

Postgraduate Certificate

Advanced Video

Game Programming

```
int=1  
scene.objects.active  
ted" + str(modifier  
or_ob.select = 0  
opy.context.selected_ob  
ata.objects[one.name].s  
print("please select exact
```



Postgraduate Certificate Advanced Video Game Programming

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

Website: www.techtute.com/us/videogames/postgraduate-certificate/advanced-video-game-programming

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01

Introduction

The creation of video games requires a series of skills that are usually distributed among the personnel that make up the relevant project. For example, there is an art department and a sound design and music composition department, but one of the most important is the programming department, since it is the one that makes the game work properly according to the indications of the rest of the professionals. Therefore, the video game's code is its core: even if it is not visible, it is essential. That is why developers are so sought after in the industry, and also why this qualification provides its students with the best skills to become high-level programmers in this sector.





“

*Program the best video games of the future
thanks to this Postgraduate Certificate”*

The various teams that plan, design and develop successful video games are made up of all kinds of professionals. Each of them is specialized in an area within the art department there are several experts working on the aesthetic and visible aspects of the video game, there are on the other hand, several specialists focused on its sound aspects, and also among others, there are staff dedicated to developing the story and script.

But all these aspects are, to some degree, tangible and perceptible. However, there are others that are more difficult to observe, since they are internal elements that have to do with the mechanics of the game, the specific instructions with which it operates in terms of gameplay, etc. These aspects are taken care of by the programmers, who have to code everything that the creators have visualized, making sure that this is done efficiently and cleanly.

Programming, however, is a complex field that requires professionals with advanced knowledge and a lot of talent. Companies in the video game industry need a lot of developers with whom to code the next successful games. For this reason, TECH offers its students the opportunity to take this Postgraduate Certificate in Advanced Video Game Programming.

This qualification will enable students to perform high-level programming applied to video games, so that they can enter the largest companies in the sector in the world.

This **Postgraduate Certificate in Advanced Video Game Programming** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ Practical exercises, with which students can learn advanced programming for video games
- ◆ A high-level teaching staff ready to offer their best tricks to the students
- ◆ The dynamic and flexible approach, with which the students will be able to carry out a self-assessment process to improve their learning
- ◆ Content that is accessible from any fixed or portable device with an Internet connection

“Programming is the video game is not hyperbole, without programmers there would be no videogames”

“*The video game industry needs programmers, don't miss the opportunity*”

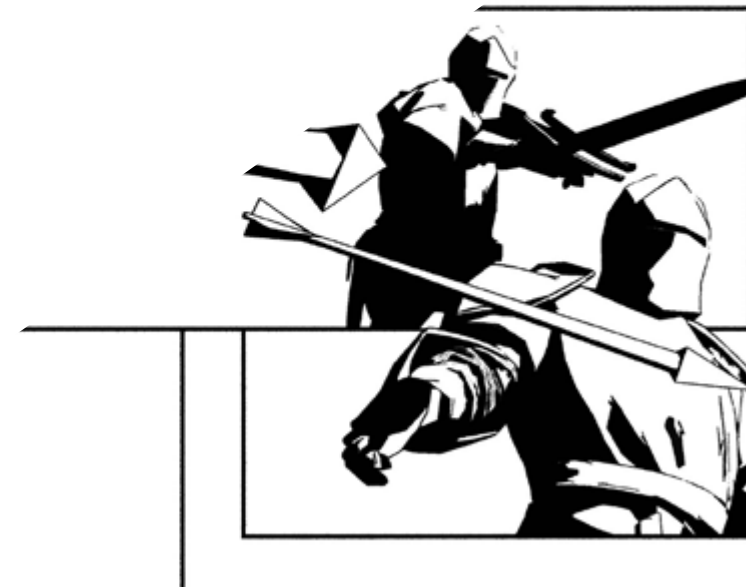
The program's teaching staff includes professionals from the sector who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

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 student will be assisted by an innovative interactive video system created by renowned and experienced experts.

This Postgraduate Certificate will allow you to program video games like the ones you enjoy playing every week.

