

## Course guides

### 804230 - P1VJ - Project I

**Last modified:** 02/09/2021

**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:** 2021    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish, English

#### LECTURER

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**Coordinating lecturer:** Alonso Alonso, Jesus

**Others:**

#### PRIOR SKILLS

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Knowledge of programming using C.

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

5. Design the mechanics, rules, structure, script and artistic concept of a video game, maximising immersion and criteria of playability and balance to provide the best possible user experience.
7. Master the wide range of professional tools in the sector for developing all kinds of digital content.
8. Identify the production process and methodologies for developing a video game, and the role of each of the profiles and functions involved.
11. Undertake and manage video game design and development projects, including planning, direction, execution and evaluation.
13. Use programming languages, algorithmic patterns, data structures, visual programming tools, game engines and libraries for the development and prototyping of video games, in any genre and for any platform and mobile device.

#### TEACHING METHODOLOGY

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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

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Learn how to embark in the development of a video game of small complexity.  
Learn how to work in a small team and coordinate with the rest.



## STUDY LOAD

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

**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

**Full-or-part-time:** 20h

Theory classes: 8h  
Self study : 12h

### 2. Introduction to SDL programming

**Description:**

Initial setup for a game with SDL  
Sprites and transparencies  
Using input devices  
Using the audio features

**Full-or-part-time:** 35h

Theory classes: 14h  
Self study : 21h

### 3. Coding arcade games

**Description:**

Modular code structure  
The renderer and texture management  
The input subsystem  
The channels audio  
Sprite animation and the parallax effect  
Collision management  
Foundation for User Interfaces

**Full-or-part-time:** 60h

Theory classes: 24h  
Self study : 36h



#### 4. FSM and entering Beta

**Description:**

Introduction to functional QA  
QA for quality  
Graph theory  
Programming state machines

**Full-or-part-time:** 35h

Theory classes: 14h  
Self study : 21h

#### GRADING SYSTEM

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20% - Assignment 1  
30% - Assignment 2  
40% - Assignment 3 (30% project, 5% presentation, 5% interview)  
10% - Attitude  
WARNING: This subject does not feature any content that can be reevaluated.

#### BIBLIOGRAPHY

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**Basic:**

- Ernest Pazera. Focus on SDL. Course Technology PTR, 2002. ISBN 1592000304.
- Shaun, Mitchell. SDL game development. Packt Publishing, 2013. ISBN 1849696829.

#### RESOURCES

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**Hyperlink:**

- <http://www.proyectosagiles.org/>
- <http://www.uml.org/>