Information about the course

Degree: Degree in Design and Narration in Animation and Video games

Faculty: Faculty of Legal, Economic and Social Sciences

Code: 2050110 **Name:** 3D modelling and representation I

Credits: 6,00 ECTS **Year:** 1 **Semester:** 2

Module: MODELADO Y ANIMACIÓN EN TRES DIMENSIONES.

Subject Matter: MODELADO EN TRES DIMENSIONES **Type:** Obligatoria

Branch of knowledge:

Department: Multimedia and Digital Arts

Type of learning: Classroom-based learning

Language/-s in which it is given: Spanish

Teachers:

2051A	Adrian Mantilla Pousa **(Profesor responsable)**	adrian.mantilla@ucv.es

Module organization

MODELADO Y ANIMACIÓN EN TRES DIMENSIONES.

Subject Matter	ECTS	Subject	ECTS	Year/semester
MODELADO EN TRES DIMENSIONES	24	3D Digital sculpture and character modelling I	6	2/2
		3D Digital sculpture and character modelling II	6	3/1
		3D modelling and representation I	6	1/2
		3D modelling and representation II	6	2/1
ANIMACIÓN EN TRES DIMENSIONES	18	3D Animation	6	2/2
		3D Character Animation I	6	3/1
		3D Character Animation II	6	3/2

Recommended knowledge

For the proper performance in the subject *3D Modeling and Representation*, it is recommended to have:

·**Basic computer skills**: fluent handling of the operating system, file navigation, software installation, and general use of the digital environment.

·**Foundations of drawing and geometry**: ability to represent shapes in perspective, understand volume and proportion, and transfer them into three-dimensional environments.

·**Exploratory mindset**: interest in learning 3D interface logic, keyboard shortcuts, navigation in the 3D viewport, and transformation and editing tools.

Other types of requirements

- Es recomendable para cursar la asignatura Modelado y representación en 3D II haber superado la asignatura Modelado y representación en 3D I.
- Es recomendable para cursar la asignatura Modelado de personajes y esculpido digital en 3D I haber superado las asignaturas Modelado y representación en 3D I y Modelado y representación en 3D II.
- Es recomendable para cursar la asignatura Modelado de personajes y esculpido digital en 3D II haber superado la asignatura Modelado de personajes y esculpido digital en 3D I.

Learning outcomes

At the end of the course, the student must demonstrate having acquired the following learning outcomes:

R1 - Carry out work that expresses original and innovative ideas and proposals in the process of modelling inorganic objects, taking into account the sincere search for the whole truth and the integration of all dimensions of the human being in the face of the great questions of life, applying the principles derived from the concept of integral ecology and respecting and putting into practice the ethical principles and proposals for action derived from the objectives for sustainable development.RA9.14 / RA6.13 / RA7.13 / RA8.15

Learning outcomes of the specified title

Type of AR: Competencias

- Apply the principles derived from the concept of integral ecology to their proposals or actions, regardless of their scope, area of knowledge, and the contexts in which they are presented.
- Be able to convey information, ideas, problems, and solutions to both specialized and non-specialized audiences.
- Correctly apply their knowledge to their work or vocation in a professional manner and be able to develop and defend arguments and solve problems within their area of study.
- Develop theoretical and practical responses based on the sincere search for the full truth and the integration of all dimensions of the human being in response to life's major questions.
- Respect and implement the ethical principles and action proposals derived from the Sustainable Development Goals, applying them to all academic and professional activities.

R2 - Cooperatively model three-dimensional scenarios and inorganic objects. RA10.2

Learning outcomes of the specified title

Type of AR: Competencias

- Be able to convey information, ideas, problems, and solutions to both specialized and non-specialized audiences.

- Correctly apply their knowledge to their work or vocation in a professional manner and be able to develop and defend arguments and solve problems within their area of study.

- Develop original and innovative ideas and proposals in the area of animation and video game design and storytelling, in the work required for a project, combining conceptual and technical aspects.

- Develop theoretical and practical responses based on the sincere search for the full truth and the integration of all dimensions of the human being in response to life's major questions.

- Respect and implement the ethical principles and action proposals derived from the Sustainable Development Goals, applying them to all academic and professional activities.

R3 - Use specific vocabulary related to three-dimensional modelling and demonstrate this in a written test. RA4.7

Learning outcomes of the specified title

Type of AR: Competencias

- Be able to convey information, ideas, problems, and solutions to both specialized and non-specialized audiences.

R4 - Analyse the structure of real or fictional objects and demonstrate this in the development of their inorganic modelling work. RA12.33

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Illustrate and generate specific animation and video game projects using traditional procedures and digital techniques

Type of AR: Competencias

- Collaborate in teams that adopt interdisciplinary roles in the development of animation and video game projects.

- Develop original and innovative ideas and proposals in the area of animation and video game design and storytelling, in the work required for a project, combining conceptual and technical aspects.

- Respect and implement the ethical principles and action proposals derived from the Sustainable Development Goals, applying them to all academic and professional activities.

R5 - Digitally develop basic materials and apply them to three-dimensional inorganic models. RA12.34

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Illustrate and generate specific animation and video game projects using traditional procedures and digital techniques

R6 - Modelling three-dimensional inorganic objects using simple techniques (extrusion, revolution, Boolean operations, etc.). RA12.35

Learning outcomes of the specified title

Type of AR: Competencias

- Collaborate in teams that adopt interdisciplinary roles in the development of animation and video game projects.

- Develop original and innovative ideas and proposals in the area of animation and video game design and storytelling, in the work required for a project, combining conceptual and technical aspects.

