

# Postgraduate Certificate Real-Time Programming





## Postgraduate Certificate Real-Time Programming

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

Website: [www.techtute.com/us/information-technology/postgraduate-certificate/real-time-programming](http://www.techtute.com/us/information-technology/postgraduate-certificate/real-time-programming)

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# 01

# Introduction

Among the many tools involved in the creation of a video game, Real-Time Programming is one of the most important, since it can immediately respond to the stimuli it receives from players. Thus, by correctly applying this feature, video games can have greater responsiveness and fluidity that makes them more realistic and enjoyable for users. That is why this course is also essential for all those professionals who wish to specialize in an area of great growth in the industry, as it opens the doors to the best companies in the sector.





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*Specialize in Real-Time Programming and start working for the best companies in the Video Game Industry”*

Programming is one of the essential aspects involved in the process of creating video games, but it is not something that users can directly appreciate, as it is hidden from sight. However, without proper coding, video games would not run smoothly and would have many errors, which would impoverish the experience and could cause them to fail.

Thus, programming contains the essential instructions for video game performance, from the interaction between characters and the items present in each scenario to the graphics processing. Thus, proper development can translate to success.

That success depends on an area of great importance: Real-Time Programming.

This element allows video games to respond instantaneously to the stimuli and circumstances that arise at any given moment, so players can enjoy a product that unfolds without interruption.

Large companies in the sector need specialists in this booming industry, since it is a discipline in constant evolution, and trained personnel are in short supply. Therefore, this Postgraduate Certificate in Real-Time Programming offers students all the skills and knowledge to become experts in the field, allowing them to access great career opportunities in the video game industry.

This **Postgraduate Certificate in Real-Time Programming** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- ◆ Practical cases presented by experts in programming
- ◆ 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



*Real-Time Programming is essential for proper video game development. Enroll in this course and find immediate success”*

“

*Large video game companies need experts in Real-Time Programming. This is the opportunity you were looking for”*

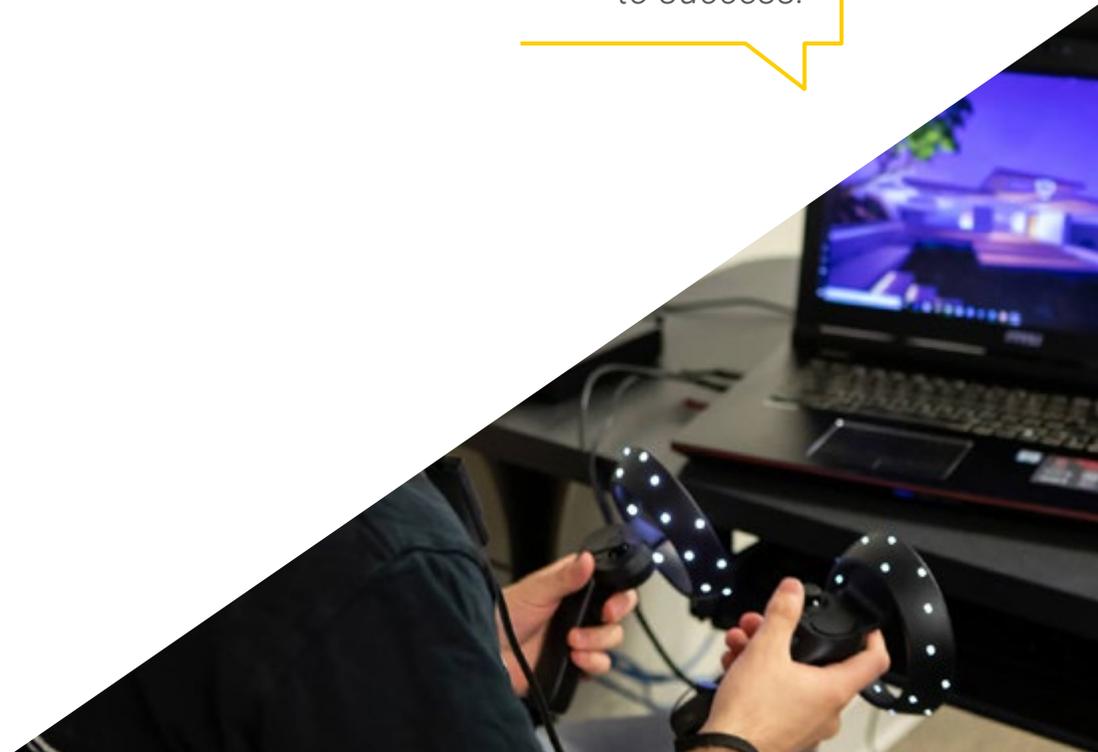
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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.

