

Postgraduate Certificate Level Design for Video Games





Postgraduate Certificate Level Design for Video Games

- » Modality: online
- » Duration: 12 weeks
- » Certificate: TECH Global University
- » Credits: 12 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/us/videogames/postgraduate-certificate/level-design-video-games

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01

Introduction

A video game can have different characteristics depending on numerous variables such as its genre, the audience for which it is intended, or the platform for which it has been designed. Therefore, many of them are composed of different levels and these are the basic feature of its structure. But designing attractive levels requires specific expertise in the field, and not all companies have qualified personnel who can do this. For this reason, this program is the best option for students to specialize and have great career opportunities in charge of designing levels of various video games.





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Level design is one of the most important tasks in the creation of a video game: specialize in this area and access the best companies in the sector”

Video games are made up of multiple elements that give them shape when playing. Their characters, genre, gameplay or their narrative structure are some of these aspects. But there is another very important one: the levels.

The levels of a video game are the total playable space in a given stage of the game. Therefore, the levels are often very different from each other so that the player experiences different challenges and enjoys a variety of aesthetics. Depending on the game in question, the levels can be longer or complex or can be very basic and in 2D.

However, whatever they're like, it is not easy to design them appropriately. The levels must be attractive, varied, with the difficulty adapted to the context of the game and, most importantly, must be balanced. For this reason, experts specialized in this task are needed, and companies in the industry need people to take care of it.

Therefore, this Postgraduate Certificate in Level Design for Video Games is the answer for all those who wish to work in large companies in the sector designing different levels for their most important video games, thanks to the knowledge and skills they will obtain throughout the course.

This **Postgraduate Certificate in Level Design for Video Games** contains the most complete and up-to-date program on the market. Its most notable features are:

- ◆ Practical cases presented by experts in Video Game Level Design
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



The video games you work on will be the most attractive in the entire industry”

“

This Postgraduate Certificate is what you were looking for to learn to design levels for video games”

The teaching staff of this program includes professionals from the industry, who contribute the experience of their work to this program, in addition to recognized specialists from reference societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive learning programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

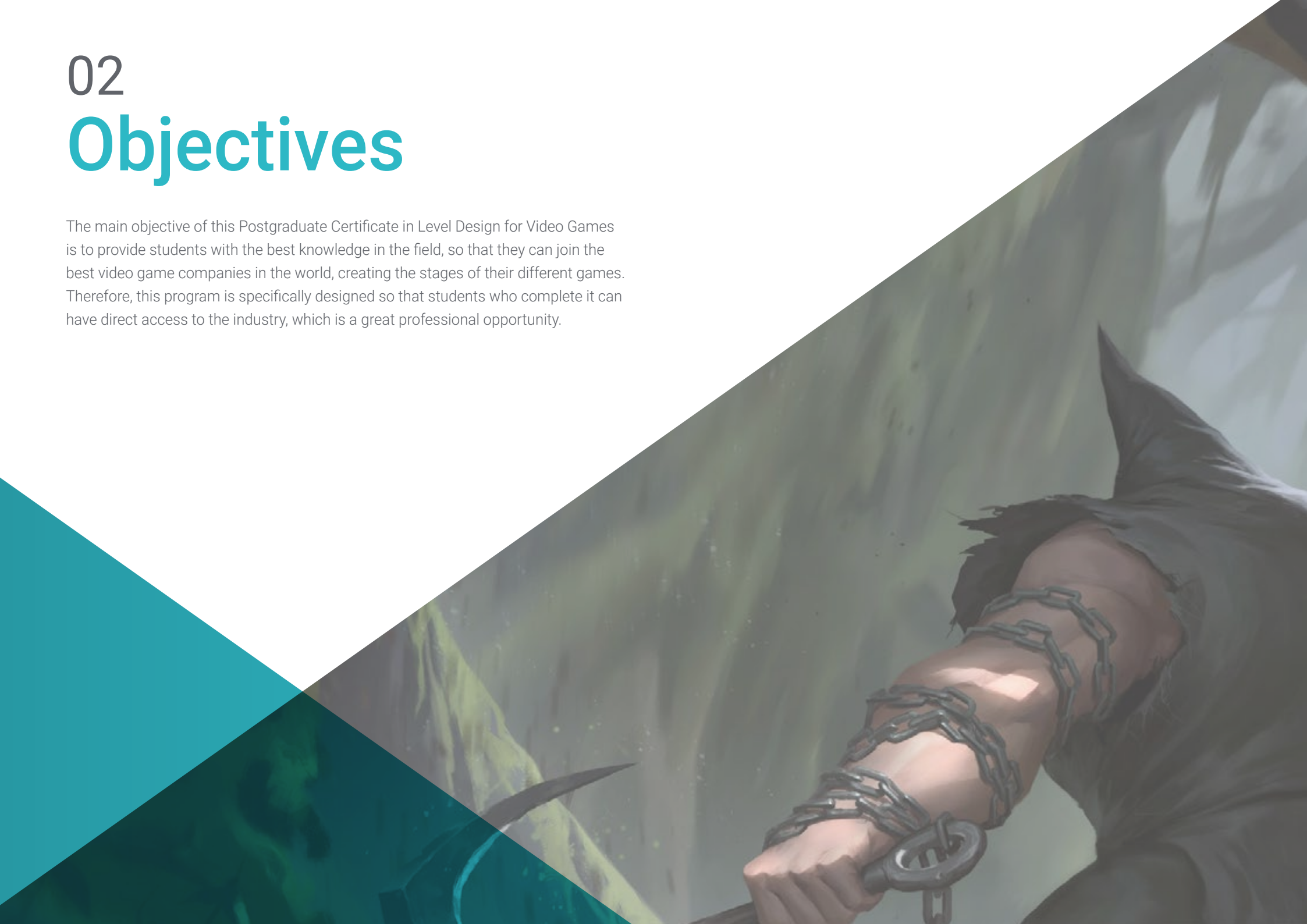
The industry is waiting for you: specialize and design great video games.

