# Course guide
# 804248 - A3D - 3D Animation

**Last modified:** 20/07/2025

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

**Degree:** BACHELOR'S DEGREE IN VIDEO GAME DESIGN AND DEVELOPMENT (Syllabus 2014). (Compulsory subject).

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

## LECTURER

**Coordinating lecturer:** Ripoll, Marc

**Others:** Ripoll, Marc
Cabello, José María

## 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 dessign tools and techniques.

## LEARNING OBJECTIVES OF THE SUBJECT

- To describe the basic concepts and procedures involved in the modeling, texture, lighting and 2D and 3D animation of objects, characters and environments for video games.

- To efficiently use computer programs, composition graphics and animation of objects and 2D and 3D characters.

- To apply computer animation techniques in 2D and 3D animation, implementing mathematical and physical foundations.

- To analyse movement in objects, humans and animals for recreation in 2D and 3D animation.

- To create objects, characters, textures, scenes, visual effects and 2D and 3D animations for inclusion in video game projects.

## STUDY LOAD

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

**Total learning time:** 150 h

## CONTENTS

### Animation

**Description:**
Animation concepts
Playback speed
Keyframes
Animation curves

**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

**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

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

**Techniques**

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

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

## ACTIVITIES

**Exercice 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 exercice will be uploaded to an Atenea folder specified by the professor and saved as a Maya scene with the full name of the student.

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

**Exercice 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, dessigning his actions.

**Material:**
Autodesk Maya

**Delivery:**
The exercice will be uploaded to an Atenea folder specified by the professor and saved as a Maya scene with the full name of the student.

**Full-or-part-time:** 20h
Guided activities: 5h
Self study: 15h

## GRADING SYSTEM

2 exercices
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 revaluate the two previous exams (45% of the final evaluation). Only students that didn't pass the course can access the revaluation exam.

Irregular actions that may lead to a significant variation of the grade of one or more students constitute a fraudulent performance of an evaluation act. This action entails the descriptive grade of failure and a numerical grade of 0 for the ordinary global evaluation of the course, without the right to re-evaluation.

If the lecturers have indications of the use of AI tools not allowed in the evaluation tests, they may summon the students concerned to an oral test or a meeting to verify the authorship.

## EXAMINATION RULES.

Part of the exercises can be done during classes with the lecturer of the course. The students will also have to dedicate time for independent work (outside the timetable) to carry out the exercises. To do them, students must follow the indications specified in the work document.

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

The documents must be completed, following the instructions, especially regarding the file names. The correct management of the documentation provided is an aspect of the competences to be acquired and part of the evaluation.

## BIBLIOGRAPHY

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

## RESOURCES

**Hyperlink:**
- www.thegnomonworkshop.com. Resource
- www.digitaltutors.com. Resource
- http://area.autodesk.com. Resource
- http://www.cgsociety.org/. Resource