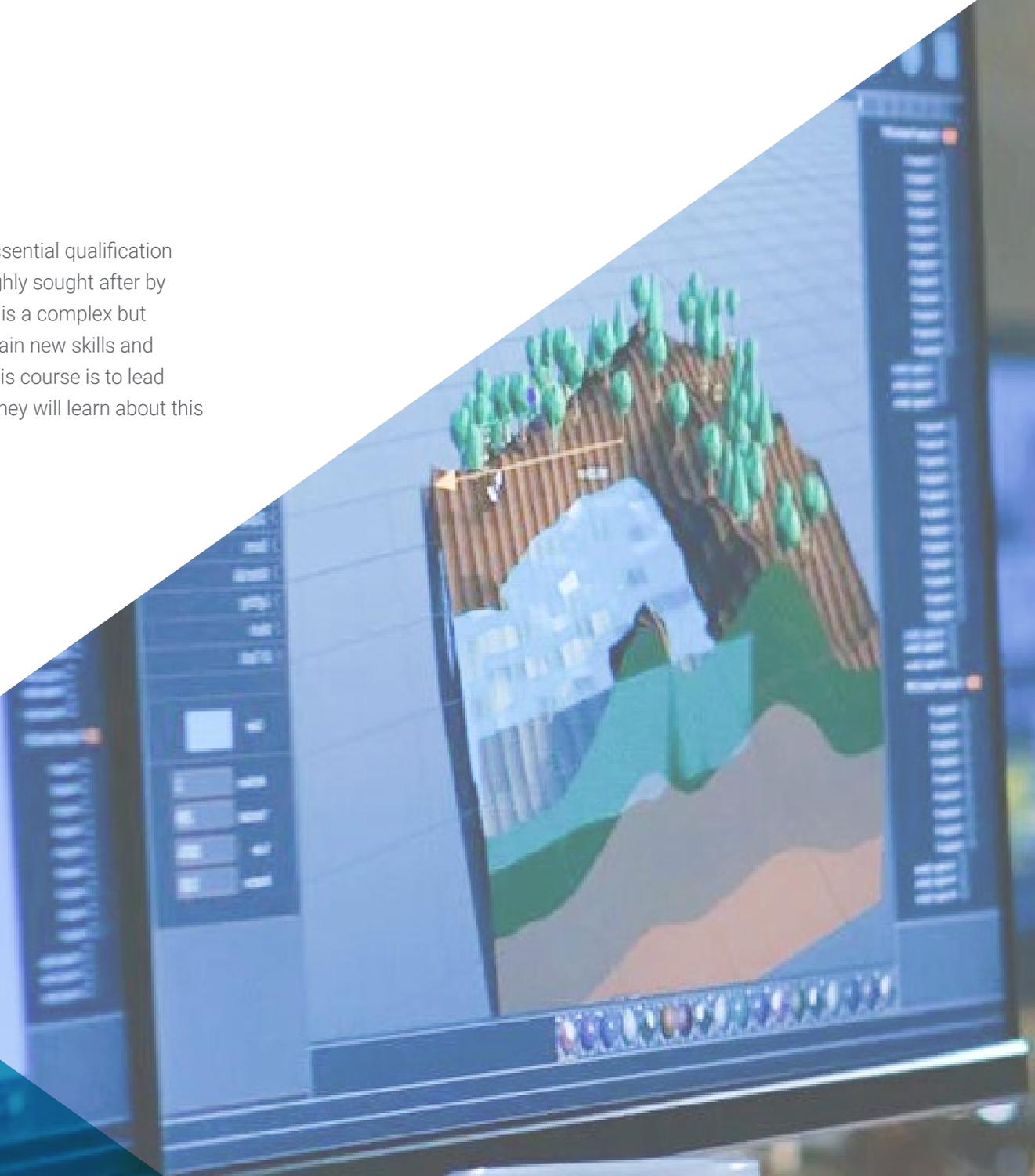
*You will achieve success in a large video game company thanks to this Postgraduate Certificate.*

*You are looking for a specialization that will make you advance professionally and you know this is the one that will lead you to success.*



# 02 Objectives

This Postgraduate Certificate in Real-Time Programming is an essential qualification for all professionals looking to specialize in a discipline that is highly sought after by companies in the Video Game Industry. Real-Time Programming is a complex but exciting field in which experts are lacking, so now is the time to gain new skills and competencies in the subject. That is why the main objective of this course is to lead students to success in the field of Video Games thanks to what they will learn about this type of Programming.