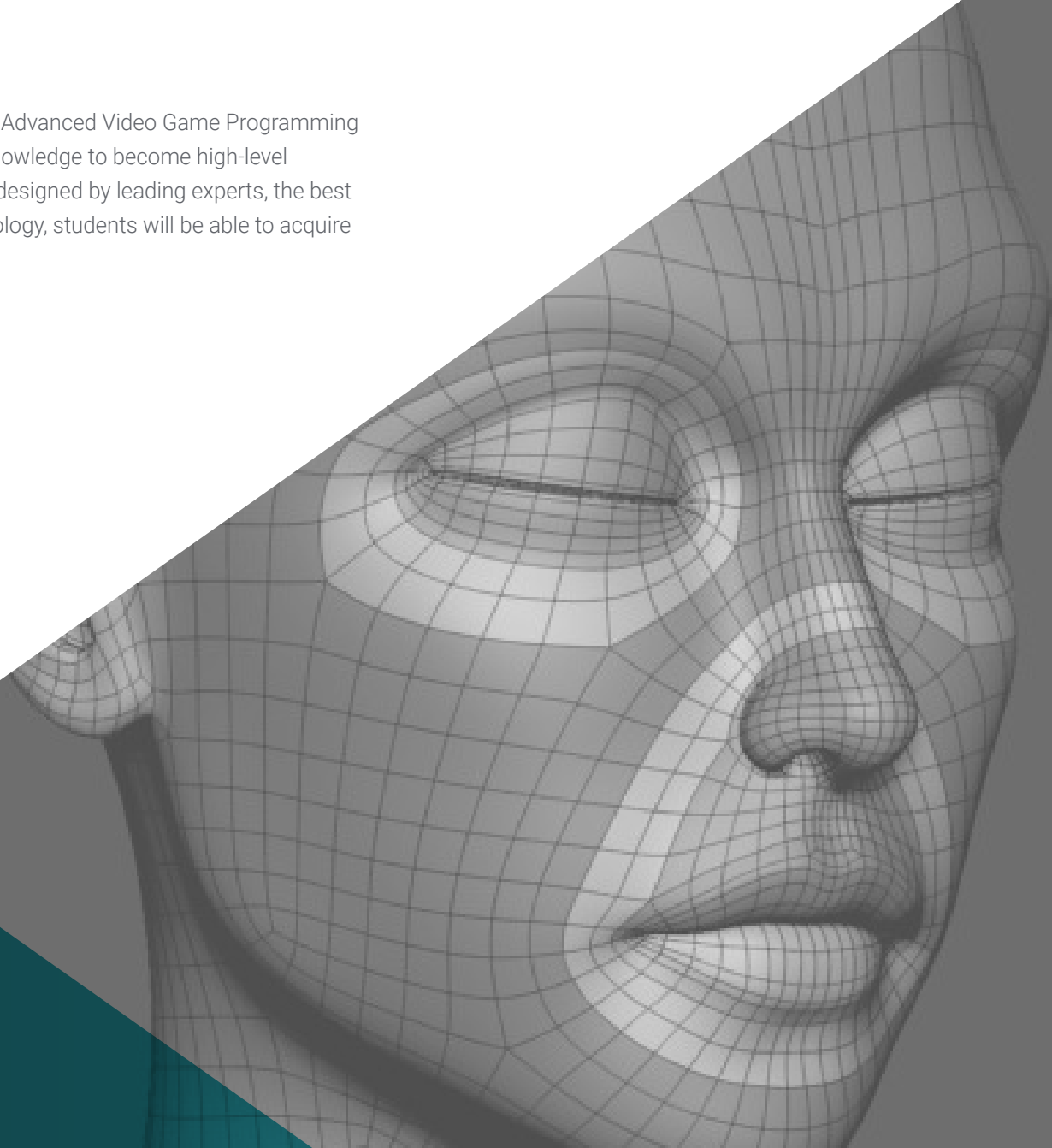
Don't know how to get into the video game industry? This qualification we will help you to achieve it.

