Course guides
804230 - P1VJ - Project I

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

Coordinating lecturer: Alonso Alonso, Jesus
Others: Santamaria Pena, Ramon

PRIOR SKILLS

Knowledge of programming using C.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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

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

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided activities</td>
<td>12.0</td>
<td>8.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>30.0</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>18.0</td>
<td>12.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90.0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

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

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**GRADING SYSTEM**

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 revaluated.

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**BIBLIOGRAPHY**

**Basic:**

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**RESOURCES**

**Hyperlink:**
- http://www.proyectosagiles.org/  
- http://www.uml.org/