جامعة الزيتونة الأردنية

Al-Zaytoonah University of Jordan

Course Syllabus

According to JORDAN National Qualification Framework (JNQF)

Course Name: Game Programming

Course Number: 0130437

General Course Information:

Course Title	Game Programming
Course Number	0130437
Credit Hours	3 credit hours
Education Type	Traditional learning
Prerequisites/Co-requisites	Visual Programming Applications (0130232)
Academic Program	Computer Science
Program Code	130
Faculty	Faculty of Information Technology
Department	Computer Science
Level of Course	3
Academic Year /Semester	2025-2026 / 1st Semester
Awarded Qualification	BS'c
Other Department(s) Involved in Teaching the Course	-
Language of Instruction	English
Date of Production	2025
Date of Revision	

Course Coordinator:

Coordinator's Name	Basem Alokush
Office No.	9119
Office Phone Extension Number	360
Office Hours	11-12:30 Sunday-Wednesday
E-mail	Basem.alokash@zuj.edu.jo

Other Instructors:

Instructor Name	
Office No.	
Office Phone Extension Number	
Office Hours	
Email	

Course Description *(English/Arabic)*:

English	**Development of programming skills using software environment of a game engine and its scripting language. 3D concepts for game play, modelling, and programming. Roles needed in software development team. Contrast creation of original 3D object models for game world with incorporation of pre-created generic models. This course is an introduction to Unity covering basic techniques for creating games in Unity. The course will cover all the basic techniques needed to create games in Unity.**
Arabic	**هذا المساق هو مقدمة إلى تطبيق تصميم و برمجة الالعاب و الذي سوف يغطي التقنيات الأساسية لتكوين وبناء الألعاب. وتغطية جميع التقنيات الأساسية اللازمة لإنشاء الألعاب. بالاضافة الى تطوير مهارات البرمجة باستخدام**

	بيئة البرمجيات من محرك اللعبة ولغة البرمجة خاصة. مفاهيم العاب الـ 3D، النمذجة، والبرمجة. و أيضا الاستفادة من المكتبات العالمية المجانية لبناء و تطوير الالعاب. و كما يهدف هذا المساق الى تعرف على عناصر وأسس وتقنيات صناعة الألعاب الرقمية. وفهم القواعد، وسرد القصة وعناصر ألعاب الفيديو، مع كيفية تصميم الواجهات والتعرف على البرمجة بشكل بسيط، وأيضاً كيفية الترويج للمنتج النهائي من اللعب في الأسواق المحلية والعالمية

Textbook: *Author(s), Title, Publisher, Edition, Year, Book website.*

1. Unity All-In-One: A Handbook to Build 3D Games from Start to Finish and Learn C# in the Process 2025

References: *Author(s), Title, Publisher, Edition, Year, Book website.*

1. Hands-On Unity Game Development: Unlock the power of Unity 2023 and build your dream game 4th Edition 2023
2. Learning Design Patterns with Unity: Learn the secret of popular design patterns while building fun, efficient games in Unity 2023 and C#

Course Educational Objectives (CEOs):

CEO1	Learn the fundamentals of game design.
CEO2	Understand animation principles and apply them to game characters and objects.
CEO3	Learn about 3D models, textures, and basic lighting.
CEO4	Understand the principles of physics in game development.

Intended Learning Outcomes (ILO's):

Intended learning outcomes (ILOs)		Relationship to CEOs	Contribution to PLOs	Bloom Taxonomy Levels*	JNQF Descriptors**
K	K-Knowledge and Understanding				
ILO1-k	Knowledge and understanding to animate 3D models.	CEO1	PLO2	Understanding	K
ILO2-k	Advanced knowledge of how to build and animate 3D elements and use them in various areas of multimedia technology	CEO2	PLO2	Creating	K
	S- Intellectual skills				
ILO3-s	Ability to use Dynamically changing GameObjects, component configuration.	CEO2	PLO4	Applying	S
ILO4-s	Ability to create 3D Game Creation.	CEO3	PLO5	Creating	S
ILO5-s	Ability to use Transform component (changing transform properties and resetting them).	CEO4	PLO6	Applying	S
	C- Subject specific skills				
ILO6-c	Be able to apply knowledge and use it creatively to solve problems and imagine new ways of getting workers done	CEO1	PLO7	Applying	C

