

**Digital Object Integration**

Code: 104757  
ECTS Credits: 6

Degree	Type	Year	Semester
2503873 Interactive Communication	OT	4	2

## Contact

Name: Hector Angulo Perez

Email: hector.angulo@uab.cat

## Teaching groups languages

You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

## Teachers

Marc Palenzuela Reyes

## Prerequisites

It is recommended to study this subject together with the following subjects:

- Art and Architecture of Maps and Virtual Environments
- Creation of Digital Objects.

## Objectives and Contextualisation

Learn how to integrate 3D models (scenarios, objects and characters) in interactive projects such as video game:  
Learn how to use Unity and manage scripts and shaders to achieve a res

## Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Act within one's own area of knowledge, evaluating sex/gender-based inequalities.

- Apply and integrate knowledge in the fields of social sciences, humanities and engineering to generate complex products and services tailored to citizens' needs.
- Determine and plan the technological infrastructure necessary for the creation, storage, analysis and distribution of interactive multimedia and social-networking products.
- Devise, create, activate and integrate virtual and augmented-reality spaces, characters and objects.
- Display the ability to lead, negotiate and work in a team.
- Introduce changes in the methods and processes of the field of knowledge to provide innovative responses to the needs and demands of society.
- Manage time efficiently and plan for short-, medium- and long-term tasks.
- Search for, select and rank any type of source and document that is useful for creating messages, academic papers, presentations, etc.
- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
- Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.
- Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.

## Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Communicate using language that is not sexist or discriminatory.
3. Cross-check information to establish its veracity, using evaluation criteria.
4. Design objects that combine aesthetic norms with perfect technical functionality.
5. Distinguish the salient features in all types of documents within the subject.
6. Form part of groups working on virtual-production projects.
7. Identify the specific features of the design, creation, integration and animation of digital objects (2D and 3D) and specific tools from both a conceptual and a practical perspective.
8. Interpret and discuss documents on the main theories on virtual environments.
9. Plan and execute academic projects in the field of virtual environment theory.
10. Present a summary of the studies made, orally and in writing.
11. Propose new methods or well-founded alternative solutions.
12. Propose projects and actions that are in accordance with the principles of ethical responsibility and respect for fundamental rights and obligations, diversity and democratic values.
13. Propose projects and actions that incorporate the gender perspective.
14. Show expertise in operating the relevant computer programmes.
15. Submit course assignments on time, showing the individual and/or group planning involved.
16. Use the virtual spaces created as narrative contexts.
17. Weigh up the risks and opportunities of both one's own and other people's proposals for improvement.

## Content

1. Modeling elements with rigging
2. Fundamentals of Unity
3. 3D animation
4. Integration of animated elements
5. Interface and finishes inside the engine

## Methodology

This subject has more weight on the practical part and the project compared to the theoretical part.

The practical part I of the project will be carried out in work sessions tutored by the teacher,

work demonstration sessions and handouts of memory and documentation and independent work carried out by

THEORY:

Classes with material that will be provided beforehand in the virtual Campus where the theoretical and practical

Despite being theory classes, a good part of the session will be devoted to solving problems posed by the teacher

It is recommended to have a laptop for these sessions.

PRACTICES: Practical cases of different scenarios will be considered in

In these practical cases they will require the application of the concepts explained in the theory classes.

PROJECT: Halfway through the course in groups 3 or 4, the students will

Students will also be able to make project proposals. In the class sessions, the students will do group work supervised

On the last day of class, each group will make an oral presentation of the project, having previously delivered a report

NOTE: 15 minutes of a class will be set aside, within the calendar established

COMPETENCES:

Students are expected to acquire (in addition to those specified in section

Develop independent learning strategies.

Ability to organize and plan.

Problem solving ability.

SOFTWARE:

The same as in practices.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
-------	-------	------	-------------------

Type: Directed

Theory Classes	15	0.6	1, 2, 3, 5, 14, 7, 8, 11
Type: Supervised			
Practicum	12	0.48	3, 5, 4, 14, 7, 8, 9, 15, 11, 12, 13, 16
Project	21	0.84	1, 5, 4, 14, 10, 6, 9, 17, 15, 11, 12, 13, 16
Type: Autonomous			
Autonomous work practicum	12	0.48	4, 14, 6, 7, 8, 9, 15, 16
Theory Study	15	0.6	3, 5, 14, 7
Work in the Project	37	1.48	3, 5, 4, 14, 10, 6, 7, 9, 17, 15, 11, 12, 16

## Assessment

The evaluation activities that can be scored out of 10 are the following:

- a) Theory test (20% of the final mark)
- b) Delivery of practical work (20% of the final mark)
- c) Practical work (project) (50% of the final grade)
- d) Attendance and participation in the project sessions (10% of the final grade)

For the calculation of the final grade, each of the assessment activities must be scored out of 10. The mark for remedial activities will be graded with a maximum of 8. Students must be present in all project sessions. In the event that the student commits any irregularity that could lead to a suspension, the student's group may not be dissolved or receive substantial modifications past the deadline.

a) THEORETICAL TEST: Examination

b) DELIVERY OF PRACTICAL WORKS: Activities related to the learning process Delivery of functional models /

c) PROJECT: The following INSTRUMENTS and ACTIVITIES will be used to evaluate the project: An assessment

STUDENT'S PORTFOLIO: Document explaining the development of the work done: project approach, minutes of

PRESENTATION: Oral presentation in 10-14 transparencies about the project developed and results obtained.

APPLICATION: Source and executable version of the developed application.

ACTS and CONTROLS: Presentation of the delivered documentation.

QUALIFICATION INDICATORS FOR THE PROJECT: The final mark of the subject is calculated in a weighted a

EVALUATION CRITERIA: To consider the subject approved, a minimum of 5 must be obtained in the final grade

IMPORTANT FOR ALL STUDENTS: The UAB Virtual Campus will be the means of communication for the delive

EVALUATION CALENDAR: Monitoring of groups and controls: during the course. Delivery of the portfolio, oral pr

This subject doesn't provide for the single assessment system.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Assistance and participation in project sessions	0.1	21	0.84	1, 2, 5, 4, 14, 10, 6, 7, 8, 9, 17, 15, 11, 12, 13, 16
Individual Continuous evaluation on theory	0.2	3	0.12	3, 5, 10, 7, 8
Practicum evaluation	0.2	3	0.12	1, 2, 3, 5, 4, 14, 10, 6, 7, 8, 9, 17, 15, 11, 12, 13, 16
Project	0.5	11	0.44	1, 2, 3, 5, 4, 14, 10, 6, 7, 8, 9, 17, 15, 11, 12, 13, 16

## Bibliography

- <https://www.blender.org/> (Blender)
- <https://cascadeur.com/> (Cascadeur)
- <https://quixel.com/mixer> (Quixel Mixer)
- <https://unity.com/> (Unity3D)

## Software

- Unity, graphics engine for developing interactive and immersive video games and applications.
- Blender, 3D content creator software for making models and animations of them.
- Cascadeur, software creator of animations and 3D skeletons with artificial intelligence.
- Quixel Mixer, 3D model texturing software standardized in the industry.
- Krita, image editing software with layers.
- GitHub, repository.