Specialization is key in the field of video games. Don't wait any longer.



02 Objectives

The main objective of this Postgraduate Certificate in Level Design for Video Games is to provide students with the best knowledge in the field, so that they can join the best video game companies in the world, creating the stages of their different games. Therefore, this program is specifically designed so that students who complete it can have direct access to the industry, which is a great professional opportunity.



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Your objective is to work for the big video game companies and this Postgraduate Certificate will help you to achieve it”



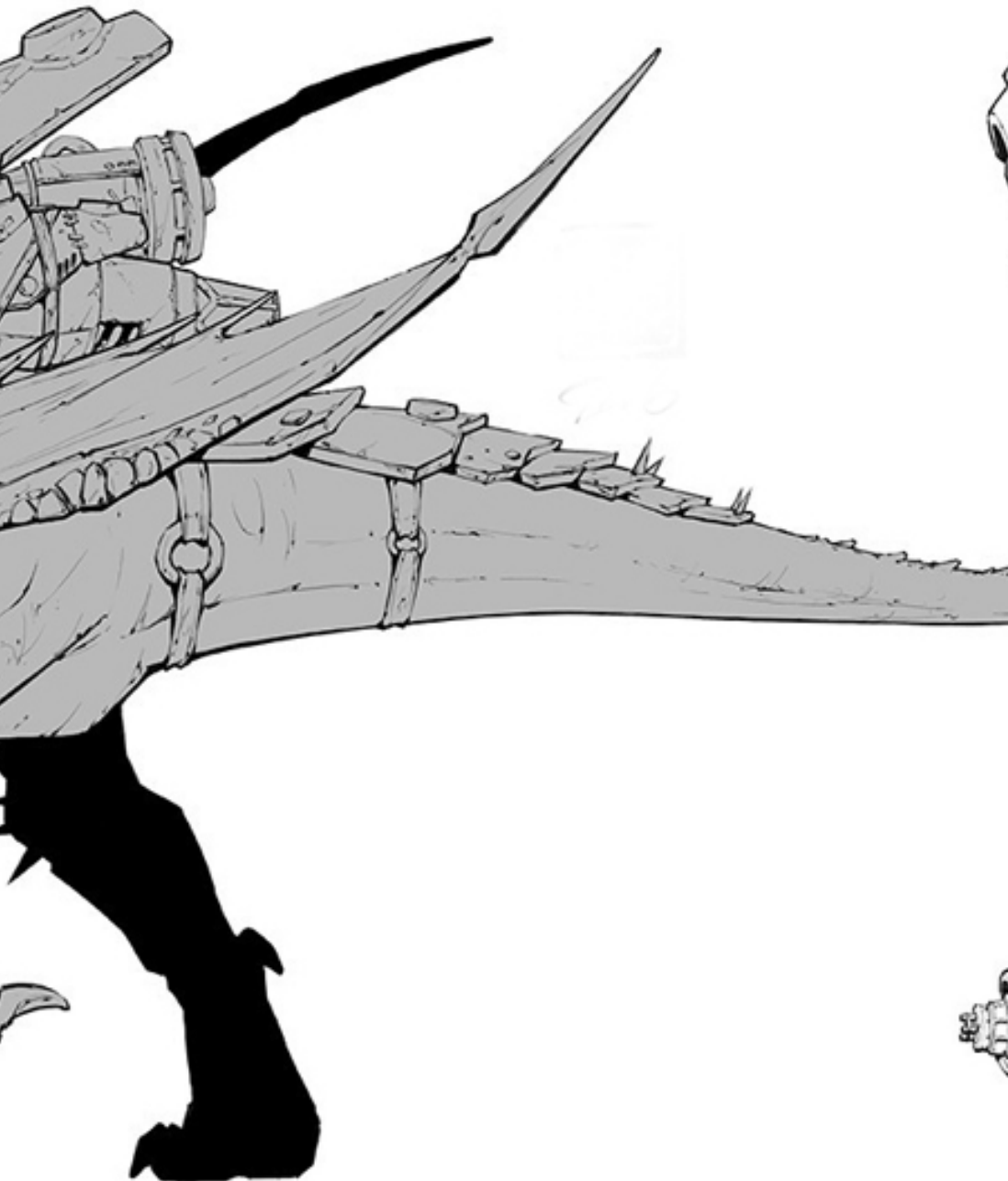
General Objectives

- ◆ Learn how to design levels for video games
- ◆ Understand what 3D modeling is
- ◆ Assimilate how the integration of 3D modeling in a video game takes place
- ◆ Observe the importance of this task in the design of a video game
- ◆ Learn general video game design skills
- ◆ Understand the importance of video game engines
- ◆ Become familiar with the field of programming as applied to this area
- ◆ Integrate engine operation with the rest of the elements of the video game

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*With this program, you will
be an essential professional
in your business”*





Specific Objectives

- ◆ Ascertain the internal structure of a video game engine
- ◆ Establish the elements of a modern video game architecture
- ◆ Understand the functions of each one of the video game components
- ◆ Examine examples of video games made with 2D and 3D graphics
- ◆ Discover video game engine operation and architecture
- ◆ Understand the basic features of existing game engines
- ◆ Correctly and efficiently program applications applied to video game engines
- ◆ Choose the most appropriate paradigm and programming languages to program applications applied to video game engines

03

Structure and Content

This Postgraduate Certificate in Level Design for Video Games has been created by great experts who work in the industry, and, for this reason, the contents are focused on professional performance. Therefore, throughout its 2 modules, divided into 10 topics each, students will be able to learn everything they need to become specialists in level design for many different types of video games, helping their careers to take off quickly.





