

<b>COURSE DESCRIPTION FORM</b>	
<b>Course Code and Name</b>	BM402 COMPUTER NETWORKS
<b>Course Semester</b>	8
<b>Catalogue Data of the Course (Course Content)</b>	Computer networks and Internet, network topologies, network models, architectures of network application, delay, loss and throughput, application layer, transport layer, network layer, data link layer, switching, analog and digital signals, encoding and modulation, error detection and correction.
<b>Course Textbooks</b>	1. Stallings, W., "Computer Organization and Architecture 11/e", Pearson, 2021.
<b>Supplementary Textbooks</b>	1. Hennessy, J.L., Patterson, D.A., "Computer Architecture a Quantitative Approach 6/e", Morgan Kaufmann, 2019. 2. Mano, M.M., "Computer System Architecture 3/e (Update)", Pearson, 2017. 3. Mano, M.M., Kime, C.R., "Logic and Computer Design Fundamentals, 4/e", Pearson, 2014.
<b>Credit (ECTS)</b>	5
<b>Prerequisites for the Course (Attendance Requirements)</b>	Attendance is mandatory
<b>Course Type</b>	Compulsory
<b>Language of Instruction</b>	Turkish
<b>Course Objectives</b>	To teach computer networks and Internet, network topologies, network models, network application architectures, delay, loss and throughput, application layer, transport layer, reliable data transfer, connection-oriented communication, congestion control, network layer, data link layer, switching, analog and digital signals, encoding and modulation error detection and correction.
<b>Course Learning Outcomes</b>	<ol style="list-style-type: none"> <li>1. Explains computer networks and the Internet.</li> <li>2. Explains network topologies, network models and their differences.</li> <li>3. Explains network application architectures and the differences between them.</li> <li>4. Explains delay, loss, throughput.</li> <li>5. Explains the application layer.</li> <li>6. Explains the transportation layer and the services offered in this layer.</li> <li>7. Explains the network layer.</li> <li>8. Explains the data link layer.</li> <li>9. Explains switching methods and the differences between them.</li> <li>10. Defines analog and digital signals</li> <li>11. Explains encoding and modulation methods</li> <li>12. Explains error detection and correction methods.</li> </ol>
<b>Instruction Method (Face-to-face, Distance education etc.)</b>	Face-to-face
<b>Weekly Schedule of the Course</b>	Week 1: Computer networks and Internet Week 2: Network topologies Week 3: Network models Week 4: Architectures of network application Week 5: Latency, loss, throughput Week 6: Application layer Week 7: Transport layer Week 8: Congestion control Week 9: Network layer Week 10: Data link layer Week 11: Switching Week 12: Analog and digital signals Week 13: Coding and modulation Week 14: Error detection and correction
<b>Teaching Activities (The time spent for the activities listed here will)</b>	Weekly theoretical course hours: 3 Reading activities Internet search and library work

<i>determine the amount of credit required)</i>	Making a report Preparing and making presentations Midterm and revision for midterm Final exam and revision for final exam						
<b>Assessment Criteria</b>		<b>Number(s)</b>	<b>Weight (%)</b>				
	Midterm exam	1	35				
	Assignment	5	25				
	Application	-	-				
	Project	-	-				
	Practice	-	-				
	Quiz	-	-				
	Final exam	1	40				
Total		100					
<b>Workload of the Course</b>	<b>Activity</b>	<b>Number of Weeks</b>	<b>Duration (Weekly Hour)</b>	<b>End of Semester Total Workload</b>			
	Weekly theoretical course hours	14	3	42			
	Weekly practical course hours	-	-	-			
	Reading activities	14	1	14			
	Internet search and library work	14	1	14			
	Designing and implementing materials	-	-	-			
	Making a report	5	4	20			
	Preparing and making presentations	-	-	-			
	Midterm and revision for midterm	1	12	12			
	Final exam and revision for final exam	1	24	24			
	Total workload			36			
	Total workload/ 25			5,04			
Course Credit (ECTS)			5				
<b>Contribution Level between Course Outcomes and Program Outcomes</b>	<b>No</b>	<b>Program Outcomes</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	1	Knowledge of mathematics, science, basic engineering, computing, and computer engineering; ability to use this knowledge in solving complex engineering problems.				X	
	2	Ability to define, formulate and analyze complex engineering problems using basic science, mathematics and engineering knowledge and considering the UN Sustainable Development Goals relevant to the problems addressed.					X
	3	Ability to design creative solutions to complex engineering problems; ability to design complex systems, processes, devices, software, algorithms or products to meet current and future requirements, considering realistic constraints and conditions.					X
	4	Ability to select, use and develop appropriate techniques, resources and modern engineering and informatics tools, including estimation and modeling, for the analysis and solution of complex engineering problems while being aware of their limitations.					

	5	Ability to use research methods to examine complex engineering problems or research topics in computer engineering, including reviewing the literature, designing experiments, conducting experiments, collecting data, analyzing and interpreting results.						X
	6	Knowledge of the effects of engineering practices and the standards used in these practices on society, health and safety, economy, sustainability and environment within the scope of the UN Sustainable Development Goals; awareness of the consequences of engineering solutions in the fields of information security and law.						
	7	Acting in accordance with engineering professional principles and knowledge on ethical responsibility; awareness of acting impartially, without discrimination on any issue, and being inclusive of diversity.			X			
	8	Ability to work effectively individually and as a team member or leader in intradisciplinary and multidisciplinary teams (face-to-face, remote, or hybrid).						
	9	Ability to conduct effective verbal and written communication on technical issues in Turkish or English, prepare reports, make effective presentations and prepare software documentation, considering the various differences of the target audience (such as education, language, profession).			X			
	10	Knowledge of business practices such as project, risk and change management and economic feasibility analysis; awareness of entrepreneurship and innovation.						
	11	Lifelong learning skill that includes the ability to learn independently and continuously, to adapt to new and developing scientific practices and technologies, and to think inquisitively about technological changes.						
<b>Lecturer(s) and Contact Information</b>	Lecturer's First/Last Name: Prof. Dr. M. Ali AKCAYOL E-mail address: akcayol@gazi.edu.tr							