Postgraduate Diploma
Video Game Programming Languages

tech global university

Postgraduate Diploma
Video Game Programming Languages

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Global University**
- » Credits: **18 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-video-game-programming-languages**

Index

01
Introduction

The programming field is very broad and contains various types of languages, depending on the objective or environment for which it is intended. Video games have a series of particularities that make programmers specialized in this field necessary to properly develop projects. Such particularities involve not only the way they are programmed but also the languages used. Thus, adequate skills are required in this area to be able to create quality code. This program offers students the necessary tools and knowledge to be able to program quality video games, resulting in numerous professional opportunities in the industry, as well.

tech

" *Specialize in the essential Programming Languages to Develop high-quality Video Games"*

There are numerous programming languages in the world. Some of them are very limited and are used in very specific circumstances. Others, in spite of having a very restricted scope, are absolutely essential, as for example the Machine Language or the Assembler, which serve to establish the Basic Instructions between Hardware and Software in Operating Systems.

There are also Languages that intervene in a single System, such as Visual Basic, others that have become universal, such as C, and those that have increased their popularity in recent years due to their usefulness in aspects related to Statistics, such as Python.

Thus, for every problem or for every circumstance, there is a Programming Language. And Video Games are no exception, since they need a specific type of language to be developed correctly. Object Oriented Programming Languages such as C++ are vital in this process and, for that reason, this Postgraduate Diploma in Video Game Programming Languages is the answer for all those who want to learn everything about the Video Game Development.

Thanks to this program, students will be able to become true experts in this field of work, opening the doors to the industry and being able to access the best companies in the field thanks to the skills they will acquire by taking it.

This **Postgraduate Diploma in Video Game Programming Language** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- Practical cases presented by experts in video game development
- 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

Learn the Programming Languages that will make your Video Games successful"

"Programming is essential for the Video Game Development. Enroll in this Postgraduate Diploma and build your professional career"

The Video Game Industry is looking for talented programmers like you. Don't miss this opportunity and enroll.

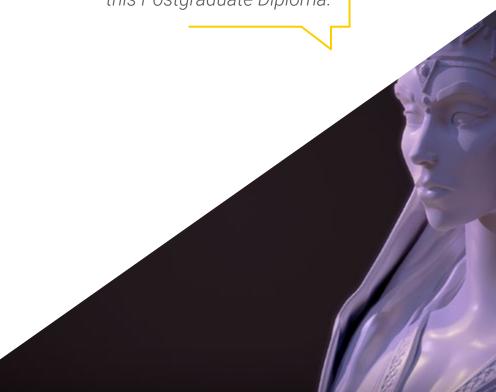*Pave your way to success with this Postgraduate Diploma.*

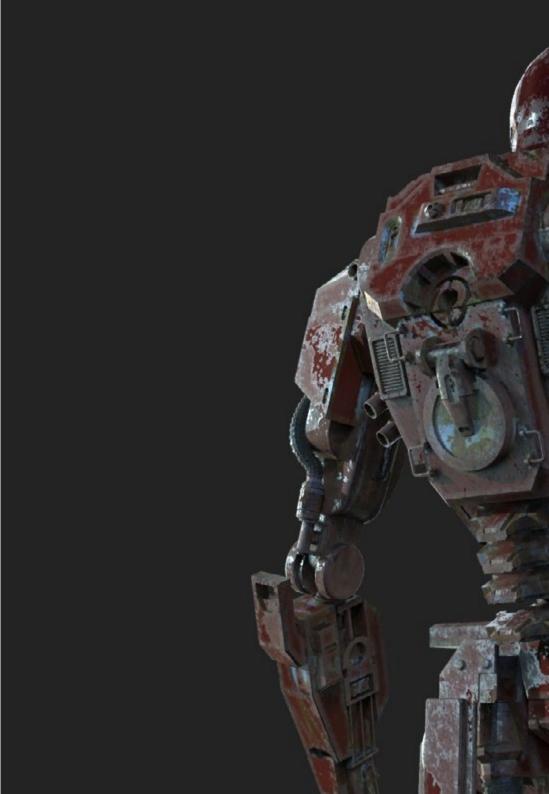The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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.

02
Objectives

The main objective of this Postgraduate Diploma in Video Game Programming Languages is to turn students into great experts in Video Game Development, so they can enjoy the best career opportunities in one of the most exciting industries in the world today. Thanks to the knowledge they will learn during the program, they will be able to build their careers until ultimately collaborating with the most famous companies in the industry.

" *You will be the best Video Game Programmer in your environment. Specialize now"*

General Objectives

- Become familiar with the different Programming Methods applied to Video Games
- Delve deeper into the Video Game Production Process and Integrate Programming throughout each stage
- Master the Basic Programming Languages used in Video Games
- Apply knowledge of Software Engineering and Specialized Programming to Video Games
- Understand the role of Programming in Video Game Development
- Develop Web Video Games

Programming is essential for companies in this sector. When you complete this program, you will get the best career opportunities in this exciting industry"

Specific Objectives

Module 1. Object Oriented Programming

- Know the different Design Patterns for Object Oriented problems
- Understand the importance of Documentation and Testing in Software Development
- Manage the use of Threading and Synchronization, and solve common problems in Concurrent Programming

Module 2. 3D Modeling

- Ascertain the Internal Structure of a Videogame Engine
- Establish the Elements of a Modern Video Game Architecture
- Understand the functions of every Video Game component
- Examine examples of videogames made with 2D and 3D graphics

Module 