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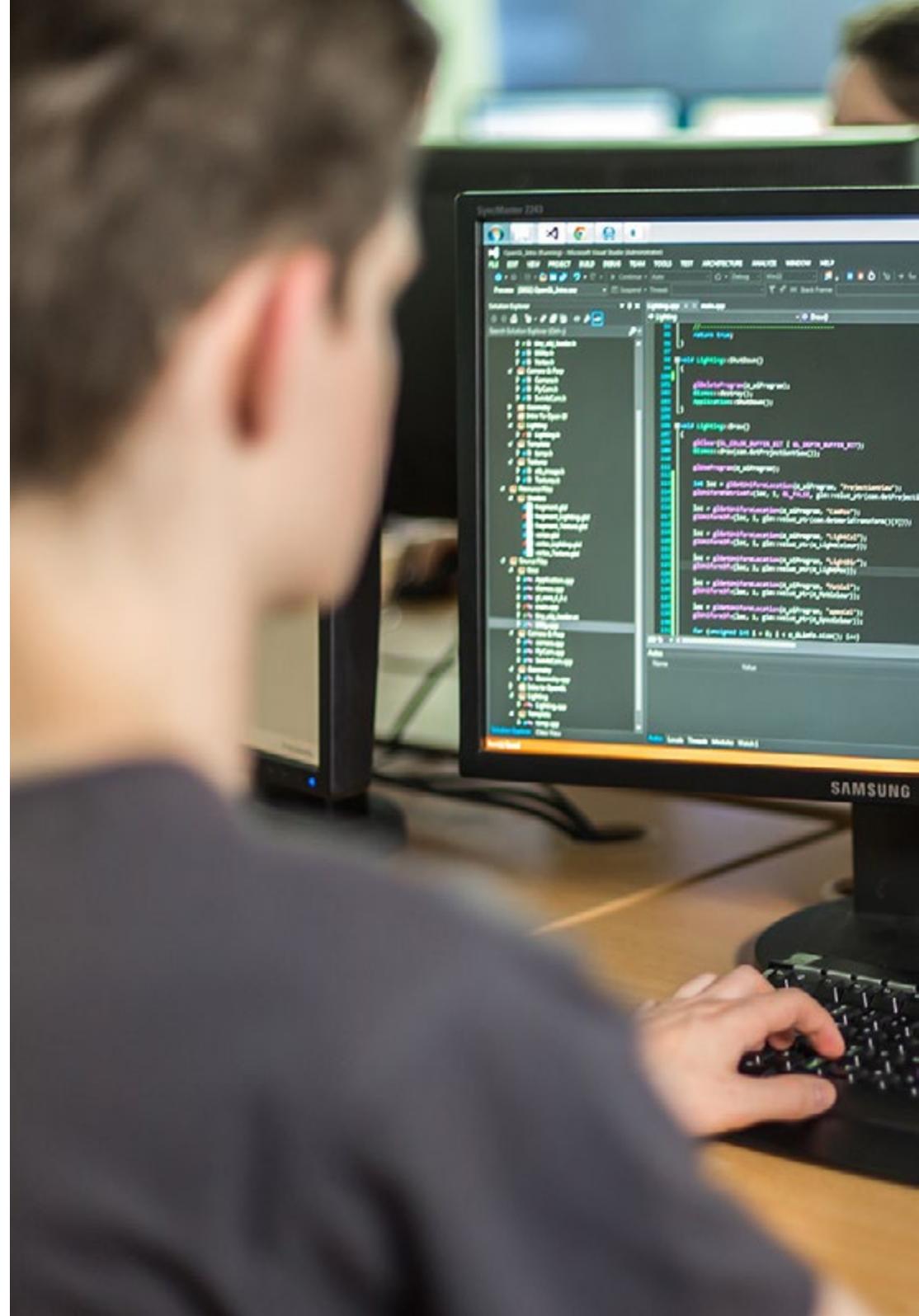
*You know that specialization is the key to professional advancement and this Postgraduate Certificate provides you with everything you need to achieve precisely that”*

