

## Course guide

### 804248 - A3D - 3D Animation

**Last modified:** 27/07/2022

<b>Unit in charge:</b>	Image Processing and Multimedia Technology Centre	
<b>Teaching unit:</b>	804 - CITM - Image Processing and Multimedia Technology Centre.	
<b>Degree:</b>	BACHELOR'S DEGREE IN VIDEO GAME DESIGN AND DEVELOPMENT (Syllabus 2014). (Compulsory subject).	
<b>Academic year:</b> 2022	<b>ECTS Credits:</b> 6.0	<b>Languages:</b> Catalan, English

#### LECTURER

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<b>Coordinating lecturer:</b>	Ripoll, Marc
<b>Others:</b>	Ripoll, Marc Navales, Ismael

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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##### Specific:

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 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.

##### 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

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Learning of new contents through theory, references and practical examples.

Participative classroom where to resolve problems and discuss contents.

Practical exercises 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

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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 exercises proposed in class applying the correct structure, presentation and planification and maintaining a good orthographic and grammatical level.



## STUDY LOAD

Type	Hours	Percentage
Self study	90,0	60.00
Hours large group	18,0	12.00
Hours medium group	32,0	21.33
Guided activities	10,0	6.67

**Total learning time:** 150 h

## CONTENTS

### Animation

#### Description:

Animation concepts  
Playback speed  
Keyframes  
Animation curves

#### Related competencies :

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#### Full-or-part-time: 26h

Theory classes: 3h  
Practical classes: 7h  
Guided activities: 1h  
Self study : 15h



## Rigging and Skinning

### Description:

Setup  
Joints  
Inverse kinematics  
Skinning

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**Full-or-part-time:** 41h 20m

Theory classes: 5h  
Practical classes: 8h 20m  
Guided activities: 3h  
Self study : 25h

## Character animation

### Description:

References and acting  
Animation concepts with characters  
Motion capture  
Facial animation

### Related competencies :

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Theory classes: 5h  
Practical classes: 8h 20m  
Guided activities: 3h  
Self study : 25h

## Techniques

### Description:

Retargeting  
Scripting  
Physics  
Non Linear animation

### Related competencies :

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### Full-or-part-time: 41h 20m

Theory classes: 5h  
Practical classes: 8h 20m  
Guided activities: 3h  
Self study : 25h

## ACTIVITIES

### Exercise 1

#### Description:

To create a functional rig for a character and adjust the skin until getting a ready to animate character.

#### Specific objectives:

To practice and better understand the rigging tools and techniques applied to characters.

#### Material:

Autodesk Maya

#### Delivery:

The exercise will be uploaded to an Àgora folder specified by the professor and saved as a Maya scene with the full name of the student.

#### Related competencies :

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.

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

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### Full-or-part-time: 10h

Self study: 10h



## Exercise 2

### Description:

Design the animations of a character and create the basic poses for the integration into a videogames.

### Specific objectives:

To animate a character, designing his actions.

### Material:

Autodesk Maya

### Delivery:

The exercise will be uploaded to an Àgora folder specified by the professor and saved as a Maya scene with the full name of the student.

### 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.

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### Full-or-part-time: 20h

Guided activities: 5h

Self study: 15h

## GRADING 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 midterm 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 reevaluate the two previous exams (45% of the final evaluation). Only students that didn't pass the course can access the revaluation exam.

## EXAMINATION RULES.

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

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### Basic:

- Williams, Richard. The animator's survival kit. Expanded ed. London: Faber and Faber, 2009. ISBN 9780571238347.
- Thomas, F.; Johnston, O. The illusion of life: Disney animation. New York: Hyperion, 1995. ISBN 0786860707.
- Osipa, J. Stop staring: facial modeling and animation done right. 2nd ed. Indianapolis: Wiley, 2007. ISBN 9780471789208.
- Luhta, E.; Roy, K. How to cheat in Maya 2012: tools and techniques for character animation. Waltham, MA: Focal Press, 2011. ISBN 9780240816982.

### Complementary:

- Jones, A.; Oliff, J. Thinking animation: bridging the gap between 2D and CG. Boston, MA: Course Technology, 2008. ISBN 9781598632606.
- Hooks, Ed. Acting for animators. London: Routledge, 2011. ISBN 9780415580236.

## RESOURCES

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### Hyperlink:

- [www.digitaltutors.com](http://www.digitaltutors.com). Resource
- [www.thegnomonworkshop.com](http://www.thegnomonworkshop.com). Resource
- <http://area.autodesk.com>. Resource
- <http://www.cgsociety.org/>. Resource