COURSE GUIDE:
THREE DIMENSIONAL MODELLING AND RENDERING
MULTIMEDIA AND DIGITAL ARTS DEGREE

Universidad Católica de Valencia

Course 2025/26

TEACHING GUIDE SUBJECT AND / OR COURSE

		ECTS
SUBJECT: THREE-DIMESIONAL MODELLING AND RENDERING		6
Matter: Editing and Postproduction		30
Module: Audiovisual creation		42
Type of learning: OB	**Year**: 3º **Semester**: 1ª	
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SUBJECT ORGANIZATION

Audiovisual creation				**Nº ECTS 36**
Duration and temporal locfation within the curriculum:				
Subjects and courses				
Materia	**ECTS**	**ASIGNATURA**	**ECTS**	**Curso/ semestre**
Audiovisual narrative	6	Audiovisual narrative	6	2/2
Production	6	Production and documentary script	6	1/1
Editing and postproduction	24	Recording and editing digital video	6	3/2
		Audio editing	6	3/2
		Three-dimensional modelling and rendering	6	3/1
		Digital postproduction	6	4/1

TEACHING GUIDE SUBJECT AND /OR COURSE:

Three-dimensional modelling and rendering

Prerequisites: None

OBJECTIVES

1 - Understand the fundamental components of design in three dimensions
2 - Mastering the phases of the creative process in three dimensions
3 - Mastering the process of modeling, lighting and texturing of the 3D scene
4 - Mastering the techniques of composition in 3D
5 - Mastering the design in three dimensions for the composition of digital illustration
6 - Mastering the design in three dimensions as a complementary tool for advertising design
7 - Meet output processes of three-dimensional image and its different applications according to the means by which the project is addressed

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BASIC COMPETENCES				
	1	**2**	**3**	**4**
CB1 Students should have an Understanding of knowledge in an area of study that starts from the base of the general Secondary Education, and it is usually found at a level that although is supported by advanced textbooks it also includes some aspects that imply knowledge from the cutting edge of its field of study.		x		
CB2 Students should apply their knowledge to their work or vocation in a professional manner and should have the skills that are usually demonstrated through the elaboration and defense of arguments as well as the problem solving within their area of study.				x
CB3 Students should be capable to gather and interpret relevant data (usually within their area of study) in order to evaluate it that after a reflection on its relevant social impact, as well as scientific or ethical issues.		x		
CB4 Students should have the capacity of communicating information, ideas, problems and solutions to a specialized and non-specialized public.			x	
CB5 Students should develop the required learning skills to undertake further studies with a high degree of autonomy.				x

GENERAL COMPETENCES		Ponderación De la competencia			
		1	2	3	4
01	Capacity for analysis and synthesis			x	
02	Capacity to organize and planing			x	
05	Computer Skills for the scope of study				x
06	Capacity to manage information. Researching from books and magazines, and other documentation		x		
07	Troubleshooting				x
09	Decision-making			x	
10	Team working			x	
11	Working in an interdisciplinary team		x		
15	Ethical commitment				x
16	Capacity to take responsibilities			x	
17	Capacity for self-criticism				x
18	Autonomous learning and motivation for learning throughout their working lives				x
19	Adjustment to new situations				x
20	Creativity. Capacity to generate new ideas.				x
24	initiative and entrepreneurship				x
25	Concern (motivation) for quality				x
28	Sensitivity to cultural heritage			x	

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SPECIFIC COMPETENCES					
		1	2	3	4
E2	Artistic sensitivity. To be able to develop the ability to appreciate beauty in different forms and artistic creations, applying aesthetic principles and fostering creativity as well as multidisciplinary innovation.				x
E3	Knowledge of specific methods of production and especially digital art techniques to apply to the world of communication, in addition to looking for new media.				x
E8	Capacity to organize and process information that later will be included in the project.			x	
E9	Capacity to plan, manage and develop projects of technological content, in particular relating to art, multimedia design and communication.		x		
E10	Capacity to translate creative ideas so that it is possible to transmit them in digital format.			x	
E12	Sensitivity to evaluate the importance of design for spreading messages and the impact of transmitting them in different communication areas			x	
E13	Capacity to contribute to the contemporary debate about the arts and digital media practices.		x		

LEARNING OUTCOMES [2]	COMPETENCES
R-1. Learn key components of the design in three dimensions	**CB:** 1,2,3,4,5 **CG:**1,2, 5, 6, 7, 9,10,11,15,16,17, 18,19, 20, 24, 25, 28 **CE**,2,3,8,9,10,12,13
R-2. Master stages of the creative process in three dimensions	**CB:** 1,2,3,4,5 **CG:**1,2, 5, 6, 7, 9,10,11,15,16,17, 18,19, 20, 24, 25, 28 **CE**,2,3,8,9,10,12,13
R-3. Master design in three dimensions for the composition of digital illustration.	**CB:** 1,2,3,4,5 **CG:**1,2, 5, 6, 7, 9,10,11,15,16,17, 18,19, 20, 24, 25, 28 **CE**,2,3,8,9,10,12,13
R-4. Meet output processes of three-dimensional image and its different applications depending on the medium to be targeted by the project.	**CB:** 1,2,3,4,5 **CG:**1,2, 5, 6, 7, 9,10,11,15,16,17, 18,19, 20, 24, 25, 28 **CE**,2,3,8,9,10,12,13