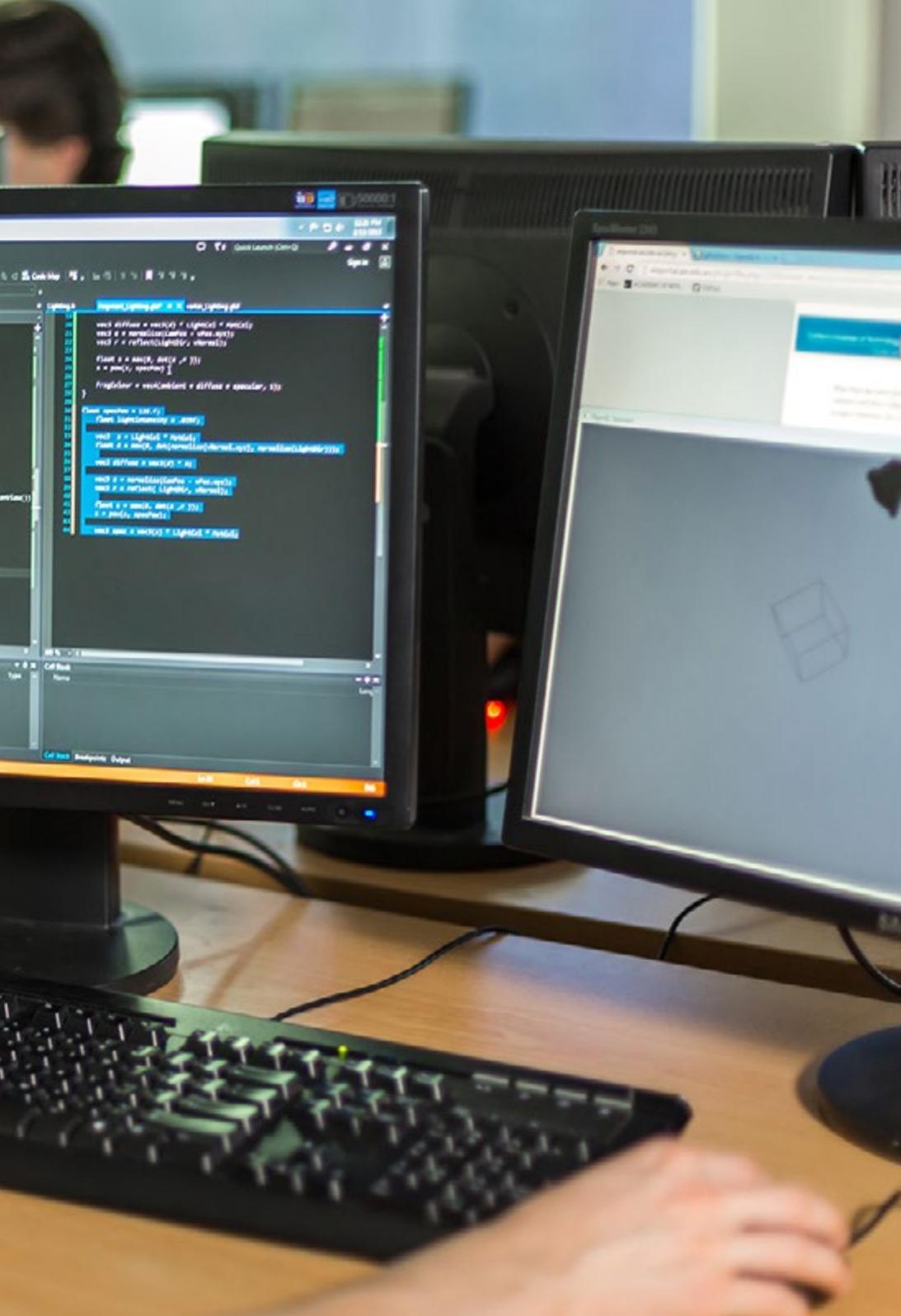


## General Objectives

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- ◆ Gain an understanding of Real-Time Programming
- ◆ Differentiate between a Real-Time Programming Languages and Traditional ones
- ◆ Obtain general Programming knowledge
- ◆ Apply Real-Time Programming to Video Games





