

Postgraduate Certificate

Advanced 3D Techniques for Professional Video Games



Postgraduate Certificate Advanced 3D Techniques for Professional Video Games

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/us/videogames-design/postgraduate-certificate/advanced-3d-techniques-professional-video-games

Index

01

Presentation

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 16

05

Methodology

p. 20

06

Certificate

p. 28

01

Introduction

Optimization in the production processes of a video game is essential to save costs and work time. For this reason, it is necessary for the professional in this field to master the main techniques for creating scenarios, characters and Assets, as well as the tools to achieve incredible results quickly and effectively. This requires an advanced and exhaustive knowledge of modeling, Texturing and digital Sculpting, something that can be acquired by any graduate who accesses this degree designed by TECH and a team of technology experts. Throughout 180 hours of the best theoretical, practical and online content, students will work on improving their professional skills, acquiring the skills demanded by large companies in the sector. A dynamic online program that will elevate your talent in advanced 3D project work techniques to the pinnacle of the audiovisual industry.





“

The best program to work on mastering advanced 3D modeling techniques: from interface configuration to advanced mapping of dimensioned objects"

The video game industry has changed a lot since 1993 when SEGA AM2 decided to revolutionize the market with the launch of Virtua Fighter, a pioneer in the use of 3D in console entertainment. Since then, the exhaustive work of thousands of professionals in this area for more than 2 decades has led to the emergence of increasingly complex and specialized techniques, allowing the creation of solid environments, characters and objects that are increasingly integrated into the game environment.

It is, therefore, a field that requires specialized knowledge to be able to work effectively and rigorously, and in which being up to date on the latest developments related to three-dimensional geometry, textures and rendered materials is essential. For this reason, and in order to provide graduates with training adapted to these specifications, TECH has decided to create this very complete university program.

A postgraduate qualification with which you will be able to work in advanced 3D techniques for professional video games through the best theoretical, practical and additional content. The syllabus includes the most exhaustive and updated information on digital Texturing and Sculpting, as well as the necessary to master Unreal Engine, Polypaint and ZPlugin, three of the main pieces of production software.

All the content of this program will be available on the virtual campus from the beginning of the teaching year and can be downloaded on any device with an internet connection, from the syllabus to the detailed videos, research articles, complementary readings and other multidisciplinary material included in this qualification program. It is, therefore, a unique opportunity to improve your skills in a guaranteed way and endorsed by a great university like TECH, through a 100% online training, without schedules or face-to-face classes.

This **Postgraduate Certificate in Advanced 3D Techniques for Professional Video Games** 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



This course will allow you to implement in your practice the most sophisticated and effective texturing strategies through the use of brushes, alphas and particles with Substance Painter"

“

A qualification characterized by its accessibility and flexibility: its Virtual Campus is optimized for any device with internet connection, and you can access it without any time limit"

The program's teaching staff includes professionals from sector 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 during the academic year For this purpose, students will be assisted by an innovative, interactive video system created by renowned and experienced experts.

