

Postgraduate Diploma

Model Illumination and 3D Printing,
VR, AR and Photogrammetry



Postgraduate Diploma

Model Illumination and 3D Printing, VR, AR and Photogrammetry

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

Website: www.techtute.com/us/videogames/postgraduate-diploma/postgraduate-diploma-model-illumination-3d-printing-vr-ar-photogrammetry

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Certificate

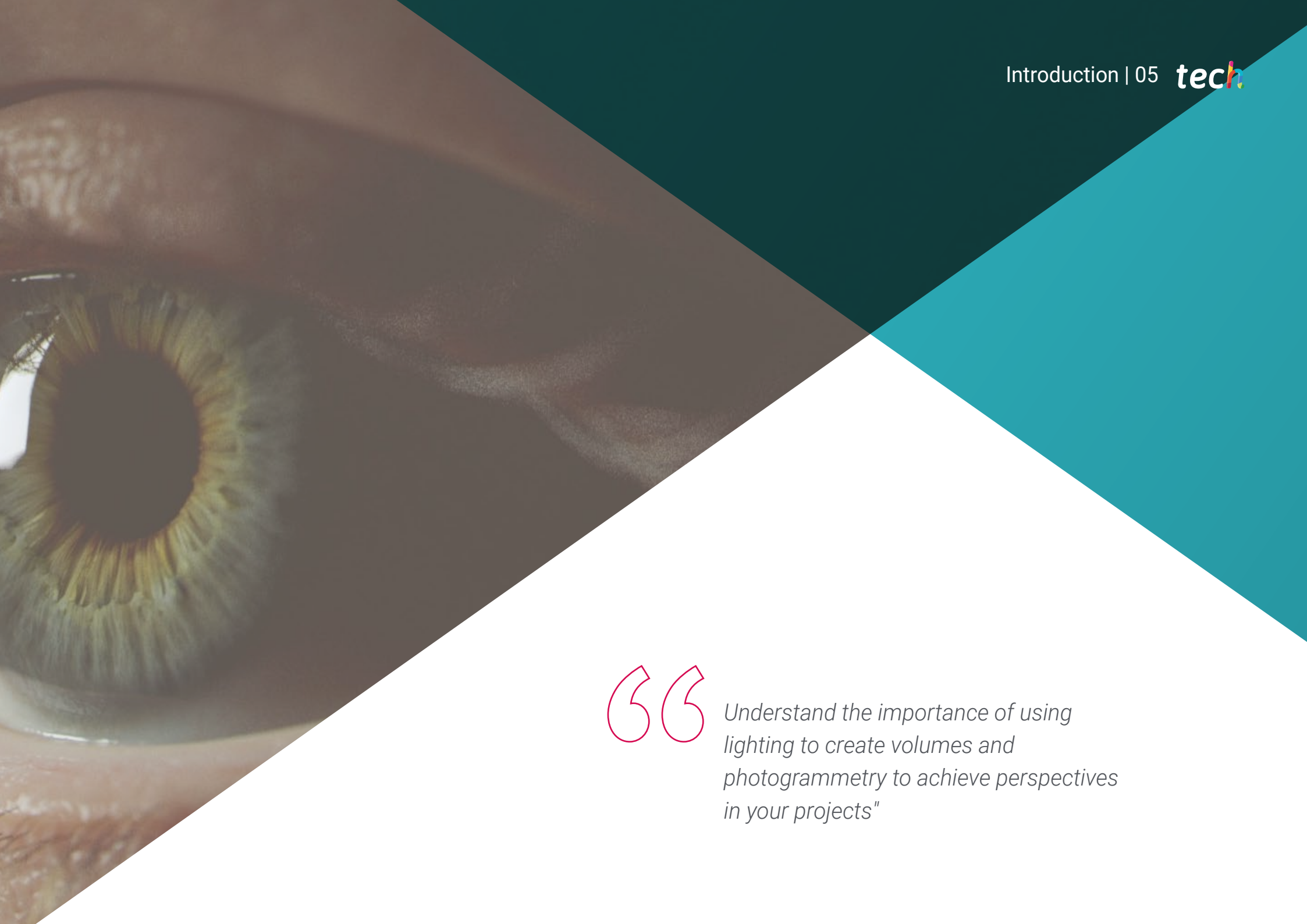
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01

Introduction

Developing interactive projects in video game engines such as Unity and Unreal, which are used by AAA companies such as *Epic Games* or even big animation studios such as Disney, is possible with the most updated knowledge. In this program specially developed for those who wish to stand out in their environment as creative experts through digital sculpture, we teach the techniques and tools necessary to achieve amazing works, through the proper use of model lighting. With an innovative methodology, 100% online and exclusive content selected and structured by experts, to achieve the degree in a few months.