## Specific Objectives

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- ◆ Analyze the key features of Real-Time Programming Languages that differentiate them from traditional programming languages
- ◆ Understand the basic concepts behind Computer Systems
- ◆ Acquire the ability to apply the main Bases and Techniques of Real-Time Programming

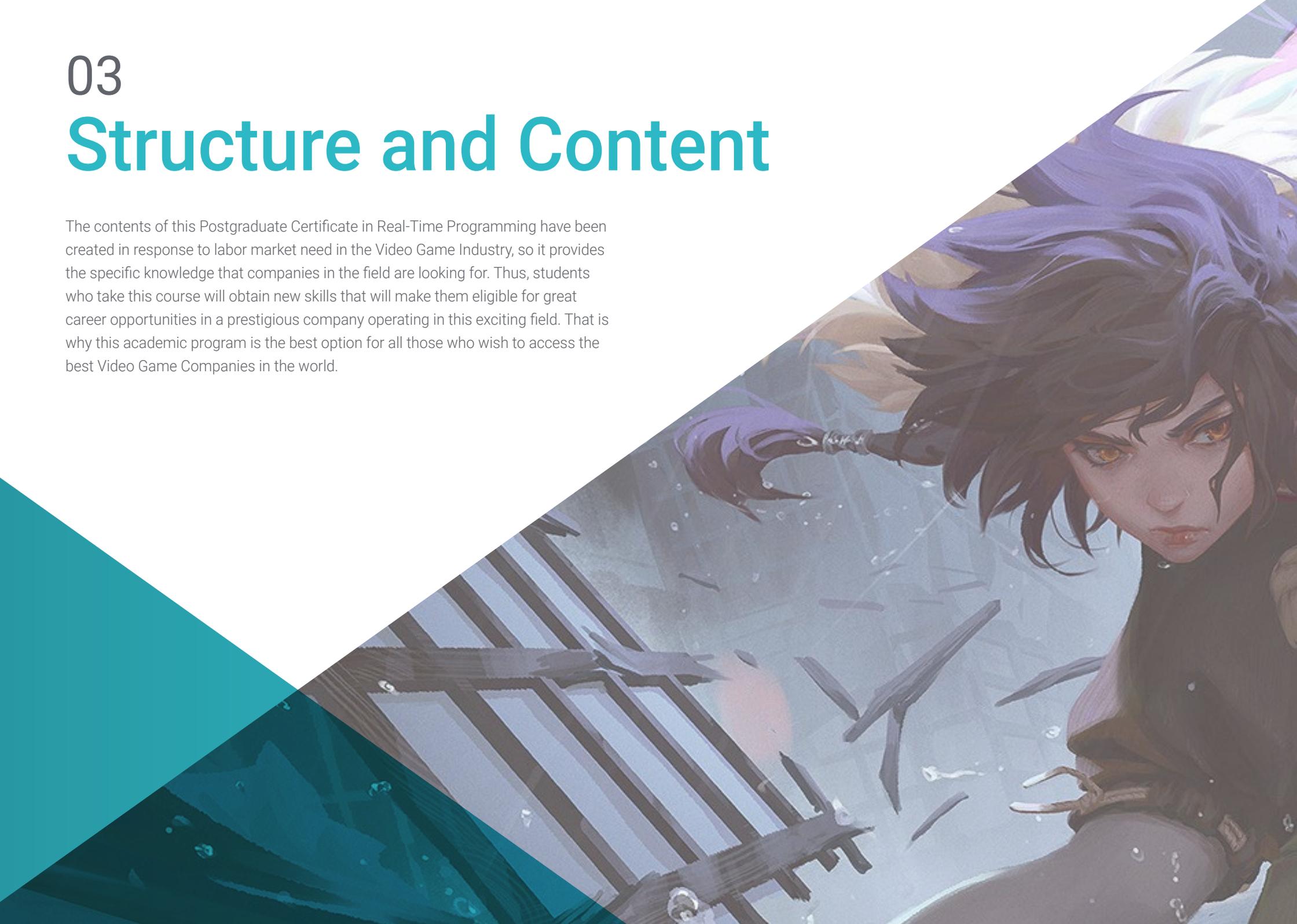


*You will develop the best Video Games in the world thanks to what you will learn in this Postgraduate Certificate*

# 03

## Structure and Content

The contents of this Postgraduate Certificate in Real-Time Programming have been created in response to labor market need in the Video Game Industry, so it provides the specific knowledge that companies in the field are looking for. Thus, students who take this course will obtain new skills that will make them eligible for great career opportunities in a prestigious company operating in this exciting field. That is why this academic program is the best option for all those who wish to access the best Video Game Companies in the world.





