Postgraduate Certificate
Real Time Programming

tech *technological university*

Postgraduate Certificate
Real-Time Programming

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

Website: **www.techtitute.com/us/videogames/postgraduate-certificate/real-time-programming**

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01
Introduction

Real-time programming is a basic tool that is used when designing video games. This type of programming creates systems that are capable of responding to physical and virtual stimuli in real time, in such a way that they can react to events that may arise in the development of its activity. As far as video games are concerned, this type of code is vital, since the fluidity and interruptions during the action depend on it, and poor coding can affect gameplay. This program offers students all the necessary knowledge to specialize in this field, so that they can become expert video game programmers.

Real time programming is essential for proper video game development. Specialize with this Postgraduate Certificate"

Video games are made up of a large number of elements that aren't seen at first sight. Apart from the purely visual aspects, there are a large number of sections whose work has been done by great experts who have followed an in depth and complete learning process.

One of those is programming. Video games, in essence, are made up of thousands of lines of code that dictate everything from the most basic issues to the most complex instructions, from aesthetic issues to gameplay and the way graphics are processed.

However, there are various types of programming. Applied to disciplines such as video games, there is one in particular that is of great importance: real-time programming. Real-time systems are able to respond instantaneously to the circumstances, already foreseen, that arise whilst carrying out their activity. Therefore, in terms of video games, this programming is related to interruptions and fluidity, making it a vital element in the gaming experience.

This Postgraduate Certificate in Real-Time Programming offers, therefore, the best teaching on the subject, using a 100% online methodology that prioritizes flexibility and quality, so that students can combine it with their professional careers.

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

- Practical cases presented by experts in programming
- The graphic, schematic, and 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
- Special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Access to content from any fixed or portable device with an Internet connection

Learn real-time programming and open the doors to the video game industry"

"
Real time programming is complex but exciting. Enroll now and learn everything about it"

Specialize in this field now and work with the best video game companies in the world.

The video game industry wants to hire talented people like you.

The teaching staff of this program includes professionals from the industry, who contribute the experience of their work to this program, in addition to recognized specialists from reference 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 learning 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.