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Understand the importance of using lighting to create volumes and photogrammetry to achieve perspectives in your projects"

The concept of digital sculpting has changed radically in recent years due to the requirements of the industry. So, at the moment it is complex to separate the texturing, modeling or lighting engines, being an essential requirement to work with *low poly* system with *high poly* details and make the models functional for the video game industry and 3D printing.

By no means, we can ignore within the techniques of digital sculpture the newest systems such as VR sculpting, model generation through photographs or modeling within *Unreal* and *Unity*. For this reason, this training program includes the most updated concepts and practices on the subject.

As well as all the knowledge required to master a powerful 3D development software such as Blender. A program that has revolutionized the CGI paradigm in recent years and although large companies did not trust it at first, since the release of the LTS versions, it has strengthened its position becoming a market benchmark.

In the same way, an innovative tool of the same software used by large animation studios for the last few years will be implemented: *Grease Pencil*, its strong point, has rethought concepts of 2D animation, *storyboarding*, animations and *hand painter* character creation.

Thanks to TECH's innovative 100% online teaching methodology, students understand the adaptability of their reality and current needs to the learning process, managing the ideal time and place for their studies. A trained teaching team will use numerous multimedia resources to facilitate the process.

The **Postgraduate Diploma in Model Illumination and 3D Printing, VR, AR and Photogrammetry** contains the scientific most complete and up-to-date educational program on the market. The most important features include:

- ◆ The development of case studies presented by experts in 3D Modeling and Digital Sculpture
- ◆ The graphic, schematic, and eminently 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.
- ◆ Its 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



Excel in the application of advanced global illumination techniques, augmented reality, VR and 3D printing prototyping in your new projects"

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Enjoy 6 months of learning from experts, who will show you the most up-to-date concepts and case studies on model lighting and 3D printing techniques”

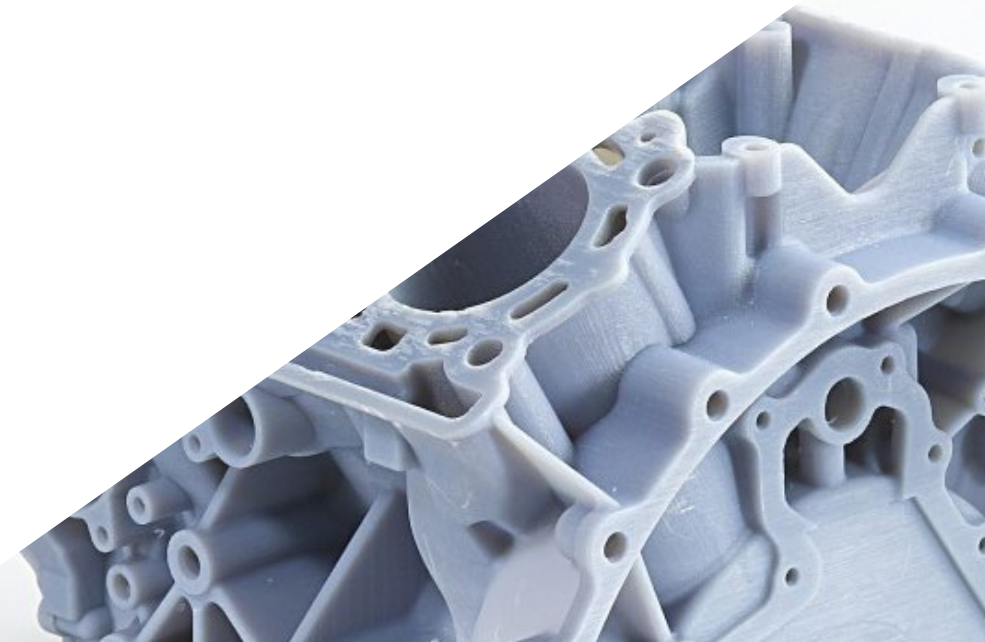
Learn how to use lighting in your creative processes, to expand into the wide possibilities offered by 3D modeling.

TECH offers an exclusive 100% online training, for those who wish to enhance their skills and make their way in a competitive working world.

The programs teaching staff includes professionals from the sector who contribute their work experience to this training 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 training programmed to train 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 during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.