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ACTIVIDADES FORMATIVAS DE TRABAJO PRESENCIAL			
ACTIVITY	**Teaching-Learning Methodology**	**Relationship With Learning Outcomes for the subject**	**ECTS [3]**
ON-CAMPUS CLASS	Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge.	R1 – R4	1
PRACTICAL CLASSES	Group work sessions supervised by the professor. Case studies, diagnostic tests, problems, field work, computer room, visits, data search, libraries, on-line, Internet, etc. Meaningful construction of knowledge through interaction and student activity.	R1 – R4	1
LABORATORY	Activities in spaces with special equipment.		0
SEMINAR	Supervised monographic sessions with shared participation		0
WORK GROPU EXHIBITION	Aplication of interdisciplinary knowledge		0

[3] The subject and / or material is organized in training PHYSICAL WORKING training activities and self study, students, with an estimated in ECTS. Proper distribution is as follows: 35-40% for Classroom Training Activities and 65-60% for freelance work. (For a course of 6 ECTS: 2.4 and 3.6 respectively).

The teaching-learning methodology described in this guide in a generic way, shape in the teaching units in which the course is organized and / or matter

TUTORING	Custom and small group attention. Period of instruction and / or guidance by a tutor to review and discuss the materials and topics presented en las clases, seminarios, lecturas, realización de trabajos, etc.	R1 – R4	0,25
EVALUATION	Set of oral and / or written used in initial, formative or summative evaluation of the student.	R1 – R4	0,15
		Total	(2,4*)

INDEPENDENT WORK ACTIVITIES			
ACTIVITY	**Teaching-Learning Methodology**	**Relationship of Course with Learning Outcomes**	**ECTS**
GROUP WORK	Group preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions. (www.plataforma.ucv.es)	R1 – R4	0
INDEPENDENT WORK	Student study: Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc.. to post or deliver the lectures, practical and / or small group tutoring. Work done on the platform of the university (www.plataforma.ucv.es)	R1 – R4	3,6
		Total	(3,6*)

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SYSTEM FOR ASSESSING THE ACQUISITION OF THE COMPETENCES AND ASSESSMENT SYSTEM		
Assessment Tool[1]	**LEARNING OUTCOMES ASSESSED**	**Allocated Percentage**
Conducting theoretical and practical activities	R1 – R4	50%
Final Exam	R1 – R4	50%

The practical content will have a percentage of 50% of the final grade.
The final exam will have a percentage of 50% of the final grade.

A minimum passing grade (50% of the grade in the final exam) must be obtained in the final exam of the 1st or 2nd call in order to compute and average with the practical grades.

In order to pass the exam it will be necessary to achieve a minimum grade of 5 out of 10 points in both the theoretical and practical parts. The answers of the theoretical part containing spelling mistakes will not be graded.

The grades obtained in the practical part of the first call will be kept in the second call to be averaged with this test in case of not passing the first call.

If a student repeats the course, he/she will not be able to present as practices, the works and projects of the failed course.

In case of failing the first round, one of the deliveries may be resubmitted for the second round at the professor's discretion, which will replace one that was not delivered or with a low grade in the first round; the grade of the first delivery will be annulled and will be replaced by the grade obtained in this new delivery.

The delivery of practices will not be allowed outside the date and time established in the platform for each one. The delivery of practices can only be done through the platform.

The format of the practices delivered will be determined in each statement of the same. The delivery in a format different from the specified will mean the failure of the practice without possible qualification.

1

The copy or falsification in the delivery of a work, will mean the immediate failure of the whole delivery in both first and second call.

The use of artificial intelligence for the realization of digital practices will always be done in consultation with the teacher, who will indicate what can be worked on and done with this technology.

Its use, if allowed, will be described in the statement of the practice or set by the teacher in class.

Under no circumstances may a work done entirely with this technique be presented, nor may any practice be presented without prior consultation with the teacher. If this happens, it will be considered as a very serious fault and all the practices of the course will be suspended.

Copying in the exam will result in the immediate failure of the exam.

CRITERIA FOR THE USE OF AI

The use of artificial intelligence for digital practices will always be carried out in consultation with the teacher, who will indicate what can be worked on and carried out with this technology.

Its use, if permitted, will be described in the statement of the practical or set by the teacher in class.

Under no circumstances may work carried out entirely with this technique be presented, nor may any practice be presented without prior consultation with the teacher. If this occurs, it will be considered a very serious misconduct and all the practicals of the course will be suspended.

CRITERIA FOR THE AWARDING OF HONORS

The mention of “Matrícula de Honor” may be awarded to students who have obtained a grade equal to or higher 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.