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The best contents are waiting for you in this Postgraduate Certificate”

Module 1. 3D Modeling

- 1.1. Introduction to C#
 - 1.1.1. What is OOP?
 - 1.1.2. Visual Studio Environment
 - 1.1.3. Types of Data
 - 1.1.4. Type Conversions
 - 1.1.5. Conditionals
 - 1.1.6. Objects and Classes
 - 1.1.7. Modularity and Encapsulation
 - 1.1.8. Heritage
 - 1.1.9. Abstract Classes
 - 1.1.10. Polymorphism
- 1.2. Fundamentals of Mathematics
 - 1.2.1. Mathematical Tools in Physics: Scalar and Vector Quantities
 - 1.2.2. Mathematical Tools in Physics: Scalar Product
 - 1.2.3. Mathematical Tools in Physics: Vector Product
 - 1.2.4. Mathematics Tools in OOP
- 1.3. Physical Principles
 - 1.3.1. Rigid Solids
 - 1.3.2. Kinematics
 - 1.3.3. Dynamics
 - 1.3.4. Collisions
 - 1.3.5. Projectiles
 - 1.3.6. Flying
- 1.4. Fundamentals of Computer Graphics
 - 1.4.1. Graphics Systems
 - 1.4.2. 2D Graphics
 - 1.4.3. 3D Graphics
 - 1.4.4. Raster Systems
 - 1.4.5. Geometric Modeling
 - 1.4.6. Elimination of Hidden Parts
 - 1.4.7. Realistic Visualization
 - 1.4.8. OpenGL Graphics Library
- 1.5. Unity: Introduction and Installation
 - 1.5.1. What Is Unity?
 - 1.5.2. Why Unity?
 - 1.5.3. Features of Unity
 - 1.5.4. Installation
- 1.6. Unity: 2D and 3D
 - 1.6.1. 2D Gameplay: Sprites and Tilemaps
 - 1.6.2. 2D Gameplay: 2D Physics
 - 1.6.3. Unity 2D Video Game Examples
 - 1.6.4. Introduction to Unity 3D
- 1.7. Unity: Instantiation and Object Creation
 - 1.7.1. Adding Components
 - 1.7.2. Deleting Components
 - 1.7.3. Importing Assets and Textures
 - 1.7.4. Supplies and Maps for Materials
- 1.8. Unity: Interactions and Physics
 - 1.8.1. Rigidbody
 - 1.8.2. Colliders
 - 1.8.3. Joints
 - 1.8.4. Character Controllers
 - 1.8.5. Continuous Collision Detection (CCD)
 - 1.8.6. Physics Debug Visualization
- 1.9. Unity: Basic Artificial Intelligence (AI) for NPC
 - 1.9.1. Pathfinding in Unity: Navmesh
 - 1.9.2. AI Enemies
 - 1.9.3. NPC Action Tree
 - 1.9.4. NPC Hierarchy and Scripts
- 1.10. Unity: Animation Fundamentals and Implementation
 - 1.10.1. Animation Controller: Character Association
 - 1.10.2. Blend Tree: Combination Tree
 - 1.10.3. State Transitions
 - 1.10.4. Transition Threshold Modification