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*Learn all about Real-Time Programming with  
this Postgraduate Certificate”*

## Module 1. Real-Time Programming

- 1.1. Basic Concepts in Concurrent Programming
  - 1.1.1. Main Concepts
  - 1.1.2. Concurrency
  - 1.1.3. Benefits of Concurrency
  - 1.1.4. Concurrency and Hardware
- 1.2. Basic Concurrency Support Structures in Java
  - 1.2.1. Concurrency in Java
  - 1.2.2. Creating Threads
  - 1.2.3. Methods
  - 1.2.4. Synchronization
- 1.3. Threads, Life Cycles, Priorities, Interruptions, Status and Executors
  - 1.3.1. Threads
  - 1.3.2. Life Cycle
  - 1.3.3. Priorities
  - 1.3.4. Interruptions
  - 1.3.5. Status
  - 1.3.6. Executors
- 1.4. Mutual Exclusion
  - 1.4.1. What Is Mutual Exclusion?
  - 1.4.2. Dekker's Algorithm
  - 1.4.3. Peterson's Algorithm
  - 1.4.4. Mutual Exclusion in Java
- 1.5. Status Dependency
  - 1.5.1. Dependency Injections
  - 1.5.2. Pattern Implementation in Java
  - 1.5.3. Ways to Inject Dependencies
  - 1.5.4. Example





- 1.6. Design Patterns
  - 1.6.1. Introduction
  - 1.6.2. Creation Patterns
  - 1.6.3. Structure Patterns
  - 1.6.4. Behavior Patterns
- 1.7. Using Java Libraries
  - 1.7.1. What Are Java Libraries?
  - 1.7.2. Mockito-All, Mockito-Core
  - 1.7.3. Guava
  - 1.7.4. Commons-Io
  - 1.7.5. Commons-Lang, Commons-Lang3
- 1.8. Shader Programming
  - 1.8.1. Pipeline 3D and Rasterized
  - 1.8.2. Vertex Shading
  - 1.8.3. Pixel Shading: Lighting I
  - 1.8.4. Pixel Shading: Lighting II
  - 1.8.5. Post-Effects
- 1.9. Real-Time Programming
  - 1.9.1. Introduction
  - 1.9.2. Processing Interruptions
  - 1.9.3. Synchronization and Communication between Processes
  - 1.9.4. Real-Time Planning Systems
- 1.10. Real-Time Planning
  - 1.10.1. Concepts
  - 1.10.2. Real-Time Systems Reference Model
  - 1.10.3. Planning Policies
  - 1.10.4. Cyclical Planners
  - 1.10.5. Statistical Property Planners
  - 1.10.6. Dynamic Property Planners

# 04

# Methodology

This training program offers 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 Information Technology program at TECH Global University prepares you to face all the challenges in this field, 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 Global 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 Information Technology 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 the course, students 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, 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 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 university 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.

