# Postgraduate Certificate
## Lighting, Particles, Materials and Textures for 3D Video Games Technician

**tech** technological university

# tech *technological university*

## Postgraduate Certificate
## Lighting, Particles, Materials and Textures for 3D Video Games Technician

- » Modality: **online**
- » Duration: **6 weeks**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/in/design/postgraduate-certificate/lighting-particles-materials-textures-3d-video-games-technician**

# Index

# 01
# Introduction

From the very basics of photography to the audiovisual creation process, lighting for 3D product design is one of the most important parts of a successful product. The use and utilization of the most advanced lighting techniques can determine the perception of scenery, cinematics and facial features in a video game. Therefore, it is important for designers to be aware of the latest and most effective methodologies for handling *Shaders*, particles and Mecanim, which is precisely the subject of this TECH program. Through the knowledge of an expert faculty, the designer will acquire the most renewed and up to date competencies in this field, in a 100% online format that is convenient, flexible and adaptable to all kinds of agendas and responsibilities.
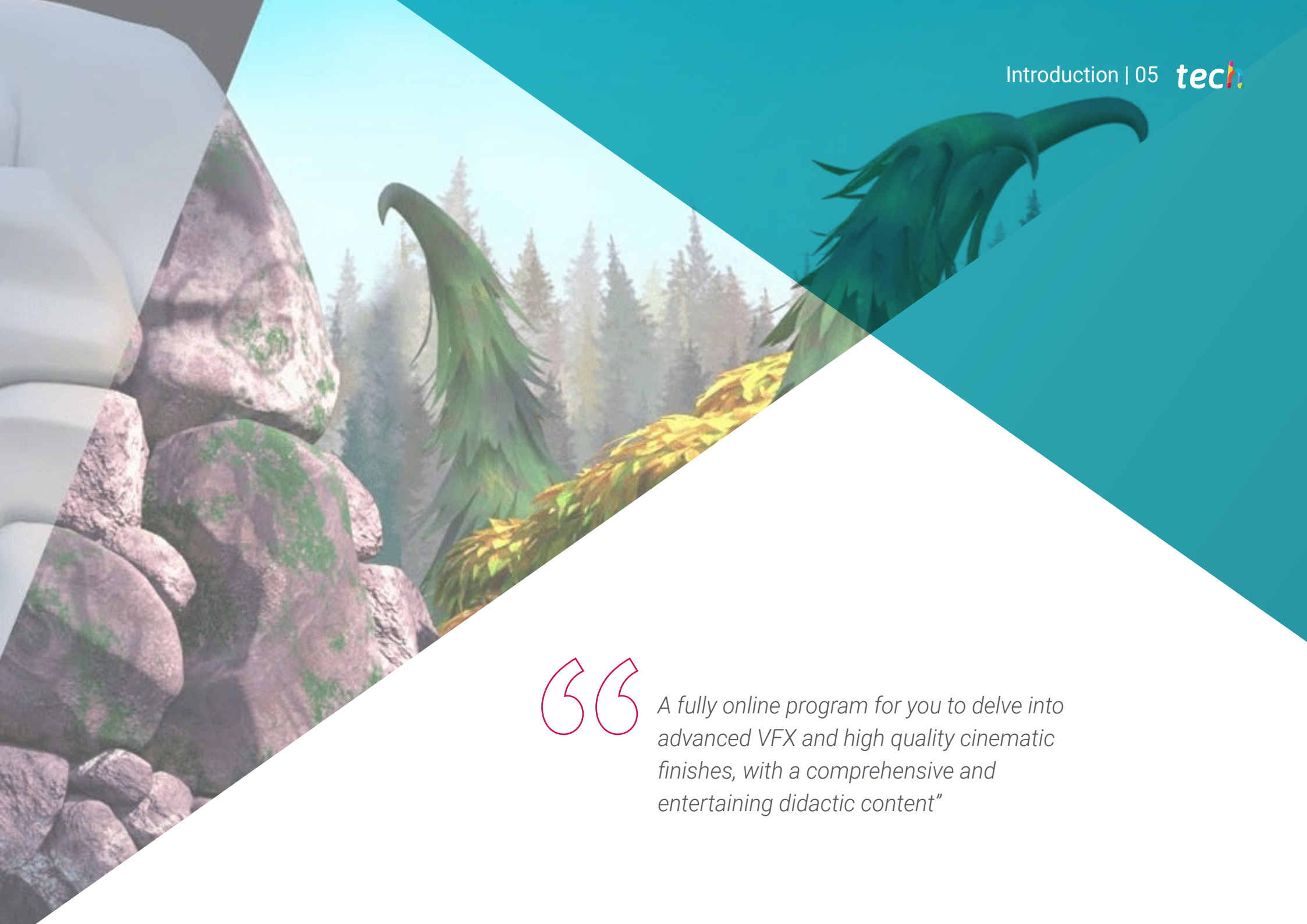
*A fully online program for you to delve into advanced VFX and high quality cinematic finishes, with a comprehensive and entertaining didactic content"*