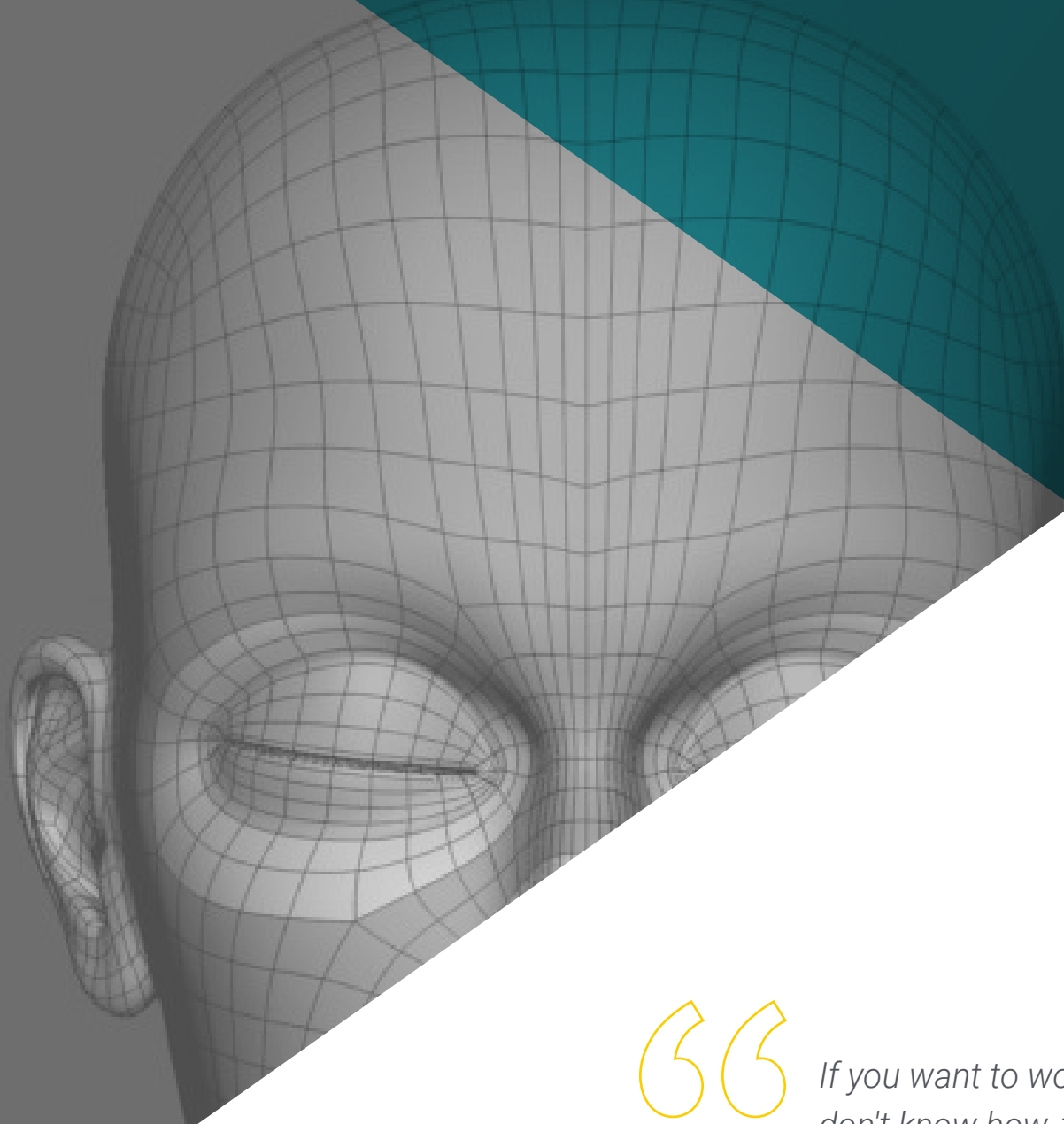


02

Objectives

The main objective of this Postgraduate Certificate in Advanced Video Game Programming is to provide students with the necessary tools and knowledge to become high-level programmers. Thanks to the combination of content designed by leading experts, the best team of teachers and an innovative teaching methodology, students will be able to acquire all the necessary skills to develop video games.