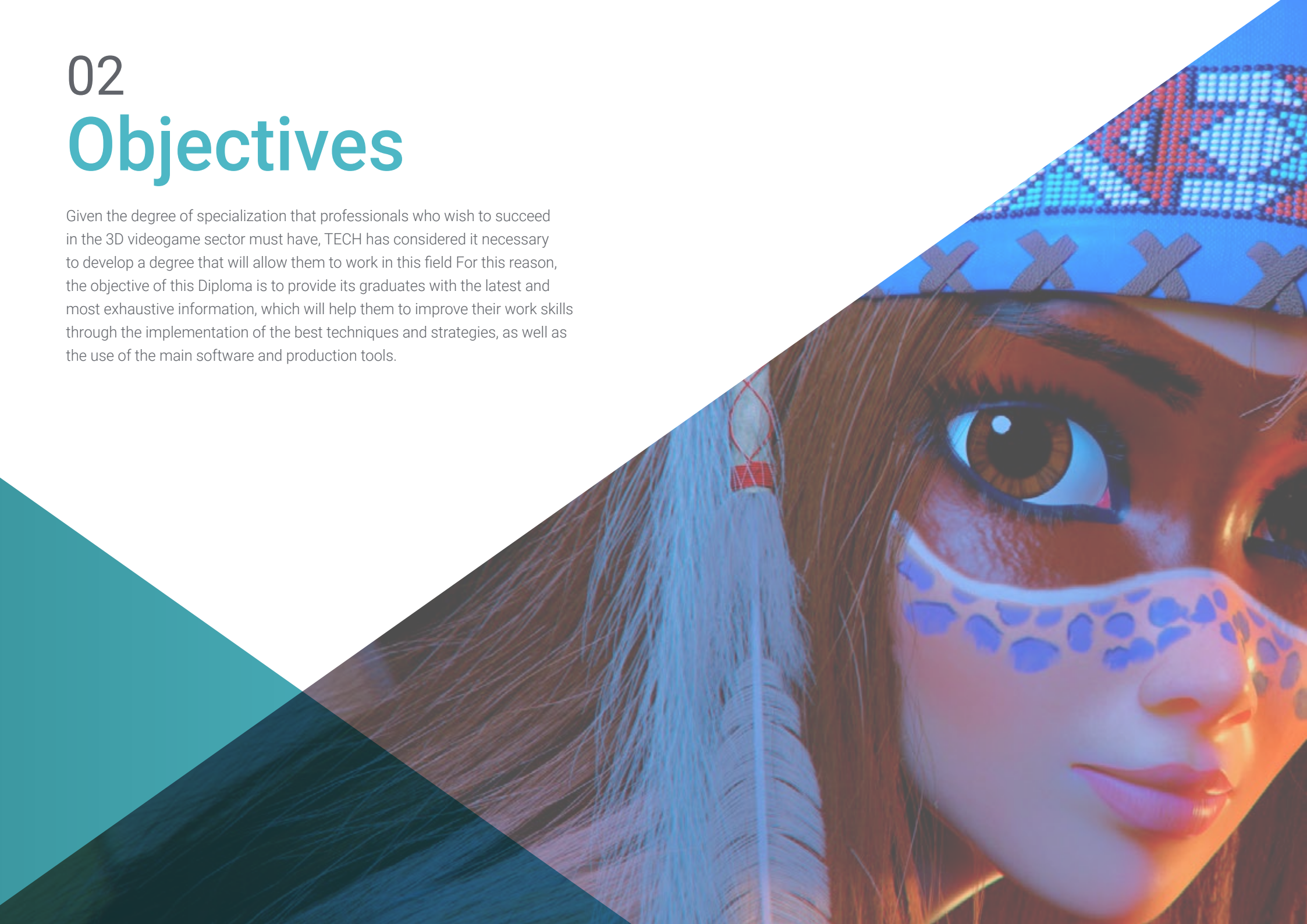
A highly recommendable option if you are looking to learn in detail the ins and outs of the integration of Unreal Engine in 3D video game designs.

In less than 6 weeks you will have mastered ZBrush, as well as the main sculpting techniques using this 3D modeling software.



02 Objectives

Given the degree of specialization that professionals who wish to succeed in the 3D videogame sector must have, TECH has considered it necessary to develop a degree that will allow them to work in this field. For this reason, the objective of this Diploma is to provide its graduates with the latest and most exhaustive information, which will help them to improve their work skills through the implementation of the best techniques and strategies, as well as the use of the main software and production tools.



“

The more demanding your objectives are, the more you will be able to get out of this Postgraduate Certificate. And TECH will provide you with all the material you need and more to achieve it”



General Objectives

- ◆ Use the ZBrush program for 3D sculpting
- ◆ Develop organic modeling and retopology techniques
- ◆ Finalize 3D characters for portfolios

“

Knowing how to develop organized and planned pipelines will help you undertake video game projects more effectively and ensure a more optimized set of results"