The audiovisual products are mostly projects of intense and dedicated work. For this reason, it is expected that the professionals in charge of their creation have the appropriate knowledge to offer a show of lights, particles and materials of great quality. Among the qualities to be highlighted in the design is the knowledge in programs such as Unity, widely used in all kinds of fields, including video games.

It is no secret that the more dedication a product has, the more successful it will be a thousand times more. This is why productions such as Assassin's Creed are so acclaimed by audiences worldwide. A component that makes this series striking and famous is the attention to the play of light, to the textures of the characters and especially to the production, which is responsible for giving a particular atmosphere to the project. For this reason, TECH offers professional designers this Diploma, where the student will be able to perfect and update their knowledge in lighting techniques.

This is a multidisciplinary and dynamic degree that gathers the most rigorous information on the development of audiovisual materials in 3D format, as well as the creation of interfaces, menus and animation systems through the main techniques. The student will be able to work on deepening his or her competencies, acquiring knowledge in his or her professional path.

To facilitate study, an extensive multimedia library of additional material has been created, including detailed videos, self-awareness exercises, research articles, supplementary readings and dynamic summaries. In addition, all the material will be available from the beginning of the program and the student will be able to access it whenever and wherever they wish from any device with an internet connection.

This **Postgraduate Certificate in Lighting, Particles, Materials and Textures for 3D Video Games Technician** contains the most complete and up-to-date program on the market. The most important features include:

- The development of practical cases presented by experts in Video Games and Video Technologies
- The graphic, schematic, and practical contents with which they are created, provide 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 3D modeling and animation in virtual environments
- 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

*Mastering lighting techniques will be necessary for you in your career as a designer"*

"*A Diploma made to measure for you, where you will be able to acquire new knowledge and deepen them for field work for series, movies or video game settings*"

*This program will allow you to open doors in the future, making you a professional worthy of deserving them.*

*Upon completion of the program you will be able to qualify as a Technician in Lighting, Particles, Materials and Textures for 3D Video Games.*

The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading 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 education 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 students will be assisted by an innovative interactive video system created by renowned and experienced experts.

# Objectives

The main objective of this Diploma is that the student learns and has knowledge about lighting, particles, materials and textures for 3D video games, in addition to being able to apply them to film and television. For this reason, TECH will make available to the student the most complete and up to date information on the main lighting techniques.

*Be part of the entertainment industry by becoming a technician versed in the areas of lighting and particle development, materials and 3D texturing"*

## General Objectives

- Delve into the development of elements, visual components and systems related to the 3D environment
- Generate particle systems and *shaders* to enhance the artistic finish of the game
- Develop immersive environments whose visual components can be optimally managed and executed

*If your objectives include mastering the different lighting modes that exist, as well as light baking, you have the best opportunity to achieve it"*

## Specific Objectives

◆ Learn how to use raster graphic resources to integrate into 3D video games

◆ Implement interfaces and menus for 3D video games, easy to apply to VR environments

