

Academic Year: 2025/26

201986 - 3D Postproduction and Visual Effects

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Teaching Guide Information

Subject code: 201986

Degree program: 10014 - Degree in Digital Creation, Animation and Video Games

Type: Compulsory

Year: 3

Number of ECTS: 6.0

Period: First term

Languages:

Degree coordination: Patricia Comesaña Comesaña

Subject coordination: Luis Omar Álvarez Mures

Faculty: Luis Omar Álvarez Mures

1. Overview

The objective is to acquire knowledge of the visual effects creation process through rotoscoping techniques, mask animation, and the use of keying, as well as various 3D composition tools and particle systems. Students will also gain knowledge of advanced 3D integration processes, covering both the placement of computer-generated three-dimensional elements into real environments and the inclusion of live-action elements into digital environments. To achieve this, they will be trained in the techniques of extracting camera movements from video footage (matchmoving) and motion matching applied to 3D environments and elements.

2. Educational and learning outcomes (RD 822/2021 degree programs) or competences (RD 1393/2007 degree programs)

Competences (RD 1393/2007 degree programs)

- **[A10]** CE10 - Conocer las etapas principales del pipeline de una producción de animación o videojuego y su importancia dentro del proceso global.
- **[A21]** CE21 - Conocimiento de las técnicas y procesos de creación de efectos visuales a través de la integración de objetos y entornos digitales tridimensionales con la imagen real en movimiento.
- **[B01]** CB1 - Que os estudantes demostrasen posuír e comprender coñecementos nunha área de estudo que parte da base da educación secundaria xeral, e se atope a un nivel que, se ben se apoia en libros de texto avanzados, inclúe tamén algúns aspectos que implican coñecementos procedentes da vanguardia do seu campo de estudo
- **[B02]** CB2 - Que los estudiantes sepan aplicar sus conocimientos a su trabajo o vocación de una forma profesional y posean las competencias que suelen demostrarse por medio de la elaboración y defensa de argumentos y la resolución de problemas dentro de su área de estudio

- **[B03]** CB3 - Que los estudiantes tengan la capacidad de reunir e interpretar datos relevantes (normalmente dentro de su área de estudio) para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética
- **[B04]** CB4 - Que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado
- **[B05]** CB5 - Que los estudiantes hayan desarrollado aquellas habilidades de aprendizaje necesarias para emprender estudios posteriores con un alto grado de autonomía
- **[B06]** CG1 - Capacidad de organización y planificación. Especialmente en el planteamiento de trabajos conducentes a la creación de los contenidos audiovisuales digitales que componen una producción de animación o un videojuego.
- **[B07]** CG2 - Capacidad de resolver problemas de forma efectiva, principalmente de carácter tecnológico y en el campo de la creación de contenidos digitales interactivos y de animación.
- **[B08]** CG3 - Conocimientos informáticos, en especial los relativos al uso de tecnologías y programas de última generación en el campo de estudio.
- **[B09]** CG4 - Conocer los procedimientos, destrezas y metodologías necesarios para la adaptación del proceso creativo al medio digital y la producción de obras artísticas a través de tecnologías específicas.
- **[B10]** CG5 - Valorar críticamente el conocimiento, la tecnología y la información disponible para su aplicación en la resolución de problemas.
- **[B11]** CG6 - Capacidad crítica y autocrítica. Necesaria en todo proceso creativo en el que se busca un compromiso con la calidad del trabajo, los resultados y las soluciones propuestas.
- **[B12]** CG7 - Trabajo en equipo. Capacidad de abordar proyectos en colaboración con otros estudiantes, asumiendo roles y cumpliendo compromisos de cara al grupo.
- **[B13]** CG8 - Capacidad de aplicar los conocimientos en la práctica, integrando las diferentes partes del programa, relacionándolas y agrupándolas en el desarrollo de productos complejos.
- **[C01]** CT1 - Adequate oral and written expression in the official languages.
- **[C03]** CT3 - Using ICT in working contexts and lifelong learning.
- **[C04]** CT4 - Acting as a respectful citizen according to democratic cultures and human rights and with a gender perspective.
- **[C06]** CT6 - Acquiring skills for healthy lifestyles, and healthy habits and routines.
- **[C07]** CT7 - Developing the ability to work in interdisciplinary or transdisciplinary teams in order to offer proposals that can contribute to a sustainable environmental, economic, political and social development.
- **[C08]** CT8 - Valuing the importance of research, innovation and technological development for the socioeconomic and cultural progress of society.
- **[C09]** CT9 - Ability to manage times and resources: developing plans, prioritizing activities, identifying critical points, establishing goals and accomplishing them.