02
Objectives

The main objective of this Postgraduate Certificate in Real Time Programming is to offer its students the best knowledge in the field, so that they can become great professionals with whom every video game company will want to work. In addition, real time programming experts are rare, so graduates will enjoy numerous job opportunities in this exciting new field that is waiting for specialists to emerge to create the code for the best video games of the future.
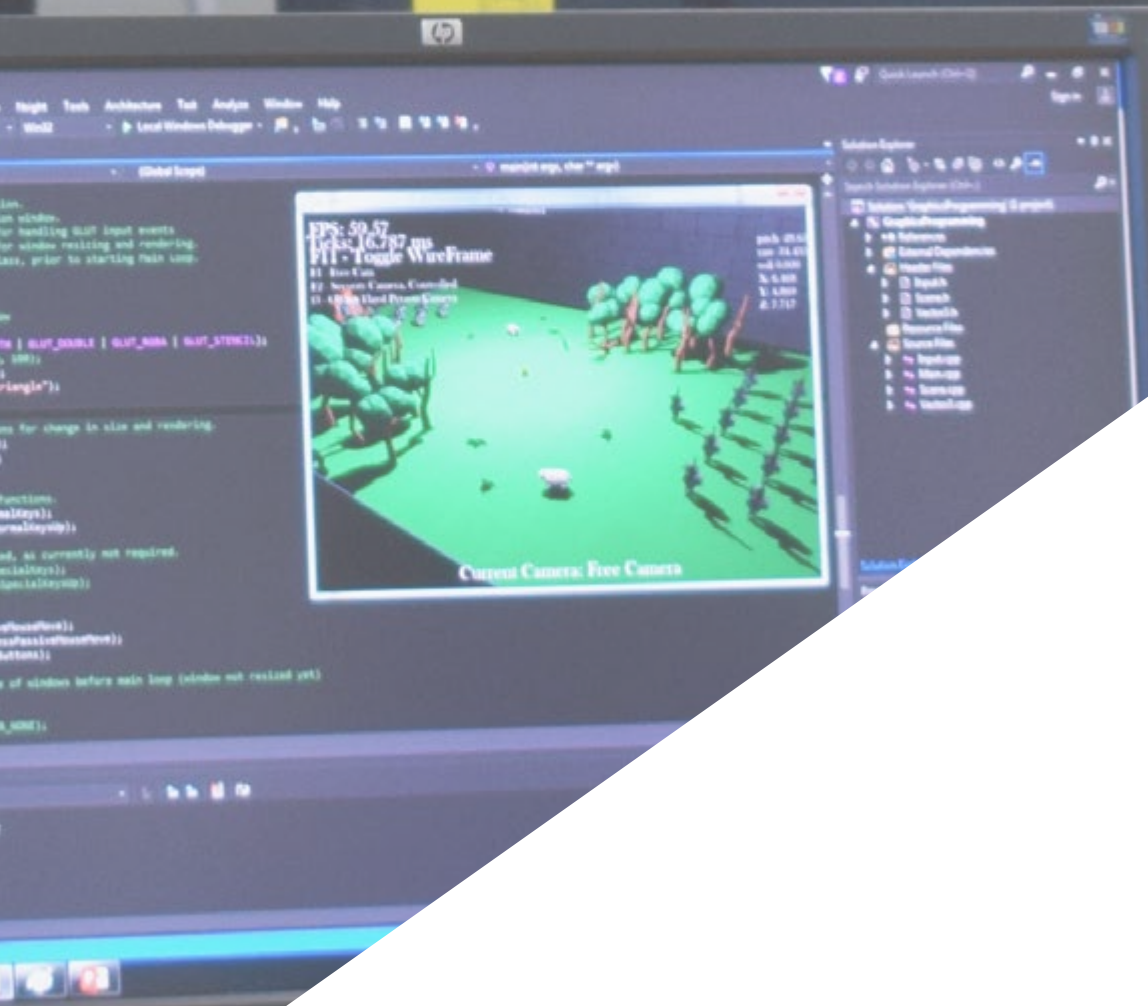
You have big dreams and TECH will help you to achieve them"

General Objectives

- Learn what real time programming is
- Differentiate between a real time programming languages and traditional ones
- Obtain general programming knowledge
- Apply real time programming to video games

Specific Objectives

- 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

Work for your favorite video game companies thanks to this program"

03
Structure and Content

This Postgraduate Certificate in Real Time Programming has been designed by the best experts in programming applied to video games, so that its students can enjoy the best knowledge on the subject matter. Therefore, they will be able to directly apply this knowledge in their professional careers, making their job opportunities grow. For this purpose, this program has been structured in 1 module, composed of 10 topics, which will provide an in depth study of all aspects related to real time programming.

" *The best content on real time programming is here"*

Module 1. Real Time Programming

1.1. Basic Concepts in Concurrent Programming
    1.1.1. Fundamental 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 Executers
    1.3.1. Threads
    1.3.2. Life Cycle
    1.3.3. Priorities
    1.3.4. Interruptions
    1.3.5. Status
    1.3.6. Executers
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. Behavioral 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

You won't find a better program than this to learn about real time programming applied to video games"

04
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.

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. 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.

30%

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.

10%

### 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.

8%

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.