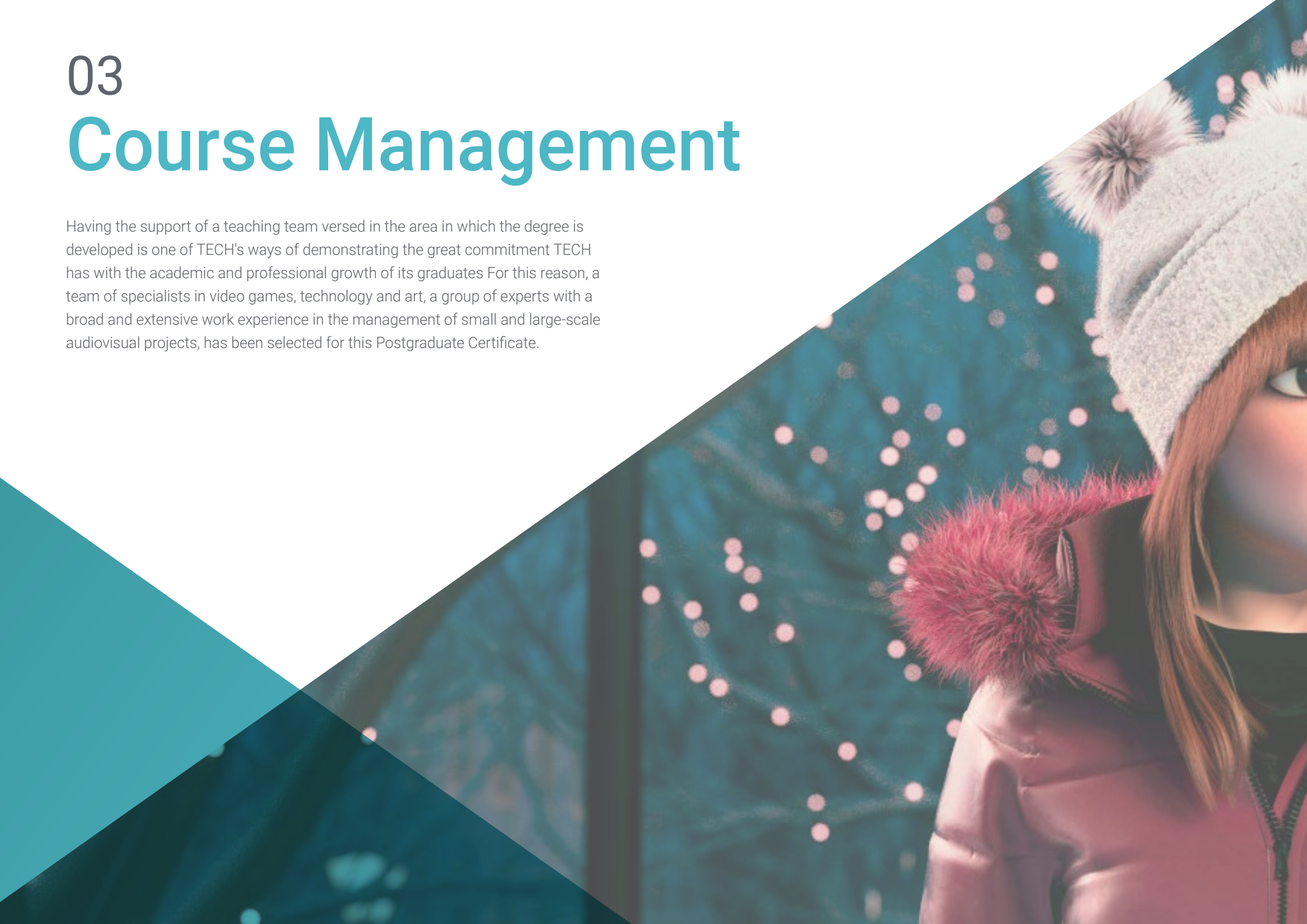
Specific Objectives

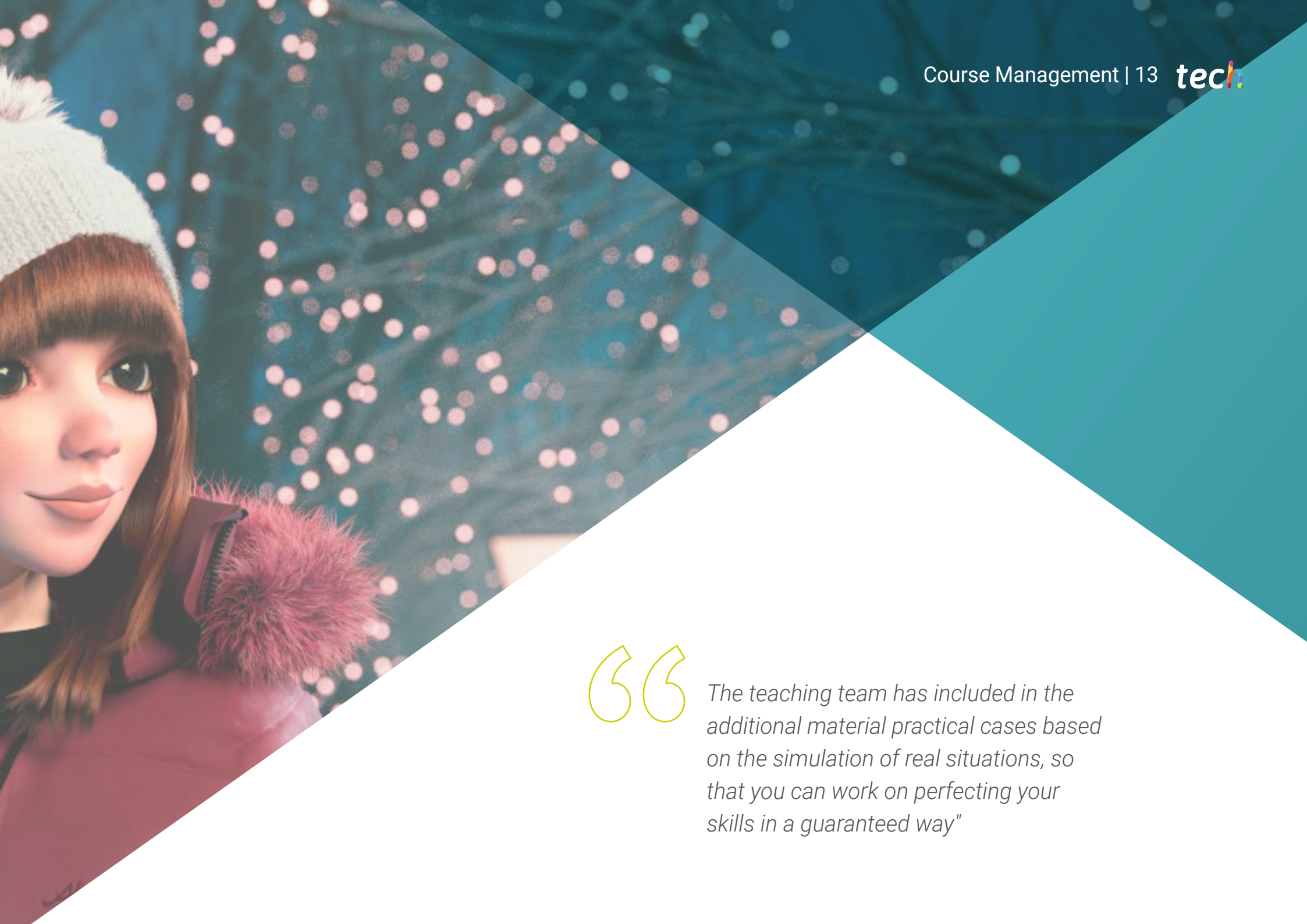
- ◆ Master the most advanced 3D modeling techniques
- ◆ Develop the necessary knowledge for 3D texturing
- ◆ Export objects for 3D and Unreal Engine software
- ◆ Specialize students in digital sculpture
- ◆ Analyze the different digital sculpting techniques
- ◆ Research character retopology
- ◆ Examine how to pose a character to loosen the 3D model
- ◆ Refine our work with advanced high-polygon modeling techniques

03

Course Management

Having the support of a teaching team versed in the area in which the degree is developed is one of TECH's ways of demonstrating the great commitment TECH has with the academic and professional growth of its graduates. For this reason, a team of specialists in video games, technology and art, a group of experts with a broad and extensive work experience in the management of small and large-scale audiovisual projects, has been selected for this Postgraduate Certificate.





