COURSE SYLLABUS

Course Title	Course Code	Semester	Course Hour/Week		Credit	ECTS
Computer Networks	GAME316	VI	**Theory** 2	**Practice** 2	3	5
Course Type	Compulsory Courses	Department Elective	Faculty Elective	University Elective	CoHE (YÖK) Compulsory	Other
	-	YES	-	-	-	-
Level of Course	Associate Degree (Short Cycle)		Undergraduate (First Cycle)		Graduate/ Doctoral (Second /Third Cycle)	
			YES			

Language of Instruction	English

Course Instructor(s)	Sr. Instr. Masoud Moradi	E-mail : masoud.moradi@arucad.edu.tr
Course Objectives	The objective of this course is to teach students with an understanding of Computer Networks and its application in game design. It focuses on practical network technologies for online and multiplayer gaming, network security, and performance optimization. The course also covers new technologies in gaming networks and encourages students to think deeply about how networking affects the gaming world. This approach helps students learn important technical and practical skills in computer networks for making games.	

Course Learning Outcomes	Students by the end of this course will be understand a foundational of computer networks, including data collection, processing, and basic analysis techniques relevant to design. Students will be able to apply data analysis skills to inform and improve their design decisions, making them more user-centric and impactful. Students will understand the ethical considerations and responsibilities in using data, emphasizing respect for privacy and accuracy.
Course Content	• Fundamentals of Computer Networking • Networking Hardware and Infrastructure • Network Protocols and Gaming • Online Gaming Architecture and Technologies • Network Security and Optimization in Gaming

COURSE OUTLINE/SCHEDULE			
Week	**Topic**	**Implementation (theory/practice)**	**Required Reading, Preliminary preparation**
1	Introduction to Computer Networks Basic networking concepts, purposes, and types of networks.	T	Instructor Notes Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601.
2	Network Topologies and Protocols Understanding different network topologies and protocols used in gaming.	T/P	Instructor Notes Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601.
3	Data Transmission Basics Fundamentals of data transmission in networks, including speed and types.	T/P	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601.

4	Internet and Network Infrastructure How the Internet works, focusing on components crucial for online gaming.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
5	Networking Hardware for Gaming Overview of networking hardware like routers, switches relevant to gaming.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
6	Network Software and Interfaces Introduction to network software and interfaces in game development.	T/P	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
7	Online Gaming Architecture Introduction about architecture of online games and networked multiplayer systems.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
8	**MIDTERM WEEK**	**Midterm**	

9	Network Security in Games Basics of network security relevant to game design and player data safety.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
10	Latency and Synchronization in Online Games Understanding and managing latency and synchronization issues in gaming.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
11	Mobile and Cloud Gaming Networks Exploring network considerations for mobile and cloud-based gaming.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
12	Emerging Network Technologies in Gaming Discussing emerging network technologies and their impact on game design.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional.
13	Future Trends: Emerging Trends: Future trends in Networks and Computers in gaming.	T	Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting*

			networked games. Addison-Wesley Professional.
14	**FINAL EXAM WEEK**		

Required Course Material(s) / Reading(s)/ Text Book(s)	External hard drive and/or a min.32Gb Usb.
Recommended Course Material(s)/ Reading(s) /Other	**Recommended Readings:** Kurose, K. R. (2017). Computer networking: A top-down approach by james. *Kurose, Keith W. Ross.—*, 601. Glazer, J., & Madhav, S. (2015). *Multiplayer game programming: Architecting networked games*. Addison-Wesley Professional. Armitage, G., Claypool, M., & Branch, P. (2006). *Networking and online games: understanding and engineering multiplayer Internet games*. John Wiley & Sons.

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**
Mid-Term	1	35

Quiz	1	25
Assignment	-	-
Project	-	-
Field Study	-	-
Presentation / Seminar	-	-
Studio Practice	-	-
Other	-	-
Contribution of Final Examination/Final Project/ Dissertation to the Final Grade	1	40
TOTAL		100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME LEARNING OUTCOMES							
No	**PROGRAMME LEARNING OUTCOMES**	Level of Contribution (1-lowest/ 5-highest)				
		1	2	3	4	5
1	Understand the Principles of Computer Networks.					シ
2	Application of Network Technologies in Game Design			シ		
3	Innovative Use of Emerging Network Technologies					シ
4	Practical Implementation and Problem Solving in Networked Gaming			シ		
5	Ethical and Responsible Data Usage				シ	

ECTS / STUDENT WORKLOAD				
ACTIVITIES	**NUMBER**	**UNIT**	**HOUR**	**TOTAL (WORKLOAD)**
Course Teaching Hour (X weeks * total course hours)	14		3	42
Preliminary Preparation and self- study				

Mid-Term	1		25	25
Quiz	1		15	15
Assignment				
Project				
Field Study				
Presentation / Seminar				
Studio Practice				
Final Examination/ Final Project/ Dissertation	1		48	48
Other				
TOTAL WORKLOAD				130
TOTAL WORKLOAD / 25				5.2
ECTS				**5**

ETHICAL RULES WITH REGARD TO THE COURSE
Plagiarism Disclaimer Detected and undetected plagiarism is a serious offence at any time and it could have devastating effects on your degree result and future professional lives. Plagiarism is easy to avoid if you make sure to identify and acknowledge your sources thoroughly and do not copy directly from visual examples, designs, or notes that have in turn been taken word for word from your sources.

ASSESSMENT DETAILS AND EVALUATION CRITERIA:	
Final Grades will be determined according to the Course Learning Activities and Studio practice combined with assignments with a numeric value of both, and comply by the Education and Examination Regulation set forth by the University.	
PREPARED BY	Sr.Instr. Masoud Moradi
UPDATED	09/02/2024
APPROVED	