Game Development

Cihan University Sulaymaniyah

Academic Year: 2025-2026

1. Information on the Programme

1.1. Higher Education Institution	Cihan University
1.2. College	College of Science & Technology
1.3. Department	Department of Computer Science
1.4. Field of Study	Information and Communication Technology
1.5. Cycle of Study[1]	Bachelor's Degree (First Cycle)
1.6. Specialisation/ Study Programme	Computer Science
1.7. Form of Education	Full time

2. Information on the Discipline

2.1. Discipline Name				Game Development				
2.2. Code				/				
2.3. Language:				English				
2.4. (Theory) Lecturer **E-mail:** **bahast.li@sulicihan.edu.krd** **Tel: /** **Webpage, Google Classroom**				Bahast A.				
2.5. Practical/Seminar/ Laboratory/ Project Lecturer **e-mail:** **Tel:** **Webpage, Google Classroom**				Same as above				
2.6. Year of Study	4rd	**2.7.Semester**	2nd	**2.8. Assessment Type**[2]	CE & WE	**2.9. Discipline Status**	**Content**[3]	FD
							Mandotary[4]	MD

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[1] **Cycle of studies - Bachelor «1»**

[2] **(Exam: Written Exam (WE)), and (Continuous Evaluation(CE)).**

[3] **Discipline status (Content) - FD (Fundamental (General) Discipline),**

[4] **Discipline status (compulsoriness) -** MD (Mandatory discipline),

3. Total estimated time (Teaching Hours per Semester)

Total Contact Hours:	**52**
Total Self Study Hours:	**83**
Total No. Hours:	**135**
ECTS:	**5**

No. of Weeks	Contact Hours					Self Study					
	Theoretical	Practical Lab.		Project	Visit	Quiz	Reading	Assignment	Report	Midterm Exam.	Final Exam.
1st Week (Registration)	-	-	-	-	-	-	-	-	-	-	-
2nd Week	2	2				1	2			8	11
3rd Week	2	2				1	2				
4th Week	2	2				1	2				
5th Week	2	2				1	2		9		
6th Week	2	2				1	2				
7th Week	2	2				1	2				
8th Week	2	2				1	2			8	
9th Week	2	2				1	2				
10th Week	2	2				1	2				
11th Week	2	2				1	2		8		
12th Week	2	2				1	2				
13th Week	2	2				1	2				
14th Week	2	2				1	2				
15th Week (Final Exam.)											
16th Week (Final Exam.)											
TOTAL	**26**	**26**				**13**	**26**	**0**	**17**	**16**	**11**

4. Prerequisites (if applicable)

4.1 Curriculum-Related	NA
4.2 Skills-Related	NA

5. Conditions (if applicable)

5.1. For the Theoretical	Pass with at least a 50% threshold
5.2. For the Practical/ Laboratory/ Project	Complete all lab assignments

6. Cumulated Specific Competences

Professional Competencies	Students will demonstrate professional efficacy by analysing, implementing, and managing sophisticated game development software from the ground up. This competence enables them to reliably achieve complex and technical objectives.
Transversal Competences	Technical reporting, critical thinking, problem-solving and teamwork skills

7. Discipline Objectives

7.1. General Objective	This module is designed to foster competence in leveraging game development principles by enabling students to transition from foundational knowledge to practical application.
7.2. Learning Outcomes	By the end of this module, students should be able to: 1 – Explain and analyse the fundamental elements of a game, including players, challenges, rules, and victory conditions. 2 – Develop interactive gameplay logic and character movement using C# scripting and the Unity physics engine. 3 - Design user interfaces (UI) and heads-up displays (HUD) that provide effective visual and sensory feedback to the player. 4 – Evaluate game design decisions based on hardware constraints, target audience, and accessibility requirements like colourblind options.

	5 – Develop interactive gameplay logic and character movement using C# scripting and the Unity physics engine. 6 - Implement 2D game environments within Unity 6 and asset integration techniques.

