COURSE SYLLABUS

Course Title	**Course Code**	**Semester**	**Course Hour/Week**		**Credit**	**ECTS**
Game Mechanics and Level Design	DIME 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)	Erkut Çulluoğlu	E-mail : erkut.culluoglu@arucad.edu.tr Office :
Course Objectives	Introduce Algorithms and their mathematical background to students. Introduce Programming skills in C Language on following topics: • Types, Operators, and Expressions • Control Flow • Functions and Program Structure • Arrays • Structures • Input and Output to students. Working knowledge of Game Engines e.g Unity, Unreal and their scripting languages e.g. C# etc.	
Course Learning Outcomes	Students will learn algorithms and start to program in C and C#. Basic programming concepts like variables, assignment statements, loops, and functions will also be introduced. Additionally hands on experience with contemporary video game engines like Unity, Unreal etc.	

Course Content	The course is initially intending to introduce algorithms or data structures concepts to new programmers. It discusses engineering issues in algorithm design, as well as mathematical aspects of the design. Traditional Programming Concepts • Types, Operators, and Expressions o Variables, Data Types and Sizes, Constants, Declarations, Arithmetic Operators, Relational and Logical Operators, Type Conversions, Increment and Decrement Operators, Bitwise Operators, Assignment Operators and Expressions, Conditional Expressions, Precedence and Order of Evaluation • Control Flow o Statements and Blocks, If-Else, Else-If, Switch, Loops, Break and Continue • Functions and Program Structure o Basics of Functions, Functions returning Non-integers, External Variables, Scope Rules, Header Files, Static Variables, Register Variables, Block Structure, Initialization, Recursion • Arrays o Arrays, Multi-dimentional Arrays, etc. • Structures o Basics of Structures, Structures and Functions, Array of Structures, etc. Contemporary game development platforms • Game development platforms o Unity o Unreal

COURSE OUTLINE/SCHEDULE

Week	Topic	Implementation (theory/practice)	Required Reading, Preliminary preparation
1	Introduction: General information about Game Mechanics and programming concepts.	T/P	*Material from internet sources.*
2	Types, Operators, and Expressions: Variables, Data Types and Sizes, Constants, Declarations, Arithmetic Operators. Introduction to Unity: Setting up the development environment, sample code reading etc.	T/P	*The C Programming Language.* – by Brian W. Kernighan & Dennis M. Ritchie (Chapter 1 & Chapter 2) *Learn C# in One Day and Learn It Well* *Material from internet sources.*
3	Types, Operators, and Expressions: Relational and Logical Operators, Type Conversions, Increment and	T/P	*The C Programming Language.* – by Brian W. Kernighan & Dennis M. Ritchie (Chapter 2)

	Decrement Operators Starting to develop the first Unity Project.		*Learn C# in One Day and Learn It Well* *Material from internet sources.*
4	Types, Operators, and Expressions: Bitwise Operators, Assignment Operators and Expressions, Conditional Expressions, Precedence and Order of Evaluation First Unity Project development continues.	T/P	*The C Programming Language.* – by Brian W. Kernighan & Dennis M. Ritchie (Chapter 2) *Learn C# in One Day and Learn It Well* *Material from internet sources.*
5	Control Flow: Statements and Blocks, If-Else, Else-If, Switch, Loops, Break and Continue Unity Project development continues.	T/P	*The C Programming Language.* – by Brian W. Kernighan & Dennis M. Ritchie (Chapter 3) *Learn C# in One Day and Learn It Well* *Material from internet sources.*
6	Functions and Program Structure: Basics of Functions, Functions returning Non-integers, External Variables, Scope Rules, Header Files, Static Variables, Register Variables, Block Structure, Initialization etc. Unity Project development continues.	T/P	*The C Programming Language.* – by Brian W. Kernighan & Dennis M. Ritchie (Chapter 4) *Learn C# in One Day and Learn It Well* *Material from internet sources.*
7	Mid-Term Project Submission		
8	C# Programming in Unity: Chapter 5 in Unity for Absolute Beginners by Sue Blackman for a deeper understanding of scripting with C#.	T/P	*Unity for Absolute Beginners* – by Sue Blackman
9	Sample application development practice with Unity.	P	*Unity for Absolute Beginners* – by Sue Blackman
10	Introduction to Unreal: Setting up the development environment, sample code reading etc.	T/P	*Unreal Engine 4 for Beginners* – by David Nixon *Material from internet sources.*
11	Sample application development practice with Unreal.	P	*Unreal Engine 4 for Beginners* – by David Nixon *Material from internet sources.*
12	Sample application development practice with Unreal.	T/P	*Material from internet sources.*
13	Sample application development practice with Unreal.	T/P	*Material from internet sources.*
	Sample application development practice II with Unreal.	T/P	*Material from internet sources.*