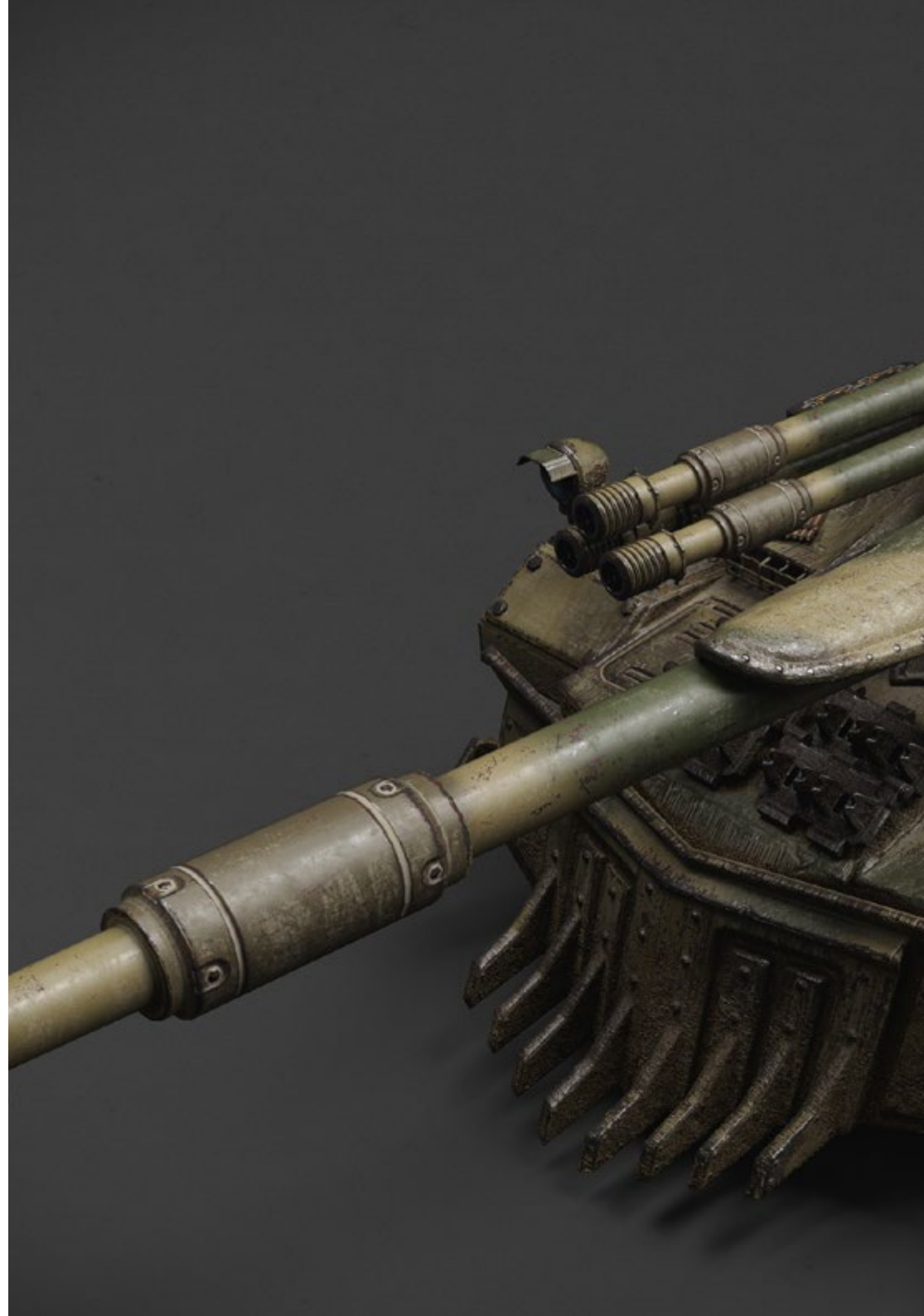
“

If you want to work in the industry but don't know how, this Postgraduate Certificate is the answer”



