



Universitat de Lleida

DEGREE CURRICULUM
**VIDEO GAME DEVELOPMENT
FOR HIGH PERFORMANCE
PLATFORMS**

Coordination: ,

Academic year 2020-21

Subject's general information

Subject name	VIDEO GAME DEVELOPMENT FOR HIGH PERFORMANCE PLATFORMS			
Code	103093			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Master's Degree in Informatics Engineering	2	OPTIONAL	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	TEORIA	
	Number of credits	3	3	
	Number of groups	1	1	
Coordination	,			
Department	MATHEMATICS			
Teaching load distribution between lectures and independent student work	6 ECTS correspond to 150 work hours (45 in-class, 105 out-of-class).			
Important information on data processing	Consult this link for more information.			
Language	English			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PROFESSOR PENDENT ASSIGNAR		6	

Subject's extra information

There exist several platforms that facilitate the development of high complexity video games. These platforms provide an easy way to manage the game graphical elements and program their behaviour through code. They provide tools to position and move objects, manage the interaction among them, add sound and everything needed.

Moreover, in highly realistic games you need to create high quality graphical elements such as characters, vehicles, vegetation and all those elements that are part of the scene. Creation of such material requires specific software.

This course we will employ the Unity 3D game creation platform and the Blender 3D modeling tool.

This subject is part of the videogame development specialization module. It is recommended to have coursed "Computer graphics and multimedia" and "Video game programming techniques and fundamentals" previously.

Learning objectives

- Use the functionalities provided by a video game development tool.
- Implement the logic of a third person 3D videogame.
- Create the graphical material of a video game
- Integrate self-created graphical material in a video game
- Carry out the tasks detailed in a work plan in an autonomous way making use of Internet to complement the information provided.
- Perform a public exposition presenting a project and making use of audiovisual elements

Competences

General competences

- **CG4. Capacity to mathematically model**, calculate and simulate in technological companies and engineering centres, particularly with regard to research, development and innovation tasks in all fields related to computer engineering

Strategic competences of UdL

- UdL2. Command of a foreign language .

Cross-disciplinary competences

- EPS1. Capacity of planning and organizing the personal work.
- EPS3. Capacity to convey information, ideas, problems and solutions to both a specialized and non specialized public.

- EPS4. Capacity to conceive, design and implement projects and/or contribute to new solutions, using engineering tools
- EPS5. To be motivated for the quality and steady improvement.

Basic competences

- CB5. Students should possess learning skills that enable them to continue studying in a way that will be largely self-directed or autonomous.

Specific competences

- CE14. Capacities to conceptualise, design, develop and evaluate the person-computer interaction of products, systems, applications and computer services

Subject contents

1. The Unity 3D videogame engine

- 1.1. Work space
- 1.2. Class hierarchy and objects
- 1.3. Texture and material creation
- 1.4. Script programming
- 1.5. Addition of sound
- 1.6. Model import

2. The Blender modeling tool

- 2.1. Work space
- 2.2. Basic modeling operations
- 2.3. Texture addition
- 2.4. Model export

Methodology

The subject will follow a project based methodology in which students will develop a project along the course.

In-class sessions, carried out in a class equipped with computers, will be devoted to the explanation of basic concepts by the professor, to the study of examples and to work in the project. The project will be completed during out-of-class hours.

Development plan

This course we will carry out a project in which we will develop a 3D videogame in which the player will drive an armored vehicle. Students will create the graphical elements, program the vehicles movement, projectile launchment and the interaction among game elements.

In-class sessions will take place each week in three hour sessions.

Week	Project tasks
1-3	Unity 3D self training
4-10	Project development using Unity 3D
11-12	Blender self training
13-14	Project models development using Blender
15	Public exposition of the project using audiovisual elements

Evaluation

These are the evaluative tasks

Activity	Weight	Minimum mark	In group	Mandatory	Recuperable
Project development using Unity 3D	50%	No	No	No	Yes
Models creation using Blender	30%	No	No	No	Yes
Public exposition	20%	No	No	No	No

Overall mark = $0.5 \cdot \text{Unity} + 0.3 \cdot \text{Blender} + 0.2 \cdot \text{Expo}$

Bibliography

- Joseph Hocking. Unity in Action. Multiplatform game development in C#. Manning. 2015.
- Oliver Villar. Learning Blender. A hands-on guide to creating 3D animated characters. Addison-Wesley. 2015.
- Home of the Blender Project (<https://www.blender.org/>).