2.1. Learning outcomes (RD 1393/2007 degree programs)

Learning outcomes	Study programme competences / results		
The student will acquire knowledge of the visual effects creation process through rotoscoping techniques, mask animation, and the use of keying, as well as various 3D composition tools and particle systems. They will also gain knowledge of advanced 3D integration processes, including both the integration of computer-generated three-dimensional elements into real environments and the inclusion of live-action elements into digital environments. To this end, the student will be trained in the techniques of extracting camera movements from video footage and applying motion adjustments to 3D environments and elements.	A10	B1	C1
	A21	B2	C3
		B3	C4
		B4	C6
		B5	C7
		B6	C8
		B7	C9
		B8	
		B9	
		B10	
		B11	
		B12	
		B13	

3. Contents

Content unit	Description	Education and learning outcomes / competences	Teaching methodology and training activities	Assessment systems
Topic	Basic Concepts:			

Content unit	Description	Education and learning outcomes / competences	Teaching methodology and training activities	Assessment systems
	<ul style="list-style-type: none"> - Introduction to post-production. - Visual effects workflow. 			
Topic	Digital Compositing: <ul style="list-style-type: none"> - Mattes, masks, and rotoscoping. - Keyframes and animation curves. - Chroma and luma keying. 			
Topic	Matchmover: <ul style="list-style-type: none"> - Matchmoving techniques. 			
Topic	Integration: <ul style="list-style-type: none"> - 3D tools and environment. - Lighting adjustments for a 3D environment. - Render passes and compositing. - Integration of 3D elements. - Applied project. 			

4. Teaching methodologies and training activities

Modality In-person					
Methodology	Description	In-person teaching hours	Virtual teaching hours	Independent study hours	Education and learning outcomes / competences
Personalized attention [MAG00]	Through tutoring sessions, students will solve any doubts or problems they encounter during their work outside of class. For students with academic exemption, attending tutoring sessions is encouraged to oversee the progress of their coursework.	1,00	0,00	0,00	
Oral presentation [MAG22]	The project or work completed during the course will be presented publicly.	1,00	0,00	6,00	B01, B02, B03, B04, B05, B06, B07, B08, B09, B10, B11, B12, B13, C01, C03, C09.
Guest lecture / keynote speech [MAG39]	In-person theoretical lectures, where basic concepts that students must know will be explained, which will be applicable to practical assignments.	26,00	0,00	0,00	A10, A21, B01, B02, B03, B04, B05, B06, B07, B08, B09, B10, B11, B12, B13, C04, C06, C08.
Problem solving [MAG41]	Practical case studies will be presented in which the student will have to apply the knowledge acquired through the lectures to solve problems as they arise in order to achieve the desired result.	19,00	0,00	57,00	A10, A21, B01, B02, B03, B04, B05, B06, B07, B08, B09, B10, B11, B12, B13, C03, C07, C08, C09.
Supervised projects [MAG42]	With teacher supervision, and primarily through individual and autonomous work, students will have to develop the requirements and content necessary for each course project.	5,00	0,00	35,00	A10, A21, B01, B02, B03, B04, B05, B06, B07, B08, B09, B10,

Methodology	Description	In-person teaching hours	Virtual teaching hours	Independent study hours	Education and learning outcomes / competences
					B11, B12, B13, C01, C03, C04, C06, C07, C08, C09.
Sum of hours by type		52,00	0,00	98,00	
Total hours				150,00	

5. Assessment

Modality In-person			
Assessment system	Description	Weighting (%)	Education and learning outcomes / competences
Problem solving [SEG41]	Each of the practical assignments will be graded: P1 (15); P2 (15). To pass the course, the submission of all practical assignments is mandatory.	30,00	A10, A21, B01, B02, B03, B04, B05, B06, B07, B08, B09, B10, B11, B12, B13, C03, C07, C08, C09.
Supervised projects [SEG42]	Chroma Key compositing project. (30) Integration of virtual elements in live-action video project. (40)	70,00	A10, A21, B01, B02, B03, B04, B05, B06, B07, B08, B09, B10, B11, B12, B13, C01, C03, C04, C06, C07, C08, C09.
Total (%)		100,00	

All aspects related to academic exemption, study dedication, retention, and academic fraud will be governed in accordance with the current [academic regulations](#) of the UDC.