General Objectives

- ◆ Perform professional programming with the Unity 3D engine
- ◆ Gain knowledge about the different video game genres, the concept of gameplay and its characteristics to apply them in the analysis of video games or in the creation of video game design
- ◆ Deepen understanding of the production of video games and in the SCRUM methodology for project production
- ◆ Learn the fundamentals of video game design and the theoretical knowledge that a video game designer should know





Specific Objectives

- ◆ Know how to perform advanced programming
- ◆ Design 3D characters and environments
- ◆ Program different gameplays, environment puzzles and level objects
- ◆ Create different game elements and program player skills such as jump, run, shoot or hide
- ◆ Create a computer game

“

If you are ambitious, do not settle and expand your knowledge with this Postgraduate Certificate"

03

Course Management

The best teachers are waiting for the students of this Postgraduate Certificate, to teach them all the keys of Advanced Programming applied to video games. Therefore, thanks to their experience, the students will be able to learn first-hand what is needed in the video game industry to make their way in the labor market.





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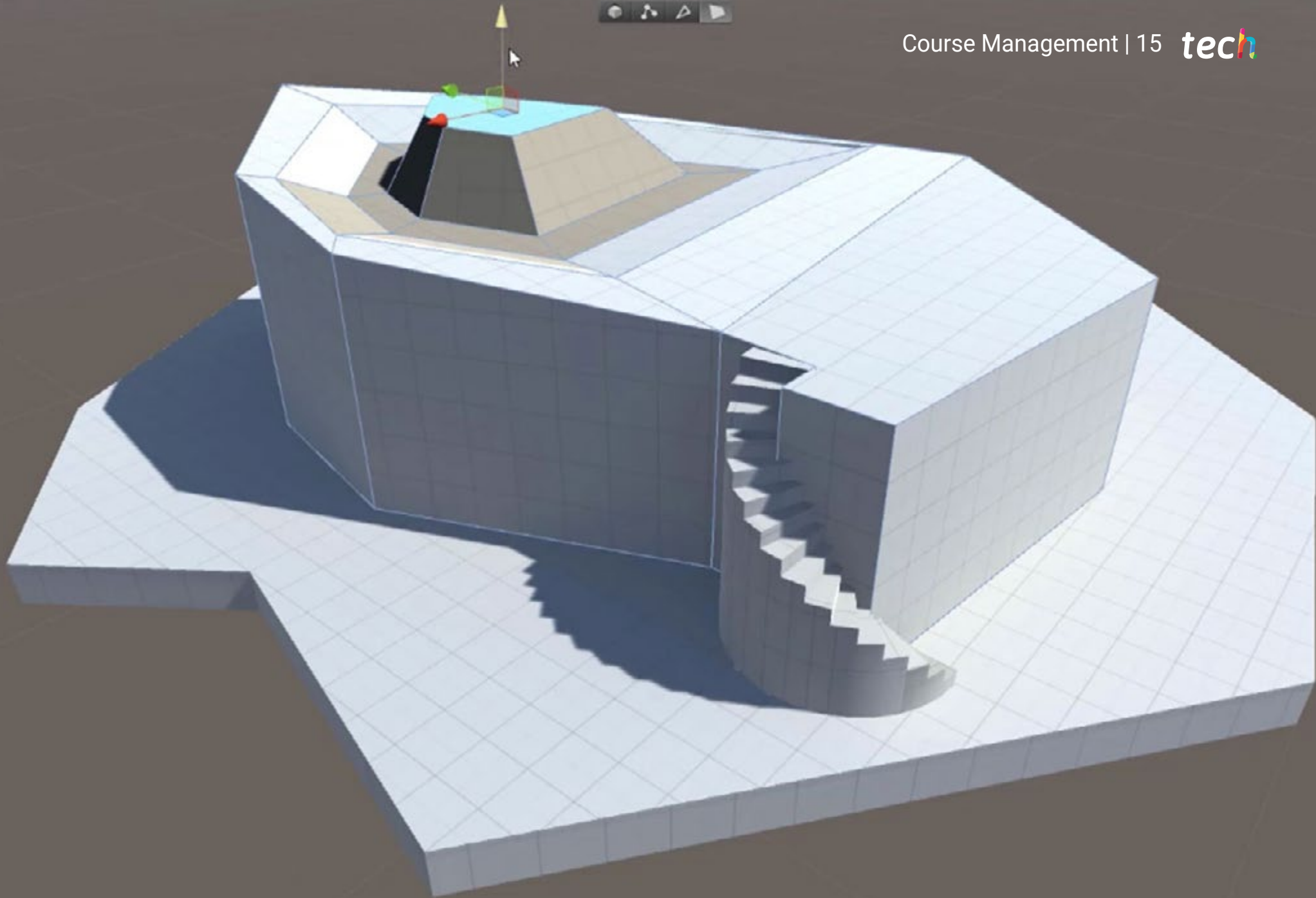
*Great experts offer their knowledge
to the students of this qualification”*