02 Objectives

The main objective of this professional training is that the student can master the techniques, tools and processes involved in the creation of modeling projects in virtual environments, especially for video games and their dynamization through lighting and 3D printing, VR and AR and Photogrammetry. Achieving the competencies and skills necessary to perform successfully in the labor field.





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Master like an expert the most specialized modeling applications and software such as Blender, ZBrush, Substance Painter, Marvelous Designer and Quills"



General Objectives

- ◆ Specialized hard surface finishing and infoarchitecture
- ◆ Know the processes of modeling, texturing, lighting and rendering in a precise way
- ◆ Apply professional lighting on offline engines and *realtime* systems to obtain a high quality final finish of the models
- ◆ Handle modeling, texturing and lighting systems in virtual reality systems
- ◆ Know the current systems of the film and video game industry to deliver great results

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Knowing the most updated techniques in 3D modeling will make the professional's performance more agile and efficient, with this program you will master the professional lighting in offline engines and realtime systems obtaining a high quality finish"





Specific Objectives

Module 1. Blender

- ◆ Advanced Blender software development
- ◆ Render in your Eevee and Cycles render engines
- ◆ Delve into work processes within CGI
- ◆ Transferring *ZBrush* and 3ds Max knowledge to Blender
- ◆ Transferring creation processes from Blender to Maya and Cinema 4D

Module 2. Light Modeling

- ◆ Develop advanced lighting and photography concepts in offline engines such as Arnold and Vray, as well as post-production of renders to have professional finishes
- ◆ Deepen in advanced visualizations in *realtime* in Unity and Unreal
- ◆ Modeling in videogame engines to create interactive scenographies
- ◆ Integrate projects in real spaces

Module 3. Creation of Organic Soils and Environments

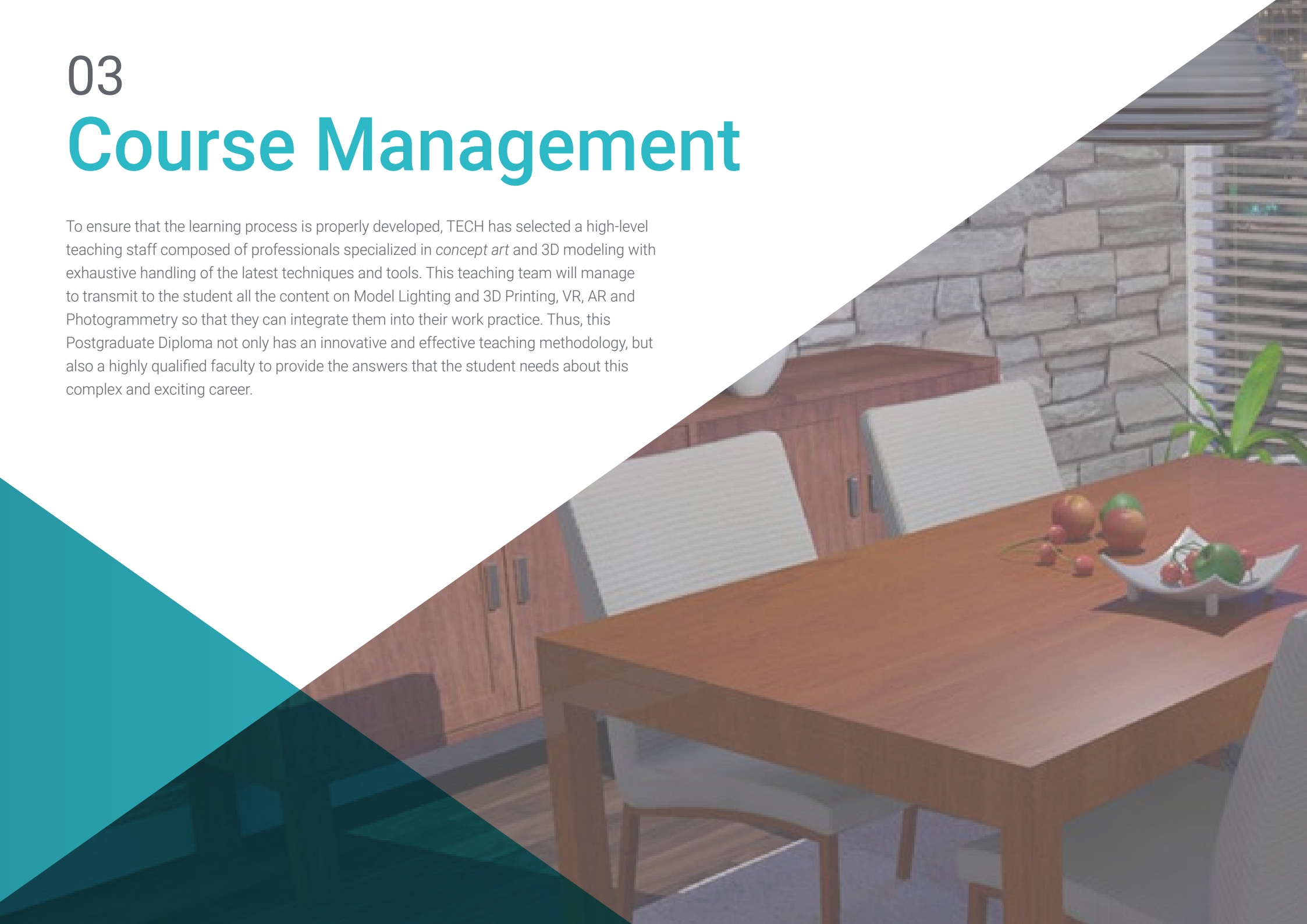
- ◆ Learn the different techniques of organic modeling and fractal systems for the generation of elements of nature and terrain, as well as the implementation of our own models and 3D scans
- ◆ Deepen in the vegetation creation system and how to control it professionally in *Unity and Unreal Engine*
- ◆ Create scenes with immersive VR experiences