“

The teaching team has included in the additional material practical cases based on the simulation of real situations, so that you can work on perfecting your skills in a guaranteed way"

Management



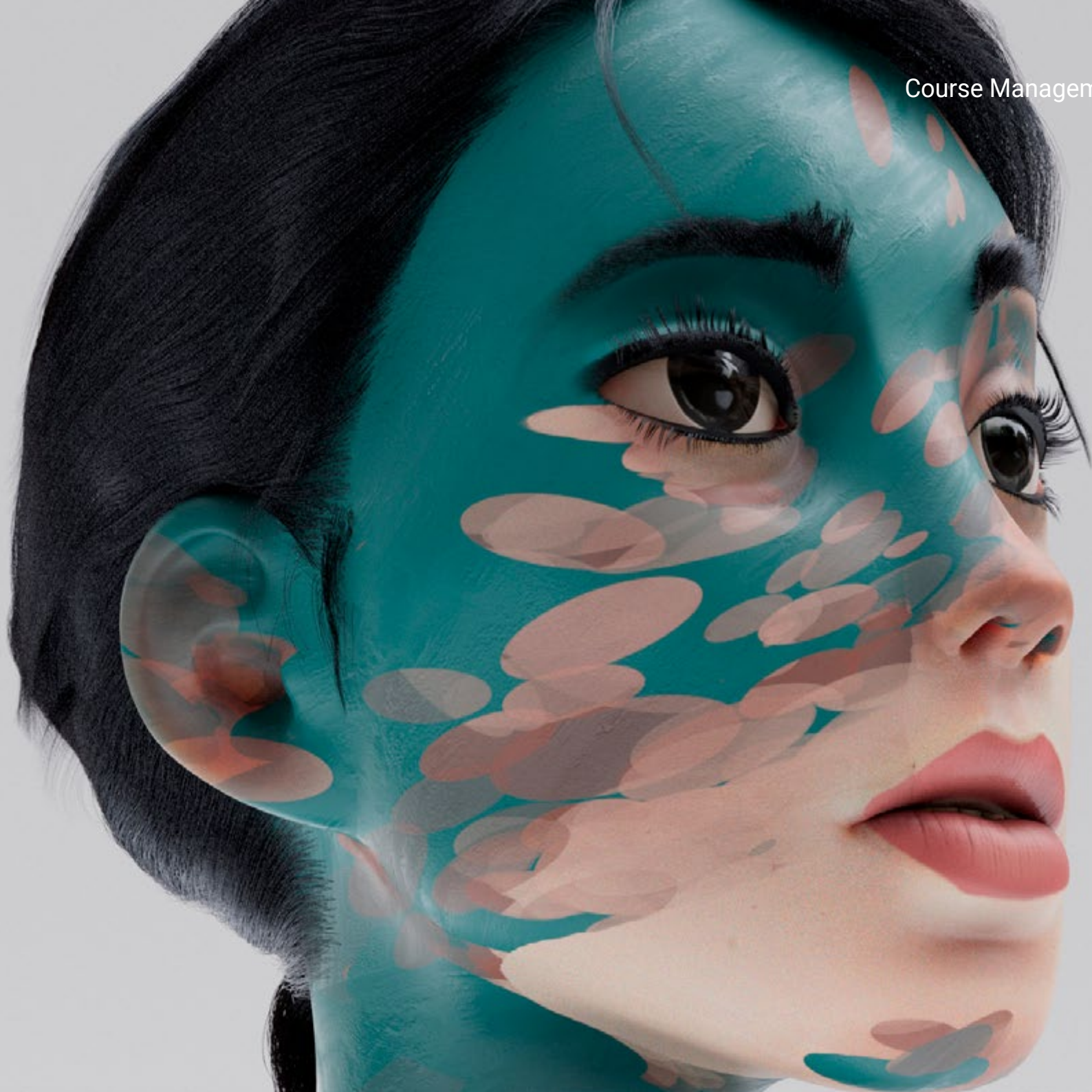
Mr. Ortega Ordóñez, Juan Pablo

- ◆ 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

Dr. Pradana Sánchez, Noel

- ◆ Specialist in Rigging and 3D Animation for videogames
- ◆ 3D Graphic Artist at Dog Lab Studios
- ◆ Producer at Imagine Games leading the video game development team
- ◆ Graphic artist at Wildbit Studios with 2D and 3D works
- ◆ Teaching experience in ESNE and in the CFGS in 3D Animation: games and educational environments
- ◆ Master's Degree in Video Game Design and Development from ESNE University
- ◆ Master's Degree in Teacher Training from Rey Juan Carlos University
- ◆ Specialist in Rigging and 3D Animation Voxel School



04

Structure and Content

This Postgraduate Certificate in Advanced 3D Techniques for Professional Video Games includes 180 hours of theoretical content, case studies and additional material presented in different formats: detailed videos, research articles, complementary readings, images, dynamic summaries and self-knowledge exercises. All presented in a convenient and accessible 100% online format, optimized for any device with an internet connection. In this way, TECH guarantees a complete and intensive training, with which the graduate will ensure the acquisition of specialized knowledge in only 6 weeks.





