COURSE SYLLABUS

Course Title	Course Code	Semester	Course Hour/Week		Credit	ECTS
Database Systems	GAME216	3	**Theory** 3	**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 data systems and its application in game design. It focuses on teaching storing, manipulating and retrieving data in databases for game design. The course combines theoretical knowledge with practical projects, preparing students to integrate data-driven insights into their game design work.	

Course Learning Outcomes	Students by the end of this course will be understand concept of Data Systems, including how data is stored, managed, and retrieved in databases. Students will be able to apply data analysis techniques to enhance their game design projects, using insights drawn from data to inform design decisions. Students will learn the essentials of SQL, enabling them to effectively query, update, and manage data within databases. Students will understand the principles of data modeling and its application in creating efficient and effective database structures. Students will learn how to integrate data systems into game development, enhancing game functionality and user experience.
Course Content	• Learn data systems, types of data system. • Understand Fundamental SQL commands, writing simple queries, and understanding database schemas. • Principles of data modeling, designing efficient database structures, and understanding relationships between data entities. • Database administration, performance optimization, and data security considerations. • Practical application of databases in game scenarios, storing game state, and managing player data. • Techniques for analyzing game data, understanding player behavior, and using insights for game improvement.

COURSE OUTLINE/SCHEDULE			
Week	**Topic**	**Implementation (theory/practice)**	**Required Reading, Preliminary preparation**
1	Introduction to SQL, focusing on the standard language for databases. Learn the basic syntax and how to perform simple queries.	T	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.

2	Learn to use SELECT statements, including the SELECT DISTINCT clause for retrieving unique data from tables.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
3	Understand the WHERE clause for filtering data and the ORDER BY clause to sort results.	T/P	. Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
4	Explore logical operators like AND, OR, and NOT for complex filtering.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
5	Learn how to add data to tables using the INSERT INTO statement and handle null values.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
6	Update and delete data in your database using SQL UPDATE and DELETE statements.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
7	Use aggregate functions like MIN, MAX, COUNT, SUM, AVG to perform calculations on data.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
8	**MIDTERM WEEK**	**Midterm**	
9	Dive into pattern matching with the LIKE operator, using wildcards, and learn about the IN, BETWEEN, and ALIASES clauses.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
10	Introduction to SQL Joins (INNER, LEFT, RIGHT, and FULL JOINS) for combining rows from two or more tables.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.

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	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
12	Understand the use of the HAVING clause to filter grouped data and the EXISTS condition.	T/P	Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India.
13	Introduction to MongoDB and BSON, JSON basics, and MongoDB Documents.	T	Instructor Lecture Notes
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:** Garcia-Molina, H. (2014). *Database systems: the complete book 2nd edition*. Pearson Education India. Kleppmann, M. (2017). *Designing data-intensive applications: The big ideas behind reliable, scalable, and maintainable systems*. " O'Reilly Media, Inc.". .

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**
Mid-Term	1	30
Quiz	1	30
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 Data Systems				シ	
2	Apply Data Analysis Techniques in Game Design			シ		
3	Proficiency in SQL and Database Management					シ
4	Integration of Data Systems in Game Development				シ	
5	Development of Critical Thinking and Problem-Solving Skills			シ		
6	Preparation for Advanced Study or Career in Game Design and Data Systems				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		40	30
Quiz	1		20	20
Assignment				
Project				
Field Study				
Presentation / Seminar				
Studio Practice				
Final Examination/ Final Project/ Dissertation	1		40	40
Other				
TOTAL WORKLOAD				132
TOTAL WORKLOAD / 25				5.1
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 midterm examination accounts for 30% of the total grade, assessing students on the theoretical and practical aspects of the course material covered in the first half. Quizzes, making up 30%, involve regular tasks focusing on SQL queries, data analysis, and database design. Finally, the Final Examination, constituting the remaining 40%, is a comprehensive test encompassing the entire course content, both in theory and practical application.

PREPARED BY	Sr.Instr. Masoud Moradi

UPDATED	10/02/2024
APPROVED	