

# EUROPASS SUPPLEMENT TO THE MASTER'S DEGREE IN VOCATIONAL EDUCATION AND TRAINING

## TITLE OF THE TITLE

*Master's Degree in Video Game and Virtual Reality Development*

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## TITLE DESCRIPTION

### **The holder has acquired the general competence relating to:**

Design and develop video games for different devices and platforms, ensuring the user experience, using the latest generation tools that allow acting in all phases of its development, as well as interactive applications of virtual and augmented reality.

### **Within this framework, each PROFESSIONAL MODULE includes the following LEARNING OUTCOMES acquired by the holder.**

#### **"Programming and video game engines".**

The titleholder:

- Identify the main references of the history and culture of video games, assessing their impact on today's society.
- Apply the fundamental concepts of object-oriented programming, taking into account the programming language used in the video game engine.
- Configures development environments, tools and engines for video game development, applying the necessary techniques and taking into account the technological advances in the sector.
- Establishes the internal architecture of video games by determining the scripting of the development engine.
- Create effects of acceleration, collisions, gravity and other forces inherent in game objects, controlling the fundamentals of the physics system related to video games.
- Define the user interface of the video game taking into account its speed and ease of use.

#### **"2D and 3D graphic design".**

The titleholder:

- Develops the principles of the creative process of the conceptual art of the video game project.
- Generate advanced compositions by applying professional digital illustration and vector drawing tools.
- Design 2D graphic elements and animations, taking into account the characteristics of the characters.
- Design graphic elements and 3D animations following the established script.
- Defines and configures camera movements and 3D lighting applying the established technical parameters.

#### **"Network programming and artificial intelligence".**

The titleholder:

- Develops multiplayer video games identifying and relating the fundamentals of client-server network programming.
- Verifies the execution of video game engines by checking the network programming configuration parameters.
- Design and develop games using internet services procedures for video games in the following area line.
- Applies basic concepts of artificial intelligence in the design of video games.
- Identifies and relates elements of artificial intelligence and machine learning in the development of video games.

### "Virtual reality and augmented reality".

The titleholder:

- Recognizes the different models and devices differentiating Virtual Reality (hereinafter VR), Augmented Reality (hereinafter AR), Mixed Reality (hereinafter MR) and Extended Reality (hereinafter XR) ecosystems.
- Designs and develops video game projects taking into account the programming characteristics of VR.
- Designs and develops video game projects taking into account the programming characteristics of AR.
- Design and develop projects with MRI combining AR and VR.
- Define and develop video games for VR learning.

### "Design, management, publication and production.".

The titleholder:

- Verify the video game documents with description of all the phases and aspects related to the creation of the video game.
- Manages video game projects defining and implementing all stages of the different professional profiles that are part of its development.
- Verifies the performance of video game projects by applying testing processes.
- Publish video games taking into account the characteristics of the platforms and devices.
- It characterizes the different market segments to which the video game may be aimed.
- Design plans for the diffusion of video games taking into account the characteristics and particularities of the different channels.
- Design the business plan of the video game project by identifying the market segments and their characteristics.

## JOBS THAT CAN BE PERFORMED WITH THIS

The most relevant occupations and jobs are as follows:

- Video game developer.
- Responsible for video game testing.
- Responsible for the video game creation process.
- 2D and 3D graphic designer for videogames.
- Developer of virtual, augmented and mixed reality applications.

## ISSUANCE, ACCREDITATION AND DEGREE LEVEL

**Body issuing the diploma on behalf of the King:** Ministry of Education and Vocational Training or the autonomous communities within the scope of their own competences. The title has academic and professional effects with validity throughout the State.

**Official duration of the degree:** 330 hours.

**Degree level (national or international).**

- NATIONAL: Non-university higher education.
- INTERNATIONAL:
  - Level P-5.5.4 of the International Standard Classification of Education (ISCED P-5.5.4).
  - Level 5C of the European Qualifications Framework (EQF 5C).

**Access requirements:**

To access the specialization course in Video Game Development and Virtual Reality it is necessary to hold one of the following degrees:

- a) Higher Technician in Network Computer Systems Administration established by the Royal Decree 1629/2009, of October 30, 2009, which establishes the degree of Higher Technician in Administration of Networked Computer Systems and establishes its minimum teaching requirements.
- b) Higher Technician in Multiplatform Applications Development, established by Royal Decree 450/2010, of April 16, 2010, which establishes the title of Higher Technician in Multiplatform Applications Development and sets its minimum teaching requirements.
- c) Higher Technician in Web Applications Development, established by Royal Decree 686/2010, of May 20, 2010, which establishes the title of Higher Technician in Web Applications Development and establishes set their minimum teaching requirements.
- d) Superior Technician in 3D Animations, Games and Interactive Environments established by Royal Decree 1583/2011, of November 4, which establishes the title of Higher Technician in 3D Animation Games and Interactive Environments and establishes the minimum teaching requirements.

**Access to the next level of education or training:** Access to any university study will be available.

**Legal Basis.** The applicable regulations are Royal Decree 261/2021, of April 13, establishing the Specialization Course in Video Game Development and Virtual Reality and setting the basic aspects of the curriculum, amending various royal decrees establishing specialization courses and the basic aspects of the curriculum and correcting errors in Royal Decree 283/2019, of April 22 and Royal Decree 402/2020, of February 25, establishing the degrees and the basic aspects of the curriculum.

**Explanatory note:** This document is intended as additional information to the title in question, but has no legal validity whatsoever.

### FORMATION OF THE OFFICIALLY RECOGNIZED MASTER'S DEGREE

PROFESSIONAL MODULES OF THE MASTER'S DEGREE ROYAL DECREE	ECTS CREDITS
<b>Programming and video game engines</b>	9
<b>2D and 3D graphic design</b>	9
<b>Network programming and artificial intelligence</b>	5
<b>Virtual reality and augmented reality</b>	5
<b>Design, management, publication and production</b>	8
	TOTAL CREDITS
	<b>36</b>
OFFICIAL DURATION OF THE MASTER'S DEGREE (HOURS)	<b>330</b>

\* The minimum Master's degree courses shown in the table above, 55%, are official and valid in the entire national territory. The remaining 45% belongs to each Autonomous Region and may be reflected in the **Annex I** of this supplement.

### INFORMATION ABOUT THE EDUCATION SYSTEM

