

# Course guide 804230 - P1VJ - Project I

**Last modified:** 22/07/2025

**Unit in charge:** Image Processing and Multimedia Technology Centre

**Teaching unit:** 804 - CITM - Image Processing and Multimedia Technology Centre.

Degree: BACHELOR'S DEGREE IN VIDEO GAME DESIGN AND DEVELOPMENT (Syllabus 2014). (Compulsory

subject).

Academic year: 2025 ECTS Credits: 6.0 Languages: Catalan, English

#### **LECTURER**

**Coordinating lecturer:** Alejandro París

**Others:** Alejandro París

Aleix Cots

#### **PRIOR SKILLS**

Knowledge of programming using C.

## **TEACHING METHODOLOGY**

Project-based learning: students design, develop and present a video game based on an initial challenge.

During each class, the lecturer will first show the students the theory behind the problem that need solving. Together with the students, the lecturer will explore the different solutions that exist in the present that solve and simplify the complexities of real time applications like videogames.

The lecturer will provide source code for the student to study and complete while integrating it in their own source code for future reference and use. Closing each session, the lecturer will provide with ideas for improving the systems challenging student in order to help and orientate the students in the self learning time.

## **LEARNING OBJECTIVES OF THE SUBJECT**

- Recognise the concepts and procedures involved in managing video game creation projects.
- Plan projects of casual video games, 2D video games and / or 3D video games, using project management tools as support.
- To make decisions about complex situations based on critical reflection, considering the ethical implications of actions.
- Collaborate effectively and responsibly as a member or leader of a team, in interdisciplinary contexts or not, considering the available resources.

# **STUDY LOAD**

Туре	Hours	Percentage
Guided activities	12,0	8.00
Hours medium group	30,0	20.00
Self study	90,0	60.00
Hours large group	18,0	12.00

**Date:** 27/11/2025 **Page:** 1 / 3



Total learning time: 150 h

# **CONTENTS**

# 1. Development tools

## **Description:**

Distributed work with Git Services of github.com

Tools for communication and teamwork: Trello and Slack

Development tools: Visual Studio

Full-or-part-time: 20h Theory classes: 8h Self study: 12h

# 2. Introduction to raylib programming

## **Description:**

Game structure with raylib Sprites and transparencies Using input devices Using audio systems

Full-or-part-time: 35h Theory classes: 14h Self study: 21h

# 3. Coding arcade games

## **Description:**

Modular code structure

Rendering and texture management

The input subsystem

The audio subsystem

Sprite animations

Collision management

User Interfaces

**Full-or-part-time:** 60h Theory classes: 24h Self study: 36h

# 4. Logic and FSM

# Description:

Artificial Intelligence Graph theory

Coding FSM

QA, testing and debugging

**Full-or-part-time:** 35h Theory classes: 14h Self study: 21h

**Date:** 27/11/2025 **Page:** 2 / 3



# **GRADING SYSTEM**

15% - Assignment 1

30% - Assignment 2

35% - Assignment 3

10% - Presentació Final

10% - Actitud

WARNING: This subject does not feature any content that can be revaluated.

Irregular actions that may lead to a significant variation of the grade of one or more students constitute a fraudulent performance of an evaluation act. This action entails the descriptive grade of failure and a numerical grade of 0 for the ordinary global evaluation of the course, without the right to re-evaluation.

If the lecturers have indications of the use of AI tools not allowed in the evaluation tests, they may summon the students concerned to an oral test or a meeting to verify the authorship.

# **BIBLIOGRAPHY**

## Basic:

- Robert Nystrom. Game Programming Patterns. Genever Benning, 2014. ISBN 0990582906.

#### Complementary:

- Clinton Keith. Agile Game Development: Build, Play, Repeat. Pearson Education Limited, 2020. ISBN 0136527817.

# **RESOURCES**

# Hyperlink:

- http://www.uml.org/- http://www.proyectosagiles.org/- https://github.com/raysan5/raylib/wiki. Raylib Wiki
- https://www.raylib.com/examples.html. Raylib examples
- https://www.raylib.com/cheatsheet/cheatsheet.html. Raylib cheatsheet

**Date:** 27/11/2025 **Page:** 3 / 3