Course guide
804258 - MA3DAV - Modelling and Advanced 3D Animation

Unit in charge: Image Processing and Multimedia Technology Centre
Teaching unit: 804 - CITM - Image Processing and Multimedia Technology Centre.

Degree: Academic year: 2022  ECTS Credits: 6.0
Languages: Catalan, Spanish, English

LECTURER

Coordinating lecturer: Marc Ripoll Tarré

Others: Ismael Navales Farreras

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.
CEVJ 8. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
CEVJ 9. Apply advanced modelling and animation, post-production and special effects techniques to the creation of digital content and/or its inclusion in a video game project.

Transversal:
04 COE N2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
06 URI N3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.
07 AAT N3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
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.

TEACHING METHODOLOGY

Exhibition and learning of new content through theory, references and practical cases.
Participatory class. Development of problem-solving activities and content discussion.
Practical work to experiment with the contents seen in class. Exercises will be proposed to work during the week and improve the experience necessary to master 3D design tools.

LEARNING OBJECTIVES OF THE SUBJECT

- To understand the theory of character design.
- To plan characters and environments 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.
- To know commonly used techniques applied to character and level design.
- To strengthen the modeling, texturing and animation basics.
- To use the subject learning to create professional high quality 3D model designs.
- To do the exercises proposed in class applying the correct structure, presentation and planification and maintaining a good orthographic and grammatical level.
## STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<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>Guided activities</td>
<td>12,0</td>
<td>8.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

**Total learning time:** 150 h

## CONTENTS

### Design

**Description:**
- Game design
- Character design
- Level design
- Concept art and references

**Full-or-part-time:** 23h
- Practical classes: 8h
- Self study: 15h

### Modeling and texturing

**Description:**
- Polygonal modeling
- Digital sculpt
- Retopologize and UVs

**Full-or-part-time:** 42h
- Practical classes: 16h
- Self study: 26h

### Game level

**Description:**
- Game level construction.
- VR environments.

**Full-or-part-time:** 22h
- Practical classes: 8h
- Guided activities: 6h
- Self study: 8h
Animation

Description:
Rigging
Skinning
Character animation
Mocap

Full-or-part-time: 43h
Practical classes: 16h
Self study : 27h

Portfolio

Description:
3d portfolio
Online platforms
Good practices

Specific objectives:
Create a professional portfolio

Related competencies:
CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.
07 AAT N3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
06 URI N3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.
04 COE N2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.

Full-or-part-time: 20h
Practical classes: 6h
Self study : 14h
ACTIVITIES

**Character modeling**

**Description:**
Model and sculpt a 3d character from a conceptual design.

**Specific objectives:**
Understand and apply the techniques and methodologies used in production to make fully functional 3d characters with a professional finish.

**Delivery:**
It will be delivered to the Atenea campus following the documents present on campus and provided by the professor.

**Related competencies:**
- CEVJ 8. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
- CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.
- CEVJ 9. Apply advanced modelling and animation, post-production and special effects techniques to the creation of digital content and/or its inclusion in a video game project.

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

**Character animation**

**Description:**
Learn and practice new character-centered 3d animation techniques.

**Specific objectives:**
Understand and apply the techniques and methodologies used in production to rig and animate 3d characters with a professional finish.

**Delivery:**
It will be delivered to the Atenea campus following the documents present on campus and provided by the professor.

**Related competencies:**
- CEVJ 8. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
- CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.
- CEVJ 9. Apply advanced modelling and animation, post-production and special effects techniques to the creation of digital content and/or its inclusion in a video game project.
- 07 AAT N3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

**Full-or-part-time:** 10h
Self study: 10h
Character Texturing

Description:
Texturing a 3d character from a conceptual design.

Specific objectives:
Understand and apply the techniques and methodologies used in production to make fully functional 3d characters with a professional finish.

Delivery:
It will be delivered to the Atenea campus following the documents present on campus and provided by the professor.

Related competencies:
CEVJ 8. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.
CEVJ 9. Apply advanced modelling and animation, post-production and special effects techniques to the creation of digital content and/or its inclusion in a video game project.
CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.

Full-or-part-time: 5h
Practical classes: 5h

GRADING SYSTEM

3 practices:
1 practice exercise with a weighting of 15% of the final grade for the course.
1 practice exercise with a weighting of 15% of the final grade for the course.
1 practice exercise with a weighting of 30% of the final grade for the course.

Final exam:
A Final Exam with a weighting of 30% of the final grade for the course.

Participation and learning attitude: 10% of the grade for the subject.

EXAMINATION RULES.

A part of the exercises can be done during the classes with the teacher of the subject. Students will also have to dedicate time for autonomous work (after hours), to carry out the exercises. To do so, the indications specified in the working document must be followed.

Once the exercise is finished, it will be deposited in the Virtual Campus in the delivery room and on the corresponding date, only those exercises delivered before 24:00 of the deadline will be taken into account to assess those exercises.

The documents have to be completed, following the instructions, especially regarding the name of files. The correct management of the documentation provided is one aspect of the competencies to be acquired and part of the evaluation.

BIBLIOGRAPHY

Basic:
RESOURCES

Hyperlink:
- https://creative.pluralsight.com Resource
- https://www.cqtrader.com/ Resource