804240 - P2VJ - Project II

Coordinating unit: 804 - CITM - Image Processing and Multimedia Technology Centre
Teaching unit: 804 - CITM - Image Processing and Multimedia Technology Centre
Academic year: 2019
Degree: BACHELOR'S DEGREE IN VIDEO GAME DESIGN AND DEVELOPMENT (Syllabus 2014). (Teaching unit Compulsory)
ECTS credits: 6
Teaching languages: Catalan, Spanish, English

Teaching staff
Coordinator: Pillosu González, Ricard

Prior skills
Knowledge of programming using C and C++. Experience coding small 2D video games.

Degree competences to which the subject contributes

Specific:
CEVJ 2. (ENG) Representar de forma esquemàtica i visual conceptes, idees i / o dades complexes a partir d'habilitats personals i referències externes, amb l'objectiu de transmetre atractiu, originalitat i creativitat.

General:
CGFC1VJ. (ENG) Dissenyar, desenvolupar, seleccionar i avaluar aplicacions i sistemes informàtics d'o per a videojocs, assegurant la seva fiabilitat, seguretat i qualitat, d'acord amb principis ètics i la legislació i normativa vigent.
CGFC6VJ. (ENG) Analitzar, dissenyar, construir y mantenir aplicaciones tipo videojuego de forma robusta, segura y eficiente, eligiendo el paradigma y los lenguajes de programación más adecuados.

Transversal:
01 EIN. ENTREPRENEURSHIP AND INNOVATION: Knowing about and understanding how businesses are run and the sciences that govern their activity. Having the ability to understand labor laws and how planning, industrial and marketing strategies, quality and profits relate to each other.
05 TEQ N2. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

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 students will have to work on a special research project assigned by the teacher to then show it in class. All the material will stay online.

Learning objectives of the subject
Learn how to embark in the development of a video game of mid size.
Learn how to work in a large team and coordinate with the rest.
How to structure a micro studio, bringing all the required documentation.
### Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>18h</th>
<th>12.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>30h</td>
<td>20.00%</td>
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<tr>
<td></td>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Guided activities:</td>
<td>12h</td>
<td>8.00%</td>
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<tr>
<td></td>
<td>Self study:</td>
<td>90h</td>
<td>60.00%</td>
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### Content

<table>
<thead>
<tr>
<th><strong>Creation of a micro studio</strong></th>
<th><strong>Learning time:</strong> 15h</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 6h</td>
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<tr>
<td></td>
<td>Self study: 9h</td>
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**Description:**
- Study of the project and group formation.
- Development of the internal roles for the groups.
- Presence inside the social networks.
- The SCRUM methodology.

<table>
<thead>
<tr>
<th><strong>Planification and documentation</strong></th>
<th><strong>Learning time:</strong> 20h</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 8h</td>
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<tr>
<td></td>
<td>Self study: 12h</td>
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**Description:**
- Structure of a Game Design Document
- Creation of the Technical Design Document
- Creation of the Project Development Document
- Method to introduce your product to investors
- Creation and presentation techniques of the Pitch

<table>
<thead>
<tr>
<th><strong>Coding the Vertical Slice</strong></th>
<th><strong>Learning time:</strong> 45h</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 18h</td>
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<td></td>
<td>Self study: 27h</td>
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**Description:**
- Internal structure of the videogame.
- Path finding using Dijkstra.
- Using the A* algorithm for better pathfinding.
- Dynamic obstacles during navigation.
- Searching entities in an area.
- System to accumulate modifier on entities.
- System to development of Skill Trees.
The individual personal research project will weight 25%

Exercises
- Exercise 1 with a weight of 5% of the final grade: Introducing your micro studio.
- Exercise 2 with a weight of 5% of the final grade: Pitch Presentation.
- Exercise 3 with a weight of 15% of the final grade: Videogame Vertical Slice (prototype).
- Exercise 4 with a weight of 20% of the final grade: Videogame Alpha.

Final Exercise
- Exercise with a weight of 30% of the final grade: Fully functional videogame with all the documentation recording the evolution of the product.

Qualification system

The individual personal research project will weight 25%

Exercises
- Exercise 1 with a weight of 5% of the final grade: Introducing your micro studio.
- Exercise 2 with a weight of 5% of the final grade: Pitch Presentation.
- Exercise 3 with a weight of 15% of the final grade: Videogame Vertical Slice (prototype).
- Exercise 4 with a weight of 20% of the final grade: Videogame Alpha.

Final Exercise
- Exercise with a weight of 30% of the final grade: Fully functional videogame with all the documentation recording the evolution of the product.

Regulations for carrying out activities

All exercises will be presented in class. The content will be important as it will be the presentation skills of the group.

<table>
<thead>
<tr>
<th>Coding the Alpha</th>
<th>Learning time: 45h</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 18h</td>
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<td>Self study : 27h</td>
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<table>
<thead>
<tr>
<th>Coding the Beta</th>
<th>Learning time: 15h</th>
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<tr>
<td></td>
<td>Theory classes: 6h</td>
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<tr>
<td></td>
<td>Self study : 9h</td>
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Description:
- System for input management.
- System for minimap and radar generation.
- Creating the Fog of War.
- Systems to load and save games.
- Follow up on the Alpha protocol.

Description:
- Theory behind quality assurance on software.
- Follow up on the Beta protocol.
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Bibliography

Basic:


Complementary: