

## Course guide

### 804266 - MA3DAC - Modeling and Advanced 3D Animation

**Last modified:** 18/03/2025

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

**Degree:** BACHELOR'S DEGREE IN MULTIMEDIA STUDIES (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN VIDEO GAME DESIGN AND DEVELOPMENT (Syllabus 2014). (Optional subject).

**Academic year:** 2025    **ECTS Credits:** 6.0    **Languages:** Catalan, Spanish, English

#### LECTURER

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**Coordinating lecturer:** Serrano Recuero, Josep

**Others:** Ripoll Tarré, Marc  
Serrano Recuero, Josep

#### PRIOR SKILLS

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Basic 3d modeling and texturing.  
Basic 3d animation.

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**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.  
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

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Exhibition and learning of new content through theory, references and practical cases.  
Participatory class where to develop activities for problem solving and content discussion.  
Practical work where to apply and 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 game characters 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 design.  
 To strengthen the modeling, texturing and animation basics.  
 To use the subject learning to create professional high quality 3d characters.  
 To do the exercises proposed in class applying the correct structure, presentation and planification and maintaining a good orthographic and grammatical level.

## STUDY LOAD

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

**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 sculpture  
 Retopology and UVs

#### Full-or-part-time: 42h

Practical classes: 16h  
 Self study : 26h

### Level of game

**Description:**

Modelado y texturado del nivel de juego.  
Entornos en VR (realidad virtual).

**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:**

Presentation of treballs  
Online platforms  
Techniques and councils

**Specific objectives:**

Create a portfolio with professional quality

**Related competencies :**

CEVJ 7. Master the wide range of professional tools in the sector for developing all kinds of digital content.

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.

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.

**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 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.

CEVJ 8. Design, model, texturise and animate 2D and 3D objects, characters and scenes for inclusion in digital projects, audiovisual sequences and video games.

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.

**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 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:** 5h

Practical classes: 5h

## GRADING SYSTEM

4 practices:

4 practice exercises with a weight of 15% of the final grade of the subject per exercise.

Final exam:

A Final Exam with a weighting of 30% of the final grade of the subject.

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

## EXAMINATION RULES.

Some of the exercises can be done during the classes with the teacher of the subject. Students will also have to dedicate time to work independently (outside of hours), to perform the exercises. To do so, follow the instructions specified in the working document.

The exercise once completed will be deposited in the Virtual Campus in the delivery of the classroom of the section in the corresponding date, will only be taken into account to assess those exercises delivered before 24:00 hours of the deadline.

The documents must be completed, following the instructions, especially with regard to the names of the files. The correct management of the documentation provided is an aspect of the skills to be acquired and part of the evaluation.

## BIBLIOGRAPHY

**Basic:**

- Demers, Owen. Digital texturing & painting . [S.I.] : New Riders, cop. 2002. ISBN 0735709181.
- Ahearn, Luke. 3D game textures: create professional game art using Photoshop [on line]. 3rd ed. Waltham, MA: Focal Press, 2012  
[ Consultation : 06/05/2022 ]. Available on :  
<https://www.sciencedirect-com.recursos.biblioteca.upc.edu/book/9780240820774/3d-game-textures>. ISBN 9780240820774.
- Williams, Richard. The Animator's survival kit. Expanded ed. London: Faber and Faber, 2009. ISBN 9780571238347.
- Thomas, Frank; Johnston, Ollie. The illusion of life: Disney animation. New York: Hyperion, 1995. ISBN 0786860707.
- Birn, Jeremy. Digital lighting & rendering. Berkeley, CA: New Riders, cop, 2014.



## RESOURCES

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### Other resources:

- <https://creative.pluralsight.com>. Videotutorials online
- <https://www.cgtrader.com/>. Recurs
- <http://www.cgchannel.com/>. Recurs
- <http://www.zbrushcentral.com/>. Recurs