◆ Create versatile animation systems for professional video games

◆ Use Shaders and materials to give a professional finish

◆ Create and configure particle systems

◆ Use optimized lighting techniques to reduce the impact on game engine performance

◆ Generate professional quality VFX

◆ Know the different components to manage the different types of audio in a 3D video game

# 03
# Course Management

The mission to offer the studenta a first class teaching staff is born from the desire to improve the professionals of the future, for this reason TECH has selected a group of teachers who are experts in the field of 3D lighting. The purpose of this is for students to learn from the best teachers in the world from their experience and knowledge.
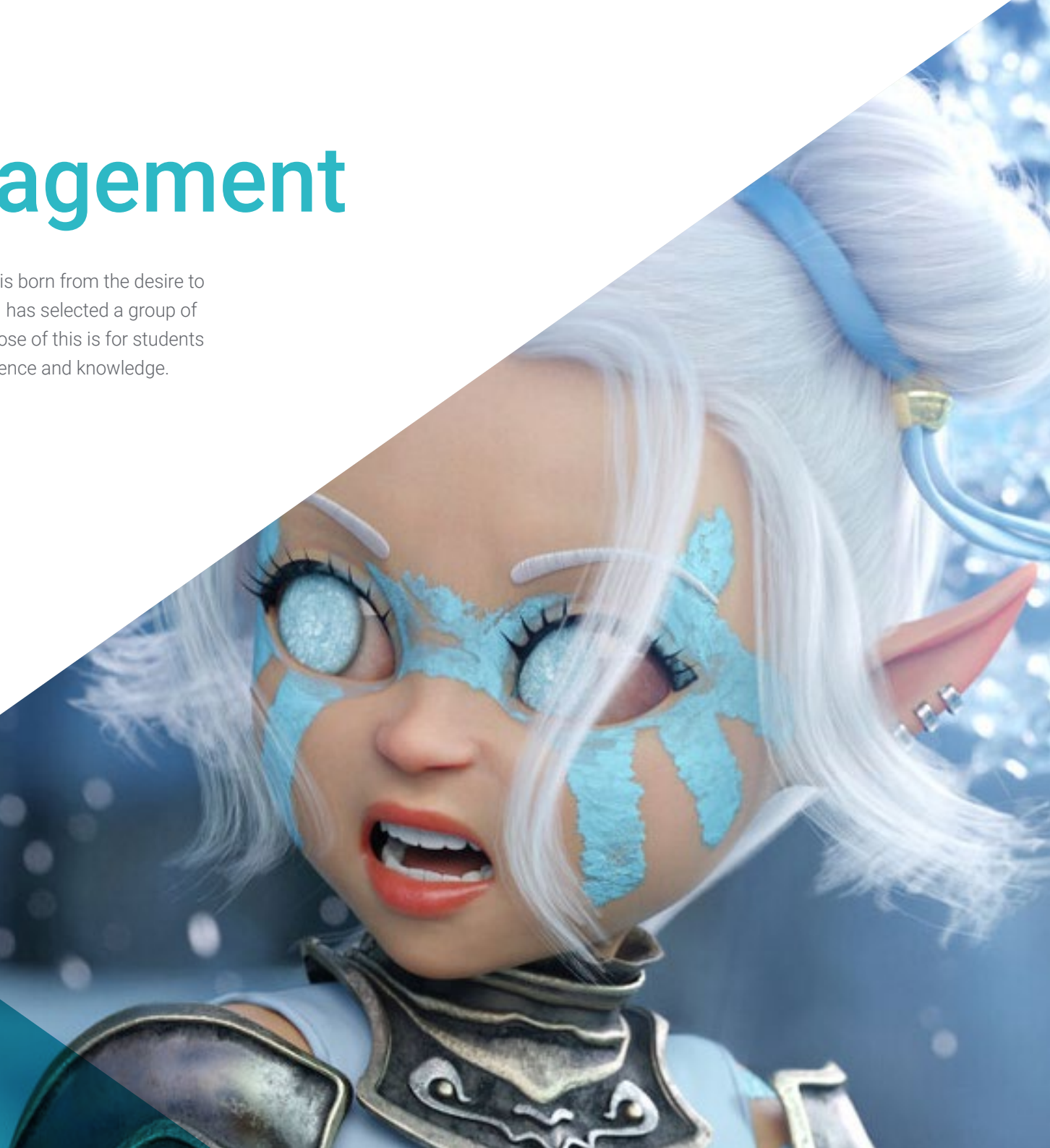
*This teaching panel will help you improve your skills and abilities to position yourself as one of the best lighting technicians for the creation of multimedia projects"*