Module 2. Video Game Engines

- 2.1. Video Games and Information Communication Technologies (ICTs)
 - 2.1.1. Introduction
 - 2.1.2. Opportunities
 - 2.1.3. Challenges
 - 2.1.4. Conclusions
- 2.2. History of Video Game Engines
 - 2.2.1. Introduction
 - 2.2.2. Atari
 - 2.2.3. The 80s
 - 2.2.4. First Engines. The 90s
 - 2.2.5. Current Engines
- 2.3. Video Game Engines
 - 2.3.1. Types of Engines
 - 2.3.2. Video Game Engine Parts
 - 2.3.3. Current Engines
 - 2.3.4. Selecting an Engine for Our Project
- 2.4. Motor Game Maker
 - 2.4.1. Introduction
 - 2.4.2. Scenarios Design
 - 2.4.3. Sprites and Animations
 - 2.4.4. Collisions
 - 2.4.5. Scripting in Game Maker Languages (GML)
- 2.5. Unreal Engine 4: Introduction
 - 2.5.1. What Is Unreal Engine 4? What Is Its Philosophy?
 - 2.5.3. Materials
 - 2.5.4. UI
 - 2.5.5. Animations
 - 2.5.6. Particle Systems
 - 2.5.7. Artificial Intelligence
 - 2.5.8. Frames Per Second (FPS)
- 2.6. Unreal Engine 4: Visual Scripting
 - 2.6.1. Blueprints and Visual Scripting Philosophy
 - 2.6.2. Debugging
 - 2.6.3. Types of Variables
 - 2.6.4. Basic Flow Control
- 2.7. Unity 5 Engine
 - 2.7.1. C# y Visual Studio Programming
 - 2.7.2. Creating Prefabs
 - 2.7.3. Using Gizmos to Control Video Games
 - 2.7.4. Adaptive Engine: 2D and 3D
- 2.8. Godot Engine
 - 2.8.1. Godot Design Philosophy
 - 2.8.2. Object- and Composition-Oriented Design
 - 2.8.3. All in One Package
 - 2.8.4. Open and Community-Driven Software
- 2.9. RPG Maker Engine
 - 2.9.1. RPG Maker Philosophy
 - 2.9.2. Taking as a Reference
 - 2.9.3. Creating a Game with Personality
 - 2.9.4. Commercially Successful Games
- 2.10. Source 2 Engine
 - 2.10.1. Source 2 Philosophy
 - 2.10.2. Source and Source 2: Evolution
 - 2.10.3. Use of the Community: Audiovisual Content and Video Games
 - 2.10.4. Future of Source 2 Engine
 - 2.10.5. Successful Mods and Games

04

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





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Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

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At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world”



You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.



The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

“*Our program prepares you to face new challenges in uncertain environments and achieve success in your career*”

The case method has been the most widely used learning system among the world's leading business schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Over the course of 4 years, you will be presented with multiple practical case studies. You will have to combine all your knowledge, and research, argue, and defend your ideas and decisions.

Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.



This program offers the best educational material, prepared with professionals in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.



Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



05 Certificate

The Postgraduate Certificate in Level Design for Video Games guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This program will allow you to obtain your **Postgraduate Certificate in Level Design for Video Games** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Level Design for Video Games**

Modality: **online**

Duration: **12 weeks**

Accreditation: **12 ECTS**



future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present
online training
development language
classroom



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