“

Thanks to the use of the Relearning methodology, you will be able to save hours of boring and tedious memorization without giving up the acquisition of exhaustive and specialized knowledge"

Module 1. Advanced 3D

- 1.1. Advanced 3D Modeling Techniques
 - 1.1.1. Interface Configuration
 - 1.1.2. Modeling Observation
 - 1.1.3. Modeling in High
 - 1.1.4. Organic Modeling for Videogames
 - 1.1.5. Advanced 3D Object Mapping
- 1.2. Advanced 3D Texturing
 - 1.2.1. Substance Painter Interfaces
 - 1.2.2. Materials, Alphas and Brush Use
 - 1.2.3. Particle Use
- 1.3. 3D Software and Unreal Engine Export
 - 1.3.1. Unreal Engine Integration in Designs
 - 1.3.2. 3D Model Integration
 - 1.3.3. Unreal Engine Texture Application
- 1.4. Digital Sculpting
 - 1.4.1. DigitalSculpting with ZBrush
 - 1.4.2. First Steps in ZBrush
 - 1.4.3. Interface, Menus and Navigation
 - 1.4.4. Reference Images
 - 1.4.5. Full 3D Modeling of Objects in ZBrush
 - 1.4.6. Base Mesh Use
 - 1.4.7. Part Modeling
 - 1.4.8. 3D Model Export in ZBrush
- 1.5. Polypaint Use
 - 1.5.1. Advanced Brushes
 - 1.5.2. Texture.
 - 1.5.3. Default Materials
- 1.6. Retopology
 - 1.6.1. Rhetopology Use in the Video Game Industry
 - 1.6.2. Low-Poly Mesh Creation
 - 1.6.3. Software Use for Rhetopology



- 1.7. 3D Model Positions
 - 1.7.1. Reference Image Viewers
 - 1.7.2. Transpose Use
 - 1.7.3. Transpose Use for Models Composed of Different Pieces
- 1.8. 3D Model Export
 - 1.8.1. 3D Model Export
 - 1.8.2. Texture Generation for Exportation
 - 1.8.3. 3D Model Configuration with the Different Materials and Textures
 - 1.8.4. Preview of the 3D Model
- 1.9. Advanced Working Techniques
 - 1.9.1. 3D Modeling Workflow
 - 1.9.2. 3D Modeling Work Process Organization
 - 1.9.3. Production Effort Estimates
- 1.10. Model Finalization and Export for Other Programs
 - 1.10.1. Workflow for Model Finalization
 - 1.10.2. ZPlugin Exportation
 - 1.10.3. Possible Files. Advantages and Disadvantages

“Do not hesitate and enroll in a qualification with which you will master advanced 3D modeling techniques at the level of Hironobu Sakaguchi or John Romero”

05

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.



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.



