

Course guide

804035 - A3D-M - 3D Animation

Last modified: 18/05/2026

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). (Compulsory subject).
Academic year: 2026 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Pulpón Alcolea, Carlos

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

4. Identify the basic principles of 2D and 3D animation and the physical and mathematical laws that govern movement.
5. Plan the pre-production, production and post-production phases of a 2D and 3D animated film.
6. Analyse movement in objects, humans and animals, and apply computer animation techniques and their mathematical and physical foundations in 2D and 3D animation.
7. Apply computer animation and composition techniques in 2D and 3D animation.

Transversal:

1. 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.
2. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
3. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

(eng)

STUDY LOAD

Type	Hours	Percentage
Hours medium group	60,0	40.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

1. Introduction to 3D animation

Description:

- 1.1 Course introduction
- 1.2. Course assessment

Full-or-part-time: 10h

Practical classes: 4h

Self study : 6h

2. History of animation

Description:

- 2.1. What is animation?
- 2.2. Retinal persistence
- 2.3. Uncanny Valley
- 2.4. History of animation

Full-or-part-time: 30h

Practical classes: 12h

Self study : 18h

3. Introduction to Maya

Description:

- 3.1. Project Window y Set Project
- 3.2. Workspaces
- 3.3. Status Line
- 3.4. Shelf
- 3.5. Panel Toolbar y Outliner
- 3.6. Display y Viewer Settings
- 3.7. Channel box
- 3.8. Attribute Editor
- 3.9. Modeling Toolkit
- 3.10. Maya Marking Menus y basic Shortcuts

Full-or-part-time: 28h

Practical classes: 12h

Self study : 16h

4. Animation Basics

Description:

- 4.1. Squash & Stretch
- 4.2. Anticipation
- 4.3. Staging
- 4.4. Straight Ahead
- 4.5. Follow Through & Overlapping action
- 4.6. Slow In & Slow Out
- 4.7. Arcs
- 4.8. Secondary Action
- 4.9. Timing
- 4.10. Exaggeration
- 4.11. Solid Drawing
- 4.12. Appeal

Full-or-part-time: 29h

Practical classes: 3h

Self study : 26h

5. 3D animation workflow

Description:

- 5.1. Pre-Production of 3D animation
- 5.2. 3D animation production
- 5.3. Post-Production of 3D Animation
- 5.4. Facial Expressions
- 5.5. Time Slider
- 5.6. Animation tricks
- 5.7. Different departments in 3D animation
- 5.8. Types of 3D animation
- 5.9. Designing characters for 3D animation
- 5.10. RIG
- 5.11. RIG Drivers
- 5.12. Character Sets
- 5.13. Matching
- 5.14. Graph Editor
- 5.15. Dope Sheet

Full-or-part-time: 8h

Practical classes: 4h

Self study : 4h

6. Finishing:

Description:

- 6.1. Cameras
- 6.2. Lighting
- 6.3. Render

Full-or-part-time: 5h

Practical classes: 4h

Self study : 1h



ACTIVITIES

Exams

Full-or-part-time: 4h

Practical classes: 4h

Project

Full-or-part-time: 20h

Self study: 20h

GRADING SYSTEM

Any academic fraud, plagiarism or use or possession of unauthorised means in an assessment activity leads to a mark of zero (0) for the affected test or assignment. Furthermore, in accordance with the University's regulations, if disciplinary proceedings are initiated the subject is recorded as "Pending Assessment" until a decision is reached. These incidents are managed in accordance with the [Action Framework for Academic Integrity in Assessment at the UPC](#).

EXAMINATION RULES.

(eng)

BIBLIOGRAPHY

Basic:

- Kerlow, Isaac V. The art of 3-D: computer animation and imaging. 2nd ed. Wiley, 2000. ISBN 9780471360049.
- Maestri, George. Creación digital de personajes animados. Madrid: Anaya Multimedia, 2000. ISBN 9788441509931.
- Williams, Richard. The Animator's Survival Kit. ISBN 978-0571202287.
- Birn, Jeremy. Técnicas de iluminación y render. Madrid: Anaya Multimedia, 2001. ISBN 8441510946.

Complementary:

- Draper, Pete. Deconstructing the Elements with 3ds Max. Focal Press, ISBN 9780240521268.