03

Course Management

To ensure that the learning process is properly developed, TECH has selected a high-level teaching staff composed of professionals specialized in *concept art* and 3D modeling with exhaustive handling of the latest techniques and tools. This teaching team will manage to transmit to the student all the content on Model Lighting and 3D Printing, VR, AR and Photogrammetry so that they can integrate them into their work practice. Thus, this Postgraduate Diploma not only has an innovative and effective teaching methodology, but also a highly qualified faculty to provide the answers that the student needs about this complex and exciting career.



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The teaching team that teaches this educational program is expert in Concept Art and 3D modeling, in addition to possessing the pedagogical skills to perform in a digital educational environment"

Management



Mr. Sequeros Rodríguez, Salvador

- ♦ Freelance 2D/3D modeler and generalist
- ♦ Concept art and 3D modeling for Slicecore Chicago
- ♦ Videomapping and modeling Rodrigo Tamariz Valladolid
- ♦ Professor of Higher Level Training Cycle 3D Animation Superior School of Image and Sound ESISV Valladolid
- ♦ Professor of Higher Level Training Cycle GFGS 3D Animation European Institute of Design IED Madrid
- ♦ 3D modeling for the falleros Vicente Martínez and Loren Fandos Castellón
- ♦ Master in Computer Graphics, Games and Virtual Reality URJC University. Madrid
- ♦ Bachelor of Fine Arts at the University of Salamanca (specializing in Design and Sculpture)



04

Structure and Content

The structure and distribution of the content of this Postgraduate Diploma in Model Lighting and 3D Printing, VR, AR and Photogrammetry consists of 3 specialized modules, through which the professional will acquire the tools and knowledge of Blender, as a powerful 2D/3D development software. As well as the implementation of lighting to get the most out of three-dimensional creations and finally the creation of organic terrains and environments addressing nature in all its forms. This and more in a secure and dynamic 100% online environment.



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A program dedicated to teaching the various techniques of lighting and printing 3D models to achieve outstanding projects in the field of virtual reality and artificial intelligence"

Module 1. Blender

- 1.1. Free Software
 - 1.1.1. LTS Version and Community
 - 1.1.2. Pros and Differences
 - 1.1.3. Interface and Philosophy
- 1.2. 2D Integration
 - 1.2.1. Program Adaptation
 - 1.2.2. *Crease Pencil*
 - 1.2.3. Combination 2D in 3D
- 1.3. Modeling Techniques
 - 1.3.1. Program Adaptation
 - 1.3.2. Modeling Methodologies
 - 1.3.3. *Geometry Nodes*
- 1.4. Texturing Techniques
 - 1.4.1. *Nodes Shading*
 - 1.4.2. Textures and Materials
 - 1.4.3. Usage Tips
- 1.5. Lighting
 - 1.5.1. Tips for Light Spaces
 - 1.5.2. *Cycles*
 - 1.5.3. *Eevee*
- 1.6. *Workflow* in CGI
 - 1.6.1. Necessary Uses
 - 1.6.2. Exports and Imports
 - 1.6.3. Final Art
- 1.7. Sds Max Adaptations to Blender
 - 1.7.1. Modeling
 - 1.7.2. Texturing and *Shading*
 - 1.7.3. Lighting
- 1.8. Knowledge of *ZBrush* to Blender
 - 1.8.1. 3D Sculpting
 - 1.8.2. Brushes and Advanced Techniques
 - 1.8.3. Organic Work

