Department	CMPE
Course Language	English
Course Level	Undergraduate ☒ Graduate ☐
Mode of Delivery	Face to Face ☒ Online ☐ Hybrid ☐
Course Type	Compulsory ☒ Elective ☐
Course Objectives	The aim of this course is to introduce key concepts and principles of computer networks. The course will use a top-down approach to study the Internet and its protocol stack. Instances of architecture, protocol, application-examples will include email, web and media-streaming. We will cover communications services (e.g., TCP/IP) required to support such network applications. The implementation and deployment of communications services in practical networks: including wired and wireless LAN environments, will be followed by a discussion of issues of network-management. Throughout the course, the Internet's architecture and protocols will be used as the primary examples to illustrate the fundamental principles of computer networking.
Course Content	**Chapter 1 Computer Networks and the Internet** **Chapter 2 Application Layer** **Chapter 3 Transport Layer** **Chapter 4 The Network Layer** **Chapter 5 The Link Layer: Links, Access Networks, and LANs** **Chapter 6 Wireless and Mobile Networks** **Chapter 7 Multimedia Networking** **Chapter 8 Security in Computer Networks** **Chapter 9 Network Management**

	Advanced Topics on Computer Networks
Course Method/ Techniques	Lecture ☒ Question & Answer ☒ Presentation ☒ Discussion ☒
Prerequisites/ Corequisites	
Work Placement(s)	

Textbook/References/Materials

Computer networking : a top-down approach / James F. Kurose, Keith W. Ross.—6th ed.

ISBN-13: 978-0-13-285620-1

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

Weekly Schedule

No	Topics	Materials/Notes
1	**Chapter 1 Computer Networks and the Internet**	
2	**Chapter 1 Computer Networks and the Internet**	
3	**Chapter 2 Application Layer**	
4	**Chapter 3 Transport Layer**	
5	**Chapter 4 The Network Layer**	

6	**Chapter 5 The Link Layer: Links, Access Networks, and LANs**	
7	**Exercises, Assignments, Review**	
8	**Midterm Exam**	
9	**Chapter 6 Wireless and Mobile Networks**	
10	**Chapter 7 Multimedia Networking**	
11	**Chapter 8 Security in Computer Networks**	
12	**Chapter 9 Network Management**	
13	**Advanced Topics on Computer Networks**	
14	**Exercises, Assignments, Review**	
15	**Final Exam**	

Assessment Methods and Criteria		
In-term studies	**Quantity**	**Percentage**
Attendance	Max. 13 hours of absence	P/F
Lab		
Practice		
Fieldwork		
Course-specific internship		
Quiz/Studio/Criticize		
Homework	4	15
Presentation / Seminar	1	10
Project		
Report		
Seminar		
Midterm Exam	1	% 25
Final Exam	1	% 50
	Total	**100%**
Contribution of Midterm Studies to Success Grade		32,5
Contribution of End of Semester Studies to Success Grade		67,5
	Total	**100%**

ECTS Allocated Based on Student Workload			
Activities	**Quantity**	**Duration (Hrs)**	**Total Workload**
Course Hours	13	3	39
Lab			
Practice			
Fieldwork			
Course-specific Work Placement			
Out-of-class study time	13	2	26
Quiz/Studio/Criticize			

Homework	4	6	24
Presentation / Seminar	1	9	9
Project			
Report			
Midterm Exam and Preparation for Midterm	1	12	12
Final Exam and Preparation for Final Exam	1	15	15
Total Workload			**125**
Total Workload / 25			**5**
ECTS Credit			**5**

Course Learning Outcomes	
No	**Outcome**
P1	Be able to analyse a communication system by separating out the different functions provided by the network;
P2	Understand that there are fundamental limits to any communications system;
P3	Understand the general principles behind multiplexing, addressing, routing, reliable transmission and other stateful protocols as well as specific examples of each;
P4	Understand what Forward Error Correction is;
P5	Be able to compare communications systems in how they solve similar problems;
P6	Have an informed view of both the internal workings of the Internet and of a number of common Internet applications and protocols.
P7	Have hands on experience on network monitoring and analysing

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**	**P12**	**P13**	**P14**	**P15**	**Total**
L1	5	5	5	5	5	5	5	5								40
L2	4	4	4	4	4	4	4	4								32
L3	4	4	4	4	4	4	4	4								32
L4	3	3	3	3	3	3	3	3								24
L5	4	4	4	4	4	4	4	4								32
L6	3	3	3	3	3	3	3	3								24
L7	2	2	2	2	2	2	2	2								16
L8	4	4	4	4	4	4	4	4								32
L9	3	3	3	3	3	3	3	3								24
L10	2	2	2	2	2	2	2	2								16
															Total	397