804248 - A3D - 3D Animation

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)
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: Casas Torres, Llogari
Ripoll Tarré, Marc

Degree competences to which the subject contributes

Specific:
- CEVJ 9. (ENG) Aplicar técnicas de modelado y animación avanzada, postproducción y efectos especiales para la elaboración de contenidos digitales y/o su inclusión en un proyecto de videojuego.
- CEVJ 8. (ENG) Dissenyar, modelar, texturitzar i animar objectes, personatges i escenes 2D i 3D per la seva inclusió en projectes digitals, seqüències audiovisuals i videojocs.
- CEVJ 7. (ENG) Dominar el gran abanico de herramientas profesionales del sector para la elaboración de contenidos digitales de todo tipo.

Transversal:
- 05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
- 04 COE N3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
- 07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

Teaching methodology

Learning of new contents through theory, references and practical examples.
Participative classroom where to resolve problems and discuss contents.
Practical exercices to apply and experiment with the contents of the course. They will be used to work during the week and improve the skills to master the 3d design tools and techniques.

Learning objectives of the subject

To understand the theory of animation.
To plan animations adapting to every possible mechanic, aesthetic and narrative combinations.
To understand the work methodology used by professional videogame studios and analyze the importance of teamwork.
Know the most important techniques in 3D animation.
To use the subject learning to create professional high quality character animations.
Represent character emotion through facial expressions and vocalization.
To do the exercices proposed in class applying the correct structure, presentation and planification and maintaining a good orthographic and grammatical level.
## Study load

<table>
<thead>
<tr>
<th></th>
<th>Hours large group:</th>
<th>Hours medium group:</th>
<th>Hours small group:</th>
<th>Guided activities:</th>
<th>Self study:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total learning time:</strong></td>
<td>150h</td>
<td>18h</td>
<td>32h</td>
<td>0h</td>
<td>10h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90h</td>
</tr>
<tr>
<td><strong>%</strong></td>
<td>12.00%</td>
<td>21.33%</td>
<td>0.00%</td>
<td>6.67%</td>
<td>60.00%</td>
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</tbody>
</table>
## Content

### Animation

<table>
<thead>
<tr>
<th>Description:</th>
<th>Learning time: 26h</th>
</tr>
</thead>
</table>
| Animation concepts  
Playback speed  
Keyframes  
Animation curves | Theory classes: 3h  
Practical classes: 7h  
Guided activities: 1h  
Self study: 15h |

### Rigging and Skinning

<table>
<thead>
<tr>
<th>Description:</th>
<th>Learning time: 41h 20m</th>
</tr>
</thead>
</table>
| Setup  
Joints  
Inverse kinematics  
Skinning | Theory classes: 5h  
Practical classes: 8h 20m  
Guided activities: 3h  
Self study: 25h |

### Character animation

<table>
<thead>
<tr>
<th>Description:</th>
<th>Learning time: 41h 20m</th>
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</thead>
</table>
| References and acting  
Animation concepts with characters  
Motion capture  
Facial animation | Theory classes: 5h  
Practical classes: 8h 20m  
Guided activities: 3h  
Self study: 25h |
# Techniques

**Learning time:** 41h 20m  
- Theory classes: 5h  
- Practical classes: 8h 20m  
- Guided activities: 3h  
- Self study: 25h

**Description:**  
- Retargeting  
- Scripting  
- Physics  
- Non Linear animation

## Planning of activities

<table>
<thead>
<tr>
<th>Exercice 1</th>
<th>Hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>10h</td>
<td></td>
</tr>
<tr>
<td>To create a functional rig for a character and adjust the skin until getting a ready to animate character.</td>
<td></td>
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<tr>
<td><strong>Support materials:</strong></td>
<td></td>
<td></td>
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<tr>
<td>Autodesk Maya</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Descriptions of the assignments due and their relation to the assessment:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The exercice will be uploaded to an Àgora folder specified by the professor and saved as a Maya scene with the full name of the student.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Specific objectives:</strong></td>
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<td></td>
</tr>
<tr>
<td>To practice and better understand the rigging tools and techniques applied to characters.</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Exercice 2</th>
<th>Hours</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>20h</td>
<td></td>
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<tr>
<td>Design the animations of a character and create the basic poses for the integration into a videogames.</td>
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<tr>
<td><strong>Support materials:</strong></td>
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<td></td>
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<tr>
<td>Autodesk Maya</td>
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<tr>
<td><strong>Specific objectives:</strong></td>
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<tr>
<td>To animate a character, designing his actions.</td>
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Qualification system

2 exercises
1 practice with a percentage of 15% of the final evaluation.
1 practice with a percentage of 30% of the final evaluation.

1 exam with a percentage of 15% from the final evaluation.
1 final exam with a percentage of 30% from the final evaluation.

Learning attitude and learning: 10% of the final evaluation.

Revaluation exam: possibility to access the revaluation exam to revaluate the two previous exams (45% of the final evaluation). Only students that didn’t pass the assignature can access the revaluation exam.

Regulations for carrying out activities

Some of the exercises can be worked in classroom with professors, however, students must work in an autonomous way to finish their exercises. They should follow the instructions given in the exercise document.

Bibliography

Basic:

Complementary:

Others resources:
Hyperlink
www.thegnomonworkshop.com
  Resource

www.digitaltutors.com
  Resource

http://area.autodesk.com
  Resource

http://www.cgsociety.org/
  Resource