

**COURSE SYLLABUS**

Course Title	Course Code	Semester	Course Hour/Week		Credit	ECTS
			Theory	Practice		
Database System	GAME216	3	2	2	3	5
Course Type	Compulsory Course	Department Elective	Faculty Elective	University Elective	CoHE (YÖK) Elective	Other
	-	Yes	-	-	-	-
Level of Course	Associate Degree (Short Cycle)		Undergraduate (First Cycle)		Graduate/ Doctoral (Second /Third Cycle)	
	-		Yes		-	

<b>Language of Instruction</b>	English
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<b>Course Instructor(s)</b>	Dr. Masoud Moradi	E-mail : <a href="mailto:masoud.moradi@arucad.ed.tr">masoud.moradi@arucad.ed.tr</a>
		Office :
<b>Course Objectives</b>	The objective of this course is to teach students the fundamentals of data systems and their application in game design. It focuses on storing, manipulating, and retrieving data using databases. The course combines theoretical knowledge with practical projects, preparing students to integrate data-driven insights into their work.	
<b>Course Learning Outcomes</b>	<b>Students will able to:</b>	<b>Teaching Methods</b>
	Understand the concept of Data Systems, including how data is stored, managed, and retrieved in databases.	<b>Evaluation Methods</b> - Lectures - Class discussions - In-class exercises - Midterm Exam - Final Exam

	<ul style="list-style-type: none"> <li>- Define and describe the fundamentals of data systems.</li> <li>- Recognize database types and structures.</li> </ul>		<ul style="list-style-type: none"> <li>- Class Participation</li> </ul>
	<p>Apply data analysis techniques to enhance their game design projects, using insights drawn from data.</p> <ul style="list-style-type: none"> <li>- Use basic analysis methods to interpret game data.</li> <li>- Correlate data findings with design decisions.</li> </ul>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Lab practice</li> <li>- Small projects</li> </ul>	<ul style="list-style-type: none"> <li>- Midterm Exam</li> <li>- Final Exam</li> <li>- Project Work</li> </ul>
	<p>Demonstrate essential SQL skills to effectively query, update, and manage data within databases.</p> <ul style="list-style-type: none"> <li>- Write and optimize SQL queries.</li> <li>- Perform database CRUD (Create, Read, Update, Delete) operations.</li> </ul>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Lab practice</li> <li>- Hands-on exercises</li> </ul>	<ul style="list-style-type: none"> <li>- Midterm Exam</li> <li>- Quizzes</li> <li>- Final Exam</li> </ul>
	<p>Understand principles of data modeling and create efficient database structures.</p> <ul style="list-style-type: none"> <li>- Design conceptual and logical data models.</li> <li>- Establish relationships among data entities for performance</li> </ul>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Group discussions</li> <li>- Design exercises</li> </ul>	<ul style="list-style-type: none"> <li>- Assignment</li> <li>- Midterm Exam</li> <li>- Final Exam</li> </ul>
<p><b>Course Content</b></p>	<ul style="list-style-type: none"> <li>• Overview of data systems and how they are used in game development.</li> <li>• Fundamental SQL commands: simple queries, filtering, sorting, and using logical operators.</li> <li>• Data manipulation (inserting, updating, deleting) in databases.</li> <li>• Aggregate functions and grouping data (MIN, MAX, COUNT, SUM, AVG, GROUP BY).</li> <li>• Introduction to joins, subqueries, and advanced SQL concepts (LIKE, IN, BETWEEN, ALIASES).</li> <li>• Basic principles of data modeling, database design, performance optimization, and security considerations.</li> <li>• Integration of databases into game scenarios, including player data management and storing game state.</li> <li>• Basic introduction to NoSQL databases (MongoDB), JSON/BSON documents.</li> <li>• Practical data analysis for understanding player behavior and informing game design decisions.</li> </ul>		

<b>COURSE OUTLINE/SCHEDULE</b>			
<b>Week</b>	<b>Topic</b>	<b>Implementat ion (theory/prac tice)</b>	<b>Required Reading, Preliminary preparation</b>
1	Introduction to SQL, focusing on the standard language for databases. Learn the basic syntax and how to perform simple queries.	T	Instructor Lecture Notes
2	Learn to use SELECT statements, including the SELECT DISTINCT clause for retrieving unique data from tables.	T/P	Instructor Lecture Notes
3	Understand the WHERE clause for filtering data and the ORDER BY clause to sort results.	T/P	Interactive Data Visualization for The Web an introduction to designing with D3 by Murry Scott
4	Explore logical operators like AND, OR, and NOT for complex filtering.	T/P	Interactive Data Visualization for The Web an introduction to designing with D3 by Murry Scott
5	Learn how to add data to tables using the INSERT INTO statement and handle null values.	T/P	Interactive Data Visualization for The Web an introduction to designing with D3 by Murry Scott
6	Update and delete data in your database using SQL UPDATE and DELETE statements.	T/P	Instructor Lecture Notes
7	Use aggregate functions like MIN, MAX, COUNT, SUM, AVG to perform calculations on data.	T/P	Instructor Lecture Notes

8	<b>MIDTERM WEEK</b> Use aggregate functions like MIN, MAX, COUNT,	<b>Midterm</b>	
9	Dive into pattern matching with the LIKE operator, using wildcards, and learn about the IN, BETWEEN, and ALIASES clauses.	T/P	Interactive Data Visualization for The Web an introduction to designing with D3 by Murry Scott
10	Introduction to SQL Joins (INNER, LEFT, RIGHT, and FULL JOINS) for combining rows from two or more tables.	T/P	Instructor Lecture Notes
11	Learn how to use UNION to combine result sets and GROUP BY to group rows that have the same values in specified columns.	T/P	Interactive Data Visualization for The Web an introduction to designing with D3 by Murry Scott
12	Understand the use of the HAVING clause to filter grouped data and the EXISTS condition.	T/P	Instructor Lecture Notes
13	Introduction to MongoDB and BSON, JSON basics, and MongoDB Documents.	T	Instructor Lecture Notes
14	Introduction to MongoDB and BSON, JSON basics, and MongoDB Documents.	<b>T</b>	Interactive Data Visualization for The Web an introduction to designing with D3 by Murry Scott
15	Course Review	<b>T</b>	
16	<b>FINAL EXAM WEEK</b>	<b>T</b>	Instructor Lecture Notes


<p><b>Required Course Material(s) / Reading(s)/ Text Book(s)</b></p>	<p>Interactive Data Visualization for The Web an introduction to designing with D3 by Murry Scott Call number: REF QA76.73.J38 .M865 2017 The art of statistics : learning from data / David Spiegelhalter.by Spiegelhalter, D. J [author.] Call number: QA276.12 .S665 2020</p>
<p><b>Recommended Course Material(s)/ Reading(s) /Other</b></p>	

<b>ASSESSMENT</b>		
<b>Learning Activities</b>	<b>NUMBER</b>	<b>WEIGHT in %</b>
Mid-Term	1	40
Quiz		
Assignment		
Project		
Field Study		
Presentation / Seminar		
Studio Practice		
Other		
<b>Contribution of Final Examination/Final Project/ Dissertation to the Final Grade</b>	1	60
<b>TOTAL</b>		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	Knows the historical development of the field of communication, basic concepts, theories.	✓				
2	Knows the basic concepts and terminology related to the field of game design.			✓		
3	Has knowledge about the history of computer and video games and developments in this field.		✓			
4	Knows game design processes and related applications.			✓		
5	Has the ability to utilize various disciplines such as communication, art, music, psychology, mythology, cinema, etc. in the game design process.			✓		
6	Has the ability to analyze analog and digital game genres.				✓	
7	Has the ability to use contemporary game engines and problem solving skills.		✓			
8	Has the knowledge of questioning the game designs with an analytic and critical perspective.			✓		
9	Has knowledge about media literacy.	✓				
10	Has the competence to prepare projects based on ethical principles in game development processes.			✓		
11	Has the competence to evaluate games as an art form.			✓		
12	Has the competence to use game design concepts and methods in related fields such as design, software development and media.					✓
13	Has the competence to take part and responsibility in game development teams.				✓	
14	Has the competence to collect, analyze and interpret analytical data about games and players.					✓
15	Has the competence to develop and present a digital game project by using game design practices effectively.			✓		
16	Evaluates artificial intelligence applications in their studies with a critical approach in terms of aesthetics and originality, and uses them in accordance with ethical rules.			✓		
CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME LEARNING OUTCOMES						

<b>ECTS / STUDENT WORKLOAD</b>				
<b>ACTIVITIES</b>	<b>NUMBER</b>	<b>UNIT</b>	<b>HOUR</b>	<b>TOTAL (WORKLOAD)</b>
Course Teaching Hour (X weeks * total course hours)	16		3	48
Preliminary Preparation and self- study				
Mid-Term	1		40	40
Quiz				
Assignment				
Project				
Field Study				
Presentation / Seminar				
Studio Practice				
Final Examination/ Final Project/ Dissertation	1		50	50
Other				
<b>TOTAL WORKLOAD</b>				138
<b>TOTAL WORKLOAD / 25</b>				5.52
<b>ECTS</b>				5

	SDG 1: No Poverty	×
	SDG 2: Zero Hunger	×
	SDG 3: Good Health and Well-Being	×
	SDG 4: Quality Education	√
	SDG 5: Gender Equality	×
	SDG 6: Clean Water and Sanitation	×
	SDG 7: Affordable and Clean Energy	×
	SDG 8: Decent Work and Economic Growth	×
	SDG 9: Industry, Innovation and Infrastructure	√
	SDG 10: Reduced Inequalities	×
	SDG 11: Sustainable Cities and Communities	×
	SDG 12: Responsible Consumption and Production	×
	SDG 13: Climate Action	×
	SDG 14: Life Below Water	×
	SDG 15: Life on Land	×
	SDG 16: Peace, Justice and Strong Institutions	×
	SDG 17: Partnership for the Goals	×

**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 life.

Plagiarism is easy to avoid if you make sure you thoroughly identify and recognize your sources and do not copy from visual examples, designs or notes taken directly from your sources word for word. The maximum citation limit cannot exceed 20%. Artificial intelligence citations are also considered within this scope. If proven otherwise, the student will fail the course.

**ASSESSMENT DETAILS AND EVALUATION CRITERIA:**

Final Grades will be determined according to the Course Learning Activities and Final Examination/ Project/ Dissertation Assessment Details as below, and comply with the Education and Examination Regulation set forth by the University.

Throughout the course, students will learn the theoretical base of the topic and they will be able to equip themselves with the practical know-how skills of Advertisement production. Also, students are expected to design a creative advertisement piece with the knowledge they have gained in the course.

During the class sessions, participation is a very important input for the learning process for the students. It is also vital to understand the effect of creativity input on the production process of advertisement.

70% attendance to courses is compulsory. Health reports belong to 30% absenteeism right.

<b>PREPARED BY</b>	Dr.Masoud Moradi
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<b>UPDATED</b>	28.03.2025
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<b>APPROVED</b>	
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