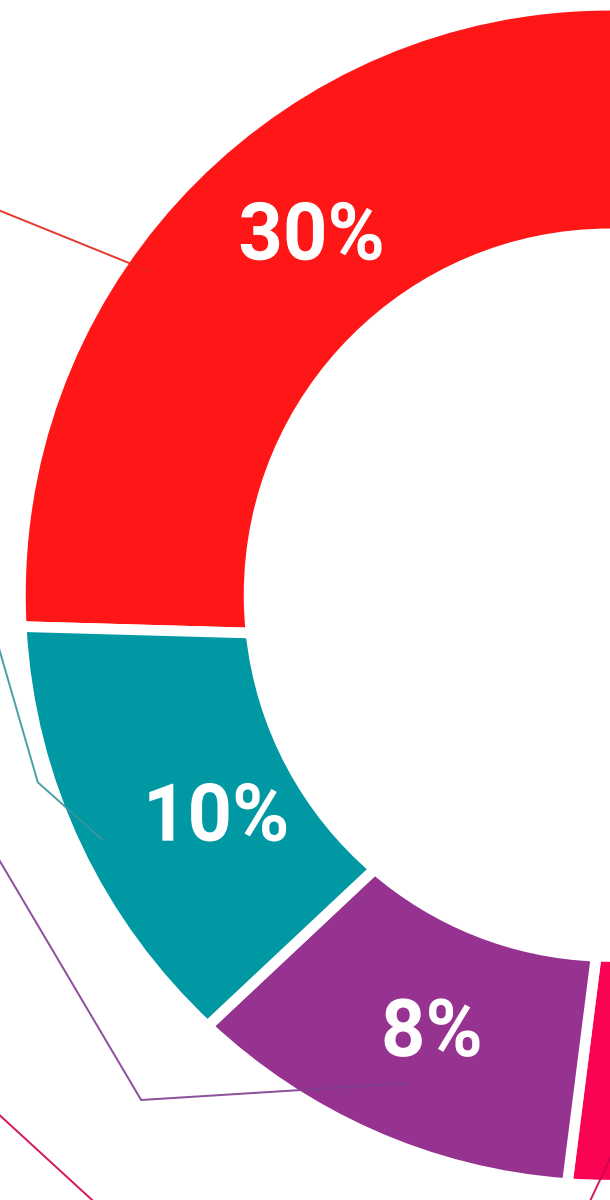
Practising Skills and Abilities

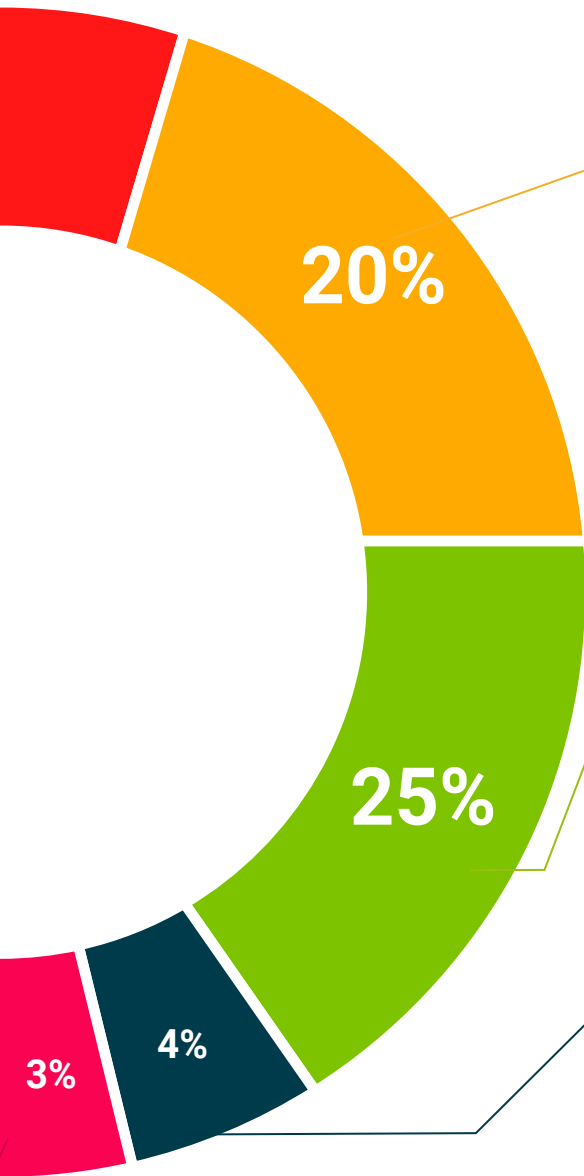
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



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.



06 Certificate

The Postgraduate Certificate in Advanced 3D Techniques for Professional Video Games guarantees students, in addition to the most rigorous and up-to-date, access to a Postgraduate Certificate issued by TECH Global University.



“

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 Advanced 3D Techniques for Professional 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 Advanced 3D Techniques for Professional Video Games**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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



Postgraduate Certificate Advanced 3D Techniques for Professional Video Games

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Postgraduate Certificate

Advanced 3D Techniques for Professional Video Games