5.1. First opportunity

- To pass the course, it is necessary to achieve a grade greater than or equal to 50% of the total score, which is the sum of all assessable activities (practical assignments + supervised projects + oral presentation).
- Submitting the supervised projects alone is not sufficient to pass.
- Fraudulent participation in tests or assessment activities, once verified, will directly result in a failing grade for the opportunity in which it occurs. The student will be graded as "suspenso" (with a numerical grade of 0) in the corresponding opportunity of the academic year, whether the offense is committed in the first or the second assessment opportunity. To this end, their grade in the official record for the first opportunity will be amended if necessary.

5.2. Second opportunity

- Practical assignments or supervised projects with a grade below 50% will be re-submitted.
- To pass the course, it is necessary to achieve a grade greater than or equal to 50% of the total score, which is the sum of all assessable activities (practical assignments + supervised projects + oral presentation).
- Submitting the supervised projects alone is not sufficient to pass.
- Fraudulent participation in tests or assessment activities, once verified, will directly result in a failing grade for the opportunity in which it occurs. The student will be graded as "suspenso" (with a numerical grade of 0) in the corresponding opportunity of the academic year, whether the offense is committed in the first or the second assessment opportunity. To this end, their grade in the official record for the first opportunity will be amended if necessary.

5.3. Early opportunity

- Practical assignments or supervised projects with a grade below 50% will be re-submitted.
- To pass the course, it is necessary to achieve a grade greater than or equal to 50% of the total score, which is the sum of all assessable activities (practical assignments + supervised projects + oral presentation).
- Submitting the supervised projects alone is not sufficient to pass.
- Fraudulent participation in tests or assessment activities, once verified, will directly result in a failing grade for the opportunity in which it occurs. The student will be graded as "suspense" (with a numerical grade of 0) in the corresponding opportunity of the academic year, whether the offense is committed in the first or the second assessment opportunity. To this end, their grade in the official record for the first opportunity will be amended if necessary.

5.4. Academic exemption

The Governing Council, in its session of May 28, 2025, approved the regulation that governs the study commitment status and the academic exemption procedure for undergraduate and master's degree students. In accordance with this regulation, none of the mandatory attendance activities in this course can be waived, as they are all included among the exceptions established in Article 12, Section 2 of said regulation.

6. Recommended bibliography

Basic bibliography

- Armenteros Gallardo, Manuel, Fernández Ruiz, Marta; Cuevas Martín, José; Utray Delgado, Francisco (2011). Posproducción Digital. Bubok Publishing. Book. [\[URL\]](#)
- Brinkmann, Ron. (2008). The art and science of digital compositing : techniques for visual effects, animation and motion graphics. Morgan Kaufmann Publishers/Elsevier, 2nd ed.. Book. [\[URL\]](#)
- Dobbert, Tim. (2013). Matchmoving : the invisible art of camera tracking. Wiley, 2nd edition. Book. [\[URL\]](#)
- Kerlow, Isaac V. (2009). The art of 3D computer animation and effects. John Wiley & Sons, 4th ed.. Book. [\[URL\]](#)
- Rickitt, Richard (2006). Special effects : the history and technique. Aurum. Book. [\[URL\]](#)
- Tickoo, Sham. (2015). Blackmagic Design Fusion 7 Studio : a tutorial approach. CADCIM Technologies. Book. [\[URL\]](#)
- Vaz, Mark Cotta., Barron, Craig. (2002). The invisible art : the legends of movie matte painting. Chronicle Books. Book. [\[URL\]](#)

7. Recommendations

Recommended subjects:

- Graphic and Audiovisual Language and Narrative
- Editing
- Sound Design
- Materials and Lighting

Online resources:

- [Blackmagic Fusion Training Videos.](#)
- [Blackmagic Fusion DaVinci Resolve 19 Manual.](#)
- [Blackmagic Fusion DaVinci Resolve 20 New Features.](#)