COURSE SYLLABUS						
Course Title	**Course Code**	**Semester**	**Course Hour/Week**		**Credit**	**ECTS**
Game Coding I	GAME 303	V	**Theory 2**	**Practice 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		-	

Language of Instruction	English

Course Instructor(s)	Prof. Dr. Murat Yakin	E-mail : murat.yakin@arucad.edu.tr Office : ES OFF05
Course Objectives	The course objectives encompass the following formal directives: To instill proficiency in programming skills within the C# language, covering the following essential topics: • Objects and classes • Inheritance and interfaces • Enums and collections • Exception handling • Singleton instances • Game specific workflows To cultivate a practical working expertise in the utilization of the Unity game engine, specifically within the context of the C# programming language.	

Course Learning Outcomes	**Students will able to:**	**Teaching Methods**	**Evalutation Methods**
	Describe how to apply basic game design concepts in their term projects	Direct instruction techniques	Midterm: project submission Final: project submission
	Explain how they implemented basic game design concepts	Direct instruction techniques	Midterm: project submission Final: project submission
	Design games by using a game engine	Direct instruction techniques, project development	Midterm: project submission Final: project submission

Course Content	The course is initially intending to introduce advanced-level C# programming language knowledge. For example: • Objects and classes • Inheritance and interfaces • Enums and collections • Exception handling • Singleton instances • Game specific workflows Game development platform Unity C#: • Game Design Strategies • Virtual Worlds • Scrolling Games • Animation • Sound Effects • Advanced Game Physics • Multiple Scenes • Artificial Intelligence • User Interfaces

COURSE OUTLINE/SCHEDULE			
Week	**Topic**	**Implementation (theory/practice)**	**Required Reading, Preliminary preparation**
1	Curriculum Overview. Simple game programing architecture. Review of key concepts. Requirements for mobile game development and testing environment.	T/P	*Instructor course notes.*
2	Introduction to mobile game concepts. Modifying input manager for touch input. Getting accelerator and gyroscope input. Concept of spawning and despawning. Use of resources folder in Unity. Starting development of space shooter game.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949*

3	The flow logic. Laser/bullet mechanics. Implementation of visual effects. Creating and programing UI. Data persistence. Saving and loading. Extending enemy class through inheritance. Continuing development of space shooter.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
4	Object pooling. Implementation of audio and music. Pausing and resuming game. Preparing main menus and initial load flow. Finalizing the game. Exporting to apple and android devices.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
5	Creation of scrolling games. Background effects: wrapping background and parallax effects. Character animations. Using procedural spawning concepts to create the game environment. Preparing the character for movement. Starting development of Flappy Bird.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
6	Implementation of enemy and bullet logic. Introduction to async processes and Unity Addressables system. Updating game content via addressables. Continuing development of Flappy Bird.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
7	Basic unity physics. Using joints and 2D effectors. Adding sound effects and music. Preparing the game for final build.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
8	**Mid-Term**	-	/
9	Introduction to car controllers. Unity spline tool and creation of race tracks. Basic Unity car physics setup. Mobile joystick input. Starting development of a racing game.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*

10	Design of basic game UI. Isolation of different layers of architecture by scene loading. Scene loading by addressables system. Using accelerator and/or gyroscope input in a racing game. Continuing the racing game.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
11	Introduction to complex UI programing. Implementation of a car selection system. Finalizing the racing game.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
12	Introduction to creation of large 3D worlds. Implementing 3D character animations and camera controls. Chunking and streaming by addressables system. Starting a third person shooter game.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
13	Foliage creation and chunking. Simple combat mechanics. Introduction to particle effects. Continuing third person shooter game.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
14	Unity render pipelines and migrating an existing project between them. VFX graph system for visual effects. Finalizing the third person shooter game. Converting the third person shooter game into a simple plane flight game.	T/P	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
15	Basic 3D flight mechanics. Modifications to chunk loading system for flight game. Finalizing the project.	T/P	*Instructor course notes.*
16	Review of student projects	T/P	*Instructor course notes.*
17	**Final Project**	-	/

Required Course Material(s) / Reading(s)/ Text Book(s)	*Gibson Bond, Jeremy. Introduction to game design, prototyping, and development : from concept to playable game with Unity and C#, 3rd edition, Boston: Addison-Wesley, 2023. ISBN: 9780136619949 (Library Catalogue Number: QA76.76.C672)*
Recommended Course Material(s)/ Reading(s) /Other	Students should bring their storage devices. i.e.: USB Flash Drive

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**
Mid-Term	1	40
Quiz	-	-
Assignment	-	-
Project	-	-
Field Study	-	-
Presentation / Seminar	-	-
Studio Practice	-	-
Other	-	-
Contribution of Final Examination/Final Project/ Dissertation to the Final Grade	1	60
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	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.	√				

ECTS / STUDENT WORKLOAD				
ACTIVITIES	**NUMBER**	**UNIT**	**HOUR**	**TOTAL (WORKLOAD)**
Course Teaching Hour (X weeks * total course hours)	15		4	60
Preliminary Preparation and self- study	15		3	45
Mid-Term	1		10	10
Quiz	-		-	-
Assignment	-		-	-
Project	-		-	-
Field Study	-		-	-
Presentation / Seminar	-		-	-
Studio Practice	-		-	-
Final Examination/ Final Project/ Dissertation	1		10	10
Other	-		-	-
TOTAL WORKLOAD	-		-	125
TOTAL WORKLOAD / 25				5
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 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.

PREPARED BY	Prof. Dr. Murat Yakin
UPDATED	23/09/2023
APPROVED	