- 1.9. From Blender to Maya
 - 1.9.1. Important Stages
 - 1.9.2. Adjustments and Integrations
 - 1.9.3. Exploitation of Functionalities
- 1.10. From Blender to Cinema 4D
 - 1.10.1. Tips for 3D Design
 - 1.10.2. Use of Modeling Towards *Video Mapping*
 - 1.10.3. Modeling with Particles and Effects

Module 2. Light Modeling

- 2.1. Offline Arnold Motors
 - 2.1.1. Interior and Exterior Lighting
 - 2.1.2. Application of Displacement and Normal Maps
 - 2.1.3. Render Modifiers
- 2.2. Vray
 - 2.2.1. Lighting Bases
 - 2.2.2. *Shading*
 - 2.2.3. Maps
- 2.3. Advanced Global Illumination Techniques
 - 2.3.1. ActiveShade GPU Management
 - 2.3.2. Optimization of Photorealistic Rendering Denoiser
 - 2.3.3. Non-photorealistic Rendering (*Cartoon and Hand Painted*)
- 2.4. Quick Display of Models
 - 2.4.1. *ZBrush*
 - 2.4.2. Keyshot
 - 2.4.3. Marmoset
- 2.5. Rendering Postproduction
 - 2.5.1. Multipass
 - 2.5.2. 3D Illustration in *ZBrush*
 - 2.5.3. Multipass in *Zbrush*
- 2.6. Integration in Real Spaces
 - 2.6.1. Shadow Materials
 - 2.6.2. HDRI and Global Illumination
 - 2.6.3. Image Tracing

- 2.7. Unity
 - 2.7.1. Interface and Organization
 - 2.7.2. Import to Game Engines
 - 2.7.3. Materials
- 2.8. Unreal
 - 2.8.1. Interface and Organization
 - 2.8.2. Sculpture in Unreal
 - 2.8.3. *Shaders*
- 2.9. Modeling in Video Game Engines
 - 2.9.1. Probuilder
 - 2.9.2. *Modeling Tools*
 - 2.9.3. Prefabs and Memory Storages
- 2.10. Advanced Lighting Techniques in Videogames
 - 2.10.1. *Realtime*, Pre-calculation of Lights and HDRP
 - 2.10.2. *Raytracing*
 - 2.10.3. Postprocessing

Module 3. Creation of Organic Soils and Environments

- 3.1. Organic Modeling in Nature
 - 3.1.1. Brush Adaptation
 - 3.1.2. Creation of Rocks and Cliffs
 - 3.1.3. Integration with Substance Painter 3D
- 3.2. Terrain
 - 3.2.1. Terrain Displacement Maps
 - 3.2.2. Creation of Rocks and Cliffs
 - 3.2.3. Scanning Libraries
- 3.3. Vegetation
 - 3.3.1. SpeedTree
 - 3.3.2. *Low Poly* Vegetation
 - 3.3.3. Fractals
- 3.4. *Unity Terrain*
 - 3.4.1. Organic Terrain Modeling
 - 3.4.2. Ground Painting
 - 3.4.3. Creation of Vegetation

- 3.5. *Unreal Terrain*
 - 3.5.1. Hightmap
 - 3.5.2. Texturing
 - 3.5.3. Unreal's *Foliage System*
- 3.6. Physics and Realism
 - 3.6.1. Physical
 - 3.6.2. Wind
 - 3.6.3. Fluids
- 3.7. Virtual Walks
 - 3.7.1. Virtual Cameras
 - 3.7.2. Third Person
 - 3.7.3. First Person FPS
- 3.8. Cinematography
 - 3.8.1. Cinemachine
 - 3.8.2. *Sequencer*
 - 3.8.3. Recording and Executables
- 3.9. Visualization of Modeling in Virtual Reality
 - 3.9.1. Modeling and Texturing Tips
 - 3.9.2. Exploitation of Interaxial Space
 - 3.9.3. Project Preparation
- 3.10. VR Scene Creation
 - 3.10.1. Location of Cameras
 - 3.10.2. Land and Infoarchitecture
 - 3.10.3. Platforms of Use



Excellence makes the difference. Get your degree with this Postgraduate Diploma in Model Lighting and 3D Printing, VR, AR and Photogrammetry in 6 months and 100% online"

05

Methodology

This training program provides you with 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".