## Management

### Mr. Ortega Ordóñez, Juan Pablo

- Director of Engineering and Gamification Design for the Intervenía Group
- Professor at ESNE of Video Game Design, Level Design, Video Game Production, Middleware, Creative Media Industries, etc
- Advisor in the foundation of companies such as Avatar Games or Interactive Selection
- Author of the book Video Game Design
- Member of the Advisory Board of Nima World

## Professors

**Mr. Ferrer Mas, Miquel**
- Senior Unity Developer at Quantic Brains
- Lead programmer at Big Bang Box
- founder and of video game programmer at Carbonbyte
- Audiovisual Programmer at Unkasoft Advergaming
- Video game programmer at Enne
- Design Director at Bioalma
- Superior Technician in Computer Science at Na Camel-la
- Master's Degree in Video Game Programming by CICE
- Introduction to Deep Learning with PyTorch course by Udacity

# 04
## Structure and Content

TECH has designed a comprehensive syllabus, composed of topics of interest and important topics for the development of the program, so the student will find detailed videos, research articles, dynamic summaries, complementary readings and self-knowledge exercises. Thanks to this, the graduate will be able to study the different aspects of the syllabus in a personalized way and study them whenever he/she wants, thanks to the accessibility of the virtual classroom.

*By accessing the virtual campus you will be able to review all the content of the program, allowing you to study it whenever you wish"*

## Module 1. 2D and 3D Video Game Development

1.1.    Raster Graphic Resources
    1.1.1.    Sprites
    1.1.2.    Atlas
    1.1.3.    Texture

1.2.    Interface and Menu Development
    1.2.1.    Unity GUI
    1.2.2.    Unity UI
    1.2.3.    UI Toolkit

1.3.    Animation System
    1.3.1.    Animation Curves and Keys
    1.3.2.    Applied Animation Events
    1.3.3.    Modifiers

1.4.    Materials and Shaders
    1.4.1.    Material Components
    1.4.2.    RenderPass Types
    1.4.3.    Shaders

1.5.    Particles
    1.5.1.    Particle Systems
    1.5.2.    Transmitters and Sub-Transmitters
    1.5.3.    Scripting

1.6.    Lighting
    1.6.1.    Lighting Modes
    1.6.2.    Light Baking
    1.6.3.    Light Probes

*Give your projects a more professional cinematic finish with the Postgraduate Certificate of this program and stand out among 3D video game creators"*

# 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.

*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.

"

*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.*

## 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 is the most widely used learning system in the best faculties in the world. 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 we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

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

## 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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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. With this methodology we have 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, markets, and financial 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 competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

### 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.

30%

10%

8%

**20%**

**25%**

**4%**

**3%**

### 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.

# Certificate

The Postgraduate Certificate techniques in Lighting, Particles, Materials and Texture. for 3D Video Games guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

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

This **Postgraduate Certificate in Lighting, Particles, Materials and Textures for 3D Video Games Technician** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Lighting, Particles, Materials and Textures for 3D Video Games Technician**

Official Nº of Hours: **150 h.**

tech technological university

Awards the following
**CERTIFICATE**
to
Mr./Ms. _____, with identification number _____.
For having passed and accredited the following program

**POSTGRADUATE CERTIFICATE**
in
Lighting, Particles, Materials and Textures for 3D
Video Games Technician

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S    techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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