20%

25%

4%

3%
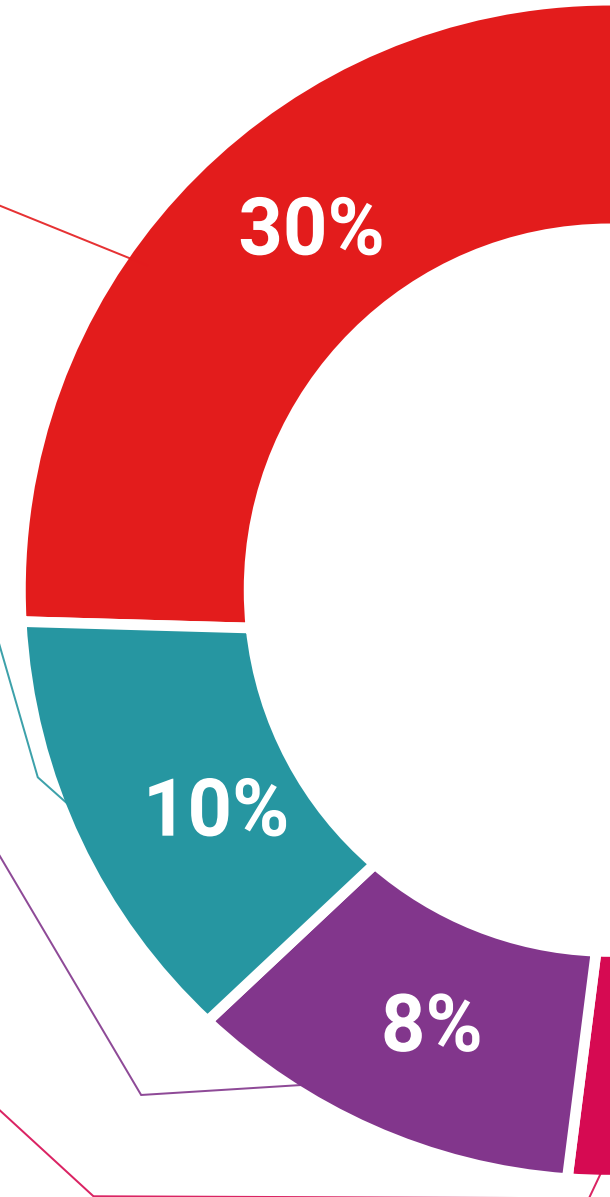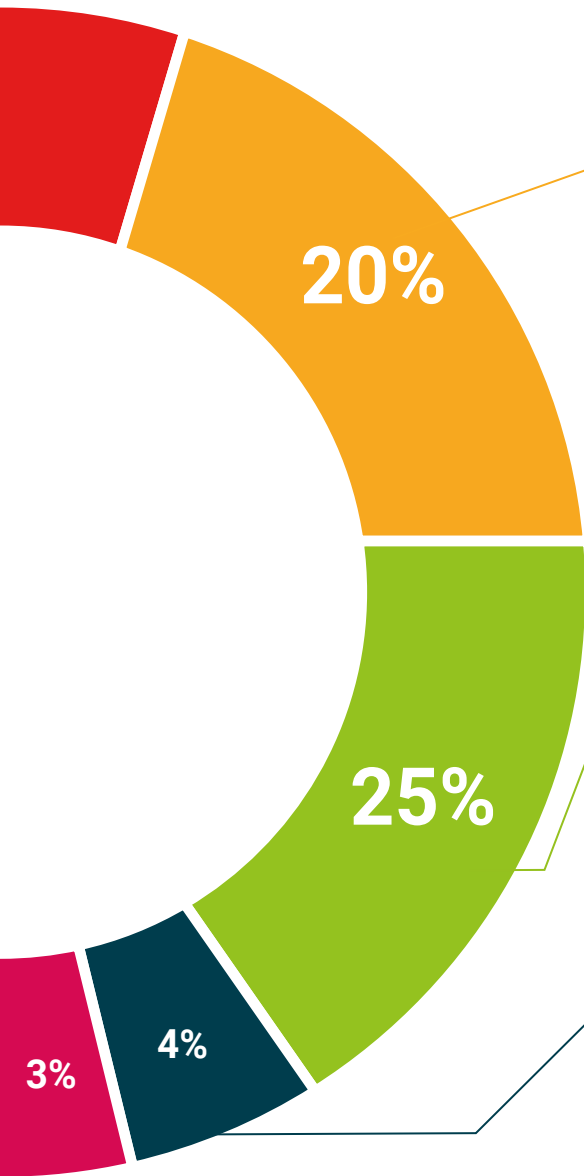
Case Studies

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.

05
Certificate

The Postgraduate Certificate in Real Time Programming 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 Real Time Programming** contains the most complete and up to date academic 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 Real Time Programming**

Official Nº of hours: **150 h.**

tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Real-Time Programming

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

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.

Unique TECH Code: AFWORD23S   techtitute.com/certificates

*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.

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