8. Content

8.1. Theoretical-

Number of Hours	Topics	LOs
First week	Enrolment	**1**
Second week	Introduction to games	**1,2**
Third week	Unity ecosystem	**2**
Fourth week	Introduction to C# the Unity Lifecycle	**2,5**
Fifth week	Physics Engine	**2,5**
Sixth week	Prefabs & Instantiation	**6**
~~**Seventh week**~~		
Eighth week	Input & Character Control	**3,5**
Ninth week	UI & HUD Design	**3**
~~**Tenth week**~~	Animation & State Machines	**2**
Eleventh week	Audio & Particle Systems	**5,6**
Twelfth week	2D Development	**3,5,6**
Thirteenth week	Revision	**1,2,3,4,5,6**
~~**Fourteenth week**~~		

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8.2. Practical Works– Number of Hours	Teaching methods	Observation
First week	Live Demonstration: Walk students through the Unity 6 interface (Scene, Game, Inspector).	Observe if students can navigate the 2D viewport and distinguish between Game Objects and Components.
Second week	Guided Coding: Provide a script template for movement. Explain the lifecycle methods (Start, Update).	Check the Console window on student screens; observe how they handle syntax errors
Third week	Inquiry-Based Learning: Set up a "Physics Playground." Ask students to change Rigidbody mass or friction to see how objects behave differently.	Look for students experimenting with "Triggers" vs. "Collisions" and see if they understand
Fourth week	Step-by-Step Workshop: Demonstrate "Prefabs" by creating one projectile and spawning many.	Observe if students are successfully "Instantiating" objects
Fifth week	Problem-Solving Lab: Give students a character that cannot jump. Challenge them	Observe the logic used for player input; ensure they are moving characters
Sixth week	Creative Design: Students design a HUD (Health, Score) using the Canvas system. Focus on "Anchors" so the UI works on different screens.	Check if UI elements stay in place when the Game view resolution is changed
~~**Seventh week**~~		
Eighth week	Comparative Analysis: Have students build a small 2D level. Contrast "Sorting Layers" in 2D	Observe if students are correctly using Sprite Renderers and 2D Colliders
Ninth week	Experimental Lab: Students add Audio and Particles)	Listen for "Spatial Sound"—does the audio get quieter as the player moves away from the source

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Tens week	Algorithmic Demo: Set up a NavMesh. Show how an NPC "Pathfinds" around obstacles to chase a target.	Observe the "Baking" process; ensure students understand
Eleventh week	Introduce ScriptableObjects for data. Show how to swap without changing code.	Observe student "Game Design Documents"—is the game logic organised
Twelfth week	Visual Walkthrough: Use a "State Machine" (Animator) to link logic to visuals	Observe if animations transition smoothly or if the character "pops" between states due
Thirteenth week	revision	revision
~~Fourteenth week~~		

Compulsory Bibliography:

1. Unity 6 Official documentations
2. Learning C# by Developing Games with Unity by Terry Norton
3. Unity from zero to proficiency by Patrick Felicia

Optional Bibliography:

9. Assessment

Type of Activity	9.1. Assessment Criteria[2]	9.2. Assessment Type	9.3. Percentage of the final Grade
9.4. Theoretical	CE, WE	**Weekly quizzes, assignments, group work**	50%
9.5. Practical/ Seminar/Laboratory	CE	**Lab reports, reports, homework, group work**	50%
Minimum performance Standards: 50%			

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Theoretical Lecturer	Bahast A.
Practice Lecturer	Same as above

Grading Scheme			
Group	**Grade**	**Marks %**	**Definition**
Success Group (50 - 100)	**A -** Excellent	90 – 100	Outstanding Performance
	B - Very Good	80 – 89	Above average with some errors
	C - Good	70 – 79	Sound work with notable errors
	D - Satisfactory	60 – 69	Fair but with major shortcomings
	E - Sufficient	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required

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Approved by the Curriculum development Committee:	
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Head of the Department/ Dean	

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