Management



Mr. Blasco Vilches, Luis Felipe

- Narrative designer at Stage Clear Studios, developing a confidential product
- Narrative designer at HeYou Games in the “Youturbo” project
- E-learning and serious games product designer and scriptwriter for Telefónica Learning Services, TAK and Bizpills
- Level designer at Indigo for the “Meatball Marathon” project
- Screenwriting teacher in the Master’s Degree in Video Game Creation at the University of Malaga
- Lecturer in Video Game Narrative Design and Production at the TAI Film Department, Madrid
- Narrative Design and Script Workshops teacher, and in the Video Game Design Degree at ESCAV, Granada
- Degree in Hispanic Studies from the University of Granada, Spain
- Master’s Degree in Creativity and Television Screenwriting, Rey Juan Carlos University

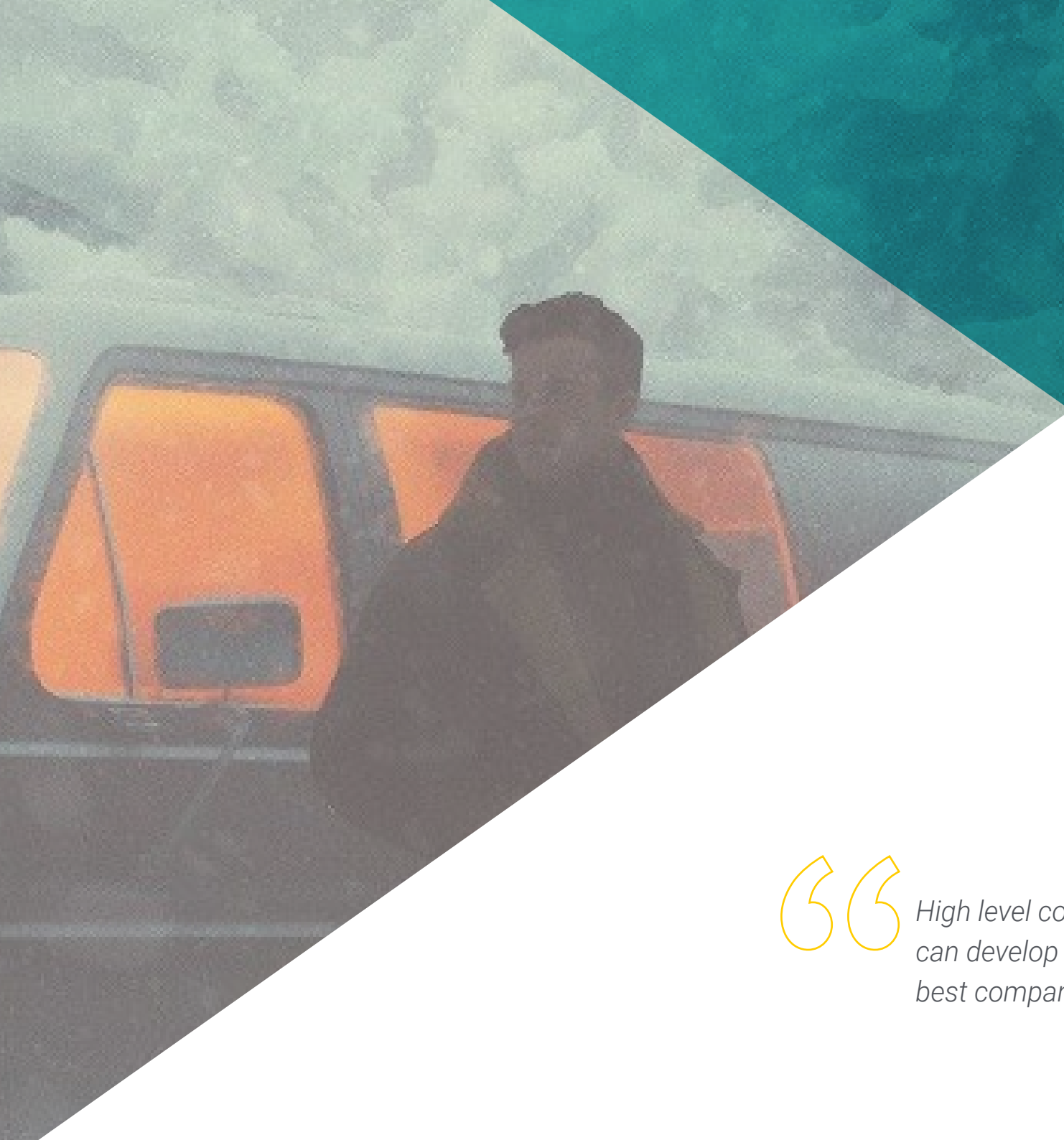


04

Structure and Content

The contents of this qualification have been designed with the employment possibilities of its students in mind, so the best possible syllabus has been prepared, which delves into the development of video games and offers the best programming tools. In this way, students will be prepared to deal with all the remains of programming in this industry.





“High level contents so that you can develop video games in the best companies in the world”

Module 1. Advanced Programming

- 1.1. Unity 3D Programming
 - 1.1.1. 3D and Scene Creation
 - 1.1.2. Software Architecture
 - 1.1.3. Game Manager
- 1.2. 3D Character Creation
 - 1.2.1. Movement
 - 1.2.2. Jump
 - 1.2.3. Attack
- 1.3. 3D Character Animation
 - 1.3.1. Animation Types
 - 1.3.2. Programming Animations
 - 1.3.3. Advanced Animation Programming
- 1.4. Artificial Intelligence, NPCs and Enemies
 - 1.4.1. IA