At TECH we use the Case Method

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

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At TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world."



We are the first online university to combine Harvard Business School case studies with a 100% online learning system based on repetition.

A learning method that is different and innovative.

This intensive program in Video Games at TECH Technological University prepares you to face all the challenges in this area, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH Technological University you will use Harvard *case studies*, with which we have a strategic agreement that allows us, to offer you material from the best university in the world.

“*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. Throughout 4 years, you will be presented with multiple real cases. You will have to combine all your knowledge, and research, argue, and defend your ideas and decisions.



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

Relearning Methodology

Our University is the first in the world to combine Harvard University case studies with a 100%-online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance Harvard case studies with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all Spanish-language 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 Spanish-speaking university qualified 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 Spanish 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.



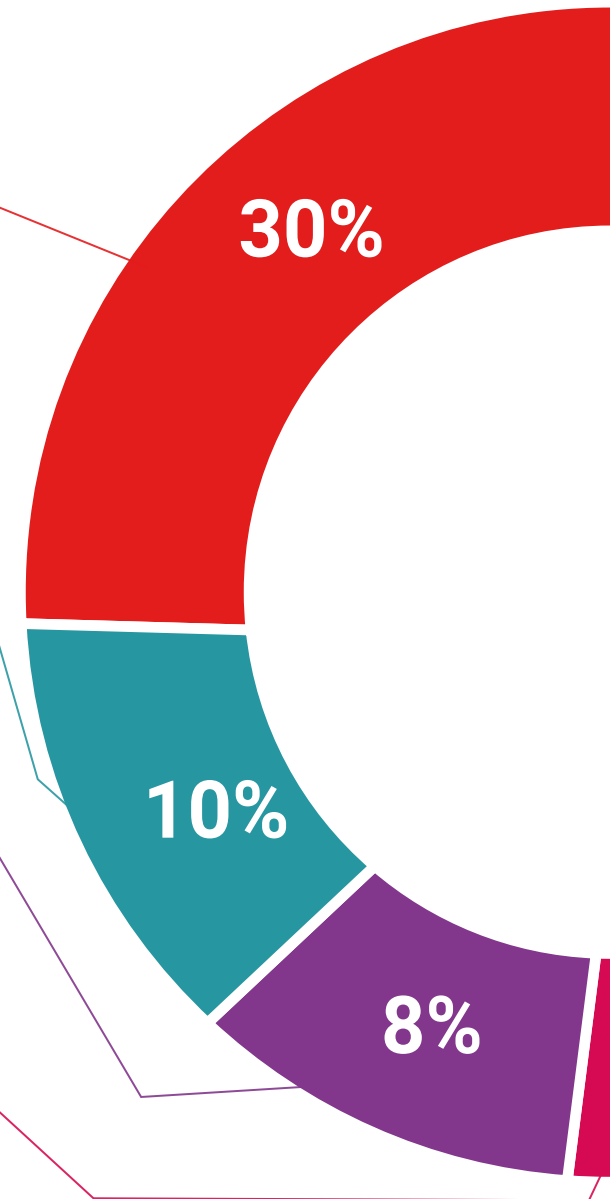
Practising Skills and Abilities

They will carry out activities to develop specific 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 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

They will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management specialists in Latin America.



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 multimedia content presentation training Exclusive system was awarded by Microsoft as a "European Success Story".



Testing & Re-testing

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 your goals.



06

Certificate

The Postgraduate Diploma in in Model Lighting and 3D Printing, VR, AR and Photogrammetry guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Diploma issued by TECH Technological University.



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*Successfully complete this training program
and receive your diploma without travel or
laborious paperwork”*

The **Postgraduate Diploma in Model Illumination and 3D Printing, VR, AR and Photogrammetry** contains the scientific most complete and up-to-date program on the market

After you have passed the evaluations, you will receive your corresponding Postgraduate Diploma issued by **TECH Technological University** via tracked delivery*.

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

Title: **Postgraduate Diploma in Model Illumination and 3D Printing, VR, AR and Photogrammetry**

Official Number of Hours: **450 hours**.



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

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



Postgraduate Diploma Model Illumination and 3D Printing, VR, AR and Photogrammetry

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VR, AR and Photogrammetry