SINGLE EVALUATION

In accordance with article 9 of the General Regulations on Assessment and Grading of UCV Official Studies and UCV-specific degrees, the single assessment is linked to the impossibility of attendance of students enrolled in a face-to-face degree. It is, therefore, an extraordinary and exceptional assessment system available to those students who, in a justified and accredited manner, cannot undergo the continuous assessment system, and so request it to the lecturer responsible for the subject, who will expressly decide on the admission of the student's request for a single assessment and will be informed of the acceptance/denial.

As far as the subject of Modelling and Representation in three dimensions is concerned, the minimum attendance percentage required is 50%, this being the limit to be taken into consideration for the potential request for a single assessment. This, if granted, will be articulated on the basis of the following criteria in 1st and 2nd call: The final exam will represent 70% of the final grade and the work submitted, 30%.

[4] Techniques and tools for evaluation: oral-exam, written tests (multiple choice tests, development, concept maps ...), tutorials, projects, case studies, observation notebooks, portfolio, etc..

DESCRIPTION OF CONTENTS
1. Introduction to 3D design.
2. Description of the three-dimensional concept: XYZ coordinate systems, projections and depth.
3. Phases and components of the creative process in three dimensions.
4. Introduction to Cinema 4D. Windows, panels and preferences.
5. Object modeling primitives.
6. Using Nurbs object modeling.
7. Scene composition: cameras and lights
8. Creating and applying materials: basic, image-based and shaders.
9. Importing external objects.
10. Advanced modeling by HyperNURBS and Boolean.
11. Photorealistic lighting based on HDR and IG.
12. Typology and rendering parameters.
13. Preparation of three-dimensional model for print or digital output formats, resolution and proportions.

BIBLIOGRAPHY

GrayscaleGorilla. Recuperado de:
https://greyscalegorilla.com/categor/tutorials/

Cineversity. Recuperado de:
http://www.cineversity.com

HelloLux. Recuperado de:
http://www.helloluxx.com

EyeDesign. Recuperado de:
https://eyedesyn.com

The Pixel Lab. Recuperado de:
https://www.thepixellab.net/tutorials

Simply4D. Recuperado de:
https://www.youtube.com/channel/UCP6AeFYfJ_jsrNMhvLeNuRw

Cinema 4D Tutorial. Recuperado de:
https://www.cinema4dtutorial.net

Creative Bloq. Recuperado de:
https://www.creativebloq.com/how-to/cinema-4d-tutorials-47-projects-to-up-your-3d-skills

Hands on with Maxon. Recuperado de:
https://www.youtube.com/playlist?list=PLMeO87vDgOoNAIESE1YfgbUmKzxsg_e-9

Los 12 principios de la animación. Recuperado de:
https://www.notodoanimacion.es/los-12-principios-de-la-animacion-disney-libro/

LEARNING TEMPORAL ORGANIZATION		
	CONTENT/TEACHING UNIT	**SESSIONS**
1	Introduction to 3D design.	**1**
2	Description of the three-dimensional concept: XYZ coordinate systems, projections and depth.	**1**
3	Phases and components of the creative process in three dimensions.	**1**
4	Introduction to Cinema 4D. Windows, panels and preferences.	**3**
5	Object modeling primitives.	**3**
6	Using Nurbs object modeling.	**3**
7	Scene composition: cameras and lights.	**3**
8	Creating and applying materials: basic, image-based and shaders.	**2**
9	Importing external objects.	**2**
10	Advanced modeling by HyperNURBS and Boolean.	**4**
11	Photorealistic lighting based on HDR and IG.	**3**
12	Typology and rendering parameters.	**3**
13	Preparation of three-dimensional model for print or digital output formats, resolution and proportions.	**1**

ADDITIONAL INFORMATION:

WORK PLANNING FOR SECOND AND FURTHER ENROLLMENTS:

There will be a special group for those students who have not registered for the first time, and a teacher responsible of this group. This teacher has to schedule six two-hour sessions for monitoring and mentoring. In each session the subject will be developed so as to reinforce the work of the skills that each student needs to pass the course. The assessment contained in the examination will be established in the official calendar of this subject. These sessions are available on the specific schedule. The blocks of content and tasks to be performed in each session are as follows:

TEMPORAL ORGANIZATION OF LEARNING		
	BLOCK CONTENT / TEACHING UNIT	SESSIONS
1	Introduction to 3D design.	0,2
2	Description dimensional concept systems XYZ coordinates, projections and depth.	0,4
3	Phases and components of the creative process in three dimensions	0,4
4	Introduction to Cinema 4D. Windows, panels and Preferences.	0,2
5	Object modeling primitives.	0,5
6	Using Nurbs object modeling.	1
7	Scene composition: cameras and lights.	0,2
8	Creating and applying materials: basic, based on images and shaders	0,2
9	Importing external objects.	0,3
10	Advanced modelling with Hypernurbs and Booleans	1
11	Photorealistic lighting based on HDR and IG.	1
12	Typology and rendering parameters.	0,4
13	Preparation of three-dimensional model for print or digital output formats, resolution and proportions.	0,2