 - 1.4.2. NPCs
 - 1.4.3. Enemies
- 1.5. Physical
 - 1.5.1. Physical Materials
 - 1.5.2. Hinge Joint/Spring Joint
 - 1.5.3. Distance Joint/Wheel Joint
- 1.6. Physics II
 - 1.6.1. Platform Effector I
 - 1.6.2. Platform Effector II
 - 1.6.3. Surface Effector
- 1.7. Sound
 - 1.7.1. Music
 - 1.7.2. Sound Effects
 - 1.7.3. Advanced SFX and Music Programming





- 1.8. Level Programming
 - 1.8.1. Raycast
 - 1.8.2. Pathfinding
 - 1.8.3. Trigger on the Level
- 1.9. Particles and FX
 - 1.9.1. Particle Creation I
 - 1.9.2. Particle Creation II
 - 1.9.3. Color and Effects
- 1.10. Options
 - 1.10.1. Sound
 - 1.10.2. Save
 - 1.10.3. Autosave

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Think of your favorite video game. You could do something at that level if you decide to study this Postgraduate Certificate”

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.



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

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 Video Game Programming guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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*Successfully complete this program
and receive your university degree
without travel or laborious paperwork”*

This **Postgraduate Certificate in Advanced Video Game Programming** 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 diploma 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 Advanced Video Game Programming**

Official N° of hours: **150 h.**



*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
development language
virtual classroom



Postgraduate Certificate Advanced Video Game Programming

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

Postgraduate Certificate

Advanced Video

Game Programming