14	Final Project Submission		

Required Course Material(s) / Reading(s)/ Text Book(s)	*The C Programming Language. (Second Edition)* - Brian W. Kernighan, Dennis M. Ritchie *Unity 2018 Game Development in 24 Hours, Sams Teach Yourself* - Mike Geig *Learn C# in One Day and Learn It Well - C# for Beginners with Hands-on Project* - Jamie Chan
Recommended Course Material(s)/ Reading(s) /Other	*Introduction to Algorithms. (Third Edition)* - Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein *Unity for Absolute Beginners* – by Sue Blackman *Unreal Engine 4 for Beginners* – by David Nixon https://unity.com/ https://www.unrealengine.com/

ASSESSMENT		
Learning Activities	**NUMBER**	**WEIGHT in %**
Mid-Term (Project)	1	30
Quiz	-	-
Assignment	1	30
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	Develop advanced practical skills in a range of commercial and creative contexts including graphic and audiovisual multimedia design.	x				
2	Have a wide range of knowledgeable, critical and creative approaches to understanding the principles of digital media in contemporary culture.	x				
3	Create an understanding of the impact and importance of digital culture in its diverse global forms.		x			
4	Be able to communicate and market created works across on various digital platforms in their diverse global forms.			x		
5	Develop an understanding of the distinct qualities of the discipline and its major assumptions, debates and theoretical models.	x				
6	Learn practiced-based skills in graphic design, interactive media, including web design and video production, alongside the theoretical analysis of new modes of content creation.				x	
7	Develop understanding of data, data visualization and be able to create information based graphics and visual elements.			x		
8	Be able to follow and adapt to current trends in digital world to implement them on multimedia productions created.		x			
9	Gain game development skills such as game design, story writing, character development and basic scripting.			x		
10	Have an understanding of different eras in media in a historical context and acquire a deep understanding of the ethical and legal responsibilities associated with being a communicator and content creator and	x				
11	Work efficiently independently and also within a team, meeting the deadlines and completing high quality projects.			x		
12	Develop a comprehensive digital portfolio of the works you produce, which includes research, thesis, news articles, films, websites, photo essays, and animations.		x			

ECTS / STUDENT WORKLOAD				
ACTIVITIES	**NUMBER**	**UNIT**	**HOUR**	**TOTAL (WORKLOAD)**
Course Teaching Hour (X weeks * total course hours)	14		4	56
Preliminary Preparation and self- study	14		2	28
Mid-Term	1		6	6

Quiz	-		-	-
Assignment	1		10	10
Project	1		20	20
Field Study	-		-	-
Presentation / Seminar	-		-	-
Studio Practice	-		-	-
Final Examination/ Final Project/ Dissertation	1		10	10
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 Final Examination/ Project/ Dissertation Assessment Details as below, and comply by the Education and Examination Regulation set forth by the University. Throughout the course, students will learn 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 very important input for learning process for the students. It is also vital to understand the effect of creativity input for the production process of advertisement.	
PREPARED BY	Erkut çulluoğlu
UPDATED	17-10-2022
APPROVED	