ILO7-c	Be able to Representation of 2D and 3D objects on game scene.		CEO3	PLO7	Creating	C
	D-Transferable skills:					
ILO6-d						

*Bloom Taxonomy Levels:						
Level #	1	2	3	4	5	6
Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
** Descriptor (National Qualification Framework Descriptors): K: Knowledge, S: Skill, C: Competency.						

Program Learning Outcome (PLOs):

	(PLOs)	JNQF Descriptors**		
		K	S	C
1.	Knowledge of professional ethics, social responsibility, and the regulations governing them.	√		
2.	Understanding various programming techniques, the stages of software development, and the fundamental principles of security.	√		
3.	Skill in applying mathematical concepts to analyze and design algorithms and verify their correctness		√	
4.	Skill in using different programming languages and applying them to develop software and computer applications.		√	
5.	The ability to analyze, design, and develop effective and reliable computer programs that meet user requirements and adhere to professional ethics.			√
6.	The ability to keep up with continuous advancements in computer science, innovate, and work independently or as part of a team.			√
7.	The ability to work collaboratively, communicate effectively, and demonstrate teamwork spirit.			√

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule *(please choose the type of teaching)*

- ☒ **Face to Face (F2F)**
- ☐ **Hybrid** *(One – To - One)*
- ☐ **Online**

Schedule of Simultaneous and their Topics:

Week	First Lecture (F2F)	Second Lecture (F2F)	ILOs	PLOs	JNQF Descriptors*
1	How Are Games Made	Types of Games	ILO1-K	PLO2	K
2	Game Design Methods	Game Concept	ILO2-K	PLO2	K
3	Using Unity	Using Unity	ILO3-S	PLO2 PLO4	S
4	Game Characters	Game Character Types	ILO3-S	PLO4 PLO5	S
5	Artificial Intelligence	Mathematical Behaviours	ILO6-S	PLO4 PLO5	C
6	Game Story	Aristotle and the Greeks	ILO4-S	PLO4 PLO5	S

7	Story Design	Putting the Story into the Game	ILO3-S	PLO2	S
Midterm Exam (30%)					
9	Game Environments	Creating Terrains	ILO4-S	PLO4 PLO5	S
10	Game Mechanics	Implementing Mechanics	ILO5-S	PLO4 PLO5	S
11	Games Audio	Audacity and Effects	ILO4-S	PLO5 PLO6	S
12	2D and 3d Audio in Unity	Using PlayMaker	ILO4-S	PLO6	S
13	User Interfaces	Basics of Color Theory	ILO5-S	PLO6	S
14	Building the Game	Game Development Life Cycle	ILO7-C	PLO6	C
15	**Projects Discussion**				
16	**Final Exam**				

* **K: Knowledge, S: Skills, C: Competency**

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Lecture.
- learning through projects.
- learning through problem solving.
- participatory learning

Course Policies:

A- Attendance policies:
The maximum allowed absences is 15% of the lectures.
B- Absences from exams and handing in assignments on time:
Midterm exam can be retaken based on approval of excuse by the instructor's discretion.
Not handing assignment on time will incur penalties.
C- Academic Health and safety procedures
D- Honesty policy regarding cheating, plagiarism, and misbehaviour:
Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.
E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes) **20%**
- Midterm 30**%**
- Final Exam 50**%**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

Required Equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the ZUJ E-Learning Platform at https://exams.zuj.edu.jo/
- E-learning plan
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

Assessment Tools Implemented in the Course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Practice Labs
- Discussion Forums
- Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching.
- Others…

Responsible Persons and their Signatures:

Course Coordinator		**Completed Date**	/ /
		Signature	

Received by (Department Head)		**Received Date**	/ /
		Signature	