



**HASAN KALYONCU UNIVERSITY**  
**Faculty of Engineering**  
**Course Description Form**

<b>COURSE: Data Communications and Computer Networks</b>					
<b>CODE: CENG311</b>		<b>SEMESTER: FALL</b>			
<b>LANGUAGE: ENGLISH</b>		<b>TYPE: COMPULSORY</b>			
<b>PRE-REQUISITES: CENG101, CENG202</b>		<b>THEORY</b>	<b>PRACTICAL</b>	<b>CREDIT</b>	<b>ECTS</b>
<b>CO-REQUISITES:</b>					
<b>WEEKLY HOURS:</b>		3	2	4	6

**CONTENT OF THE COURSE:**

In this course, students will be introduced to the world of networking, and give them an overview of most of the consisting subdomains (such as network protocols, LAN services, WAN services, routing, network programming, network management, QoS, Internet telephony, etc.). Some of those topics will run in Cisco network lab to give students solid background in dealing with network hardware and configuration.

**OBJECTIVE OF THE COURSE:**

Provide learning about computer network organization and implementation, obtaining a theoretical understanding of data communication and computer networks, and gaining practical experience in installation, monitoring, and troubleshooting of current LAN systems.

**WEEKLY SCHEDULE AND PRE-STUDY PAGES**

<b>Week</b>	<b>Topics</b>
1	Introduction to Computer Networks, Classification of Computer Networks
2	Network Hardware, models and types.
3	Data Link Layer
4	Network Layer and Routing Basics
5	IP Addressing
6	Routing Protocols
7	Transport Layer protocols
8	<b>Mid Examination Week</b>
9	Application Layer Protocols
10	Wide Area Networks (WAN)
11	WAN Technologies
12	WAN Protocols
13	Basics of Network Management
14	Basics of Network Security

**TEXTBOOK:**

Larry L. Peterson, Bruce S. Davie. Computer Networks A Systems Approach, 5<sup>th</sup>Edition 2011

**REFERENCE BOOKS:**

James F. Kurose, Keith W. Ross .Computer Networking A Top-Down Approach. 6<sup>th</sup>.Edition

A. Tanenbaum and D. Wetherall, Computer Networks, 5<sup>th</sup> edition 2013  
 William Stallings “Data and Computer Communication” 8<sup>th</sup> Edition, Prentice Hall 2007

<b>EVALUATION SYSTEM:</b>		
<b>IN-TERM STUDIES</b>	<b>QUANTITY</b>	<b>PERCENTAGE (%)</b>
Midterm Exam	1	20%
Homework	1	10%
Laboratory works	13	30%
Quiz	2	10%
Final Exam	1	30%
<b>TOTAL</b>	<b>18</b>	<b>100%</b>
CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE	17	70%
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE	1	30%
<b>TOTAL</b>	<b>18</b>	<b>100%</b>

<b>COURSE CATEGORY:</b>	<b>PERCENTAGE (%)</b>
Mathematics and Basic Sciences	30%
Engineering	50%
Engineering Design	10%
Social Sciences	10%

<b>TABLE OF ECTS / WORKLOAD:</b>			
<b>Activities</b>	<b>QUANTITY</b>	<b>Duration (Hour)</b>	<b>Total Workload</b>
Course Duration	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	6	98
Laboratory works	13	2	26
Mid-term	1	2	2
Final examination	1	2	2
Homework	1	3	3
Quiz	2	0.5	1
<b>Total Work Load</b>			<b>171</b>
<b>Total Work Load / 30</b>			<b>5.7</b>
<b>ECTS Credit of the Course</b>			<b>6</b>

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>LO1</b>	2	0	0	1	0	0	0	1	0	0	2
<b>LO2</b>	2	0	2	3	0	0	0	2	0	0	2
<b>LO3</b>	2	0	2	3	0	0	0	2	0	0	1
<b>LO4</b>	2	0	2	3	0	0	0	2	0	0	2
<b>LO5</b>	3	0	2	3	0	0	0	2	0	0	2
	PO: Program Outcomes   LO: Learning Outcomes Values: 0: None   1: Low   2: Medium   3: High										

<b>INSTRUCTOR(S):</b>	Asst. Prof. Dr. Mohammed Madi
<b>FORM PREPARATION DATE:</b>	22.05.2019

<b>LEARNING OUTCOMES OF THE COURSE:</b>	<b>PROGRAM OUTCOMES:</b>
<p><b>LEARNING OUTCOMES OF THE COURSE:</b></p> <p><b>LO1: Distinguish between different network types and mediums and understand network models</b></p> <p><b>LO2: Explain how communication works in data networks and the Internet and the roles of protocols</b></p> <p><b>LO3: Differentiate between OSI model and TCP/IP network models and explain the function of each layers</b></p> <p><b>LO4: Analyze and explain the operations and features of the application, transport, network data link and physical layers protocols and services</b></p> <p><b>LO5: Explain the role routers play in enabling communications across multiple networks</b></p>	<p><b>PO1:</b> Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.</p> <p><b>PO2:</b> Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.</p> <p><b>PO3:</b> Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.</p> <p><b>PO4:</b> Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.</p> <p><b>PO5:</b> Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.</p> <p><b>PO6:</b> Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.</p> <p><b>PO7:</b> Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.</p> <p><b>PO8:</b> Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.</p> <p><b>PO9:</b> Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.</p> <p><b>PO10:</b> Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.</p> <p><b>PO11:</b> Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.</p>