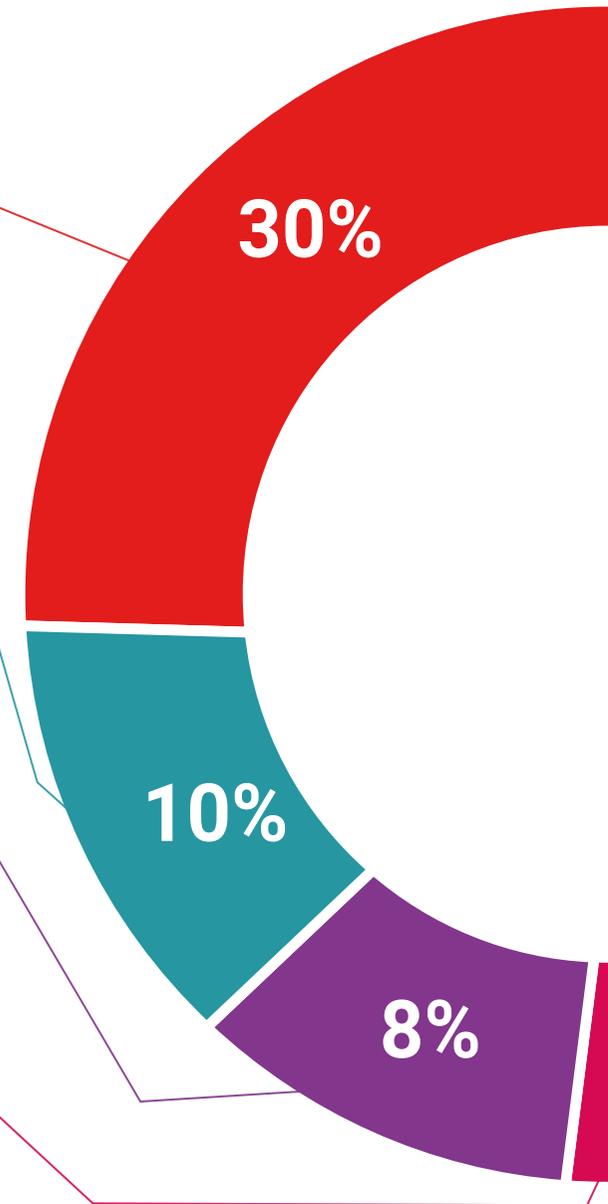
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

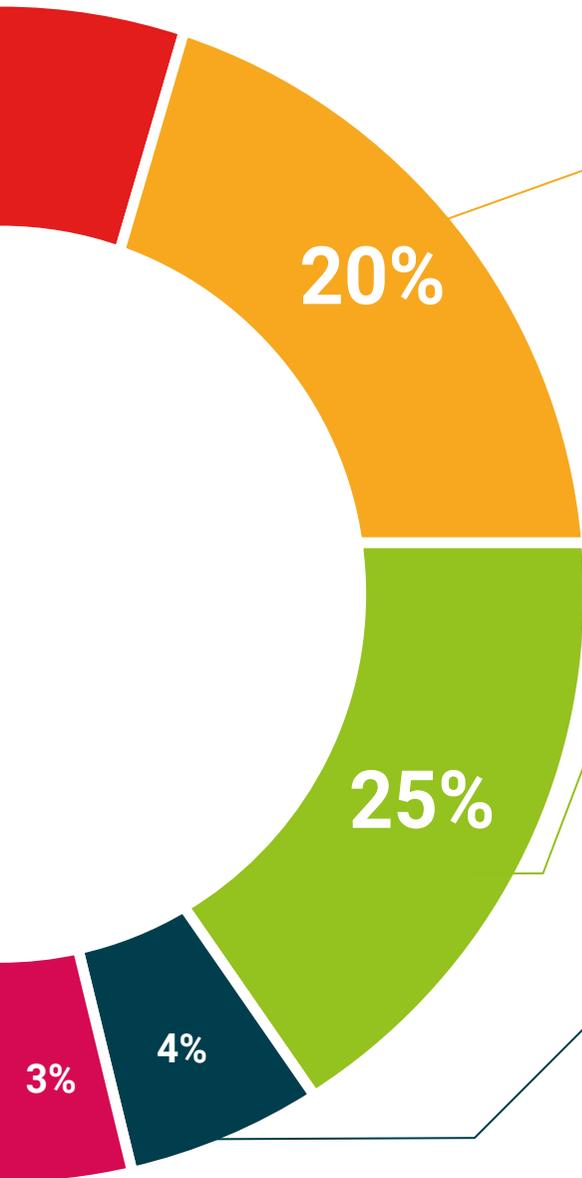
### Practising Skills and Abilities

They will carry out activities to develop specific 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 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 multimedia content presentation training Exclusive system 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 your goals.



# 05 Certificate

The Postgraduate Certificate in Real-Time Programming guarantees, in addition to the most rigorous and update training, access to a Postgraduate Certificate issued by TECH Global University.



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

This program will allow you to obtain your **Postgraduate Certificate in Real-Time Programming** 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 Real-Time Programming**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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

health

future

confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present quality

online training

development languages

classroom

**tech** global  
university

## Postgraduate Certificate Real-Time Programming

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

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