- Develop theoretical and practical responses based on the sincere search for the full truth and the integration of all dimensions of the human being in response to life's major questions.

- Respect and implement the ethical principles and action proposals derived from the Sustainable Development Goals, applying them to all academic and professional activities.

Assessment system

In-person modality

Assessed learning outcomes	Granted percentage	Assessment tool
R1, R3, R4	20,00%	SE1 – Written exams.
R2, R3, R6	50,00%	SE6 – Practical exams.
R1, R2, R3, R4, R5, R6	30,00%	SE8 – Project development.

Observations

1.Submission of all practical and written test assignments is mandatory in order to carry out the final project of the course.

2.An oral defense of each project (when required by the professor) is mandatory for the project to be evaluated. The oral defense is considered part of each project, as it serves to assess the use of discipline-specific vocabulary.

3.Single evaluation is not permitted, given the daily tutoring and in-class work required in this subject.

4.All assignments must be submitted through the designated tasks in the course's virtual campus .

5.In cases where files exceed the platform's upload limit, students are required to submit via their institutional UCV OneDrive account, keeping the files available at least until the end of the current academic year. The professor may reject any submission that does not follow these instructions or fails to meet the established deadlines.

6.All files must be delivered in the formats specified by the professor (e.g., .mb, .ma, .fbx, .png, .pdf…), uncompressed unless expressly indicated. Failure to comply with this requirement may result in the work not being graded.

7.It is the sole responsibility of the student to ensure that files are correctly uploaded and

accessible. Claims regarding corrupted, incomplete, or expired links will not be accepted afterwards.

8.Late submissions will not be accepted unless a justified and documented reason is provided. The professor may apply a grade penalty or directly reject the submission, depending on the case.

9.In addition to attendance, active participation in class is expected. Repeated lack of engagement may negatively affect the qualitative assessment of the student's performance.

10.Any evidence of plagiarism, copying, or unauthorized use of others' work will automatically result in a failing grade for the corresponding activity, and the provisions of the UCV Academic Integrity Regulations will apply.

11.The use of Artificial Intelligence in the creation of 3D models (obj, fbx, or others) is strictly prohibited. Except for specific uses that are documented and expressly authorized by the professor, the use of AI-based image generators is forbidden.

MENTION OF DISTINCTION:

The mention of "Honors" may be awarded to students who have obtained a grade equal to or greater than 9.0. Their number may not exceed five percent of the students enrolled in a group in the corresponding academic year, unless the number of students enrolled is lower.

Training activities

The methodologies to be used so that the students reach the expected learning outcomes will be the following:

M2 MD2: Interactive lecture

M6 MD6: Project-based learning

IN-CLASS TRAINING ACTIVITIES

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
AF2 – Active listening, elaboration and formulation of questions, summaries, concept maps and/or notes that organize the information received, and related work.	R1, R3, R4	MD2: Interactive lecture	9,00	0,36

AF6 – The student, individually or collectively, focuses on producing a tangible final result (product) that incorporates the knowledge and skills necessary for its realization.	R3, R4, R5, R6	MD6: Project-based learning	51,00	2,04
TOTAL			**60,00**	**2,40**

TRAINING ACTIVITIES OF AUTONOMOUS WORK

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
AF8 – Independent work. Study, memorization, exam preparation, practice of practical skills, preparation of assignments, essays, reflections, metacognitive activities, portfolio development, etc.	R2, R3, R4, R5, R6	MD6: Project-based learning	15,00	0,60
AF6 – The student, individually or collectively, focuses on producing a tangible final result (product) that incorporates the knowledge and skills necessary for its realization.	R2, R3, R4, R5, R6	MD6: Project-based learning	75,00	3,00
TOTAL			**90,00**	**3,60**

Description of contents

Description of content necessary for the acquisition of learning outcomes.

Theoretical content:

Block of content	Contents
Topological and Morphological Foundations of 3D Modeling	This module introduces the fundamental principles that underpin three-dimensional modeling, from both a technical and a formal perspective. It addresses topology concepts, focusing on the proper organization of vertices, edges, and polygons to ensure optimized, editable models that are suitable for different stages of the 3D pipeline (animation, texturing, or rendering). Additionally, it covers morphological foundations, which provide an understanding of how forms are structured and represented in three dimensions, analyzing proportions, volumes, and spatial relationships. The aim is for students to acquire a solid foundation for recognizing and applying best practices in geometric and formal construction, thus facilitating the transition to more advanced and specialized modeling techniques.
Conceptual Analysis for the Application of 3D Modeling Techniques	This module focuses on the critical understanding and analysis of different approaches to three-dimensional modeling, with the aim of selecting the most appropriate technique depending on the project. It explores the possibilities of polygonal modeling and its implications in terms of detail, optimization, and integration within the production pipeline. Furthermore, it encourages reflection on aesthetic, technical, and narrative criteria that influence the choice of a given workflow. The goal is for students to develop the ability to evaluate each design situation and apply, with sound judgment, the modeling techniques that best meet the production requirements.

Temporary organization of learning:

Block of content	Sessions	Hours
Topological and Morphological Foundations of 3D Modeling	15	30,00
Conceptual Analysis for the Application of 3D Modeling Techniques	15	30,00

References

Blain, J. (2020). *Introducing Autodesk Maya 2020*. Sybex.

Derakhshani, D. (2015). *Autodesk Maya Basics Guide*. SDC Publications.

Wright, J. (2019). *Digital Modeling*. New Riders.

Kerlow, I. (2019). *The Art of 3D Computer Animation and Effects*. Wiley.

Fleming, B. (1998). *3D Modeling and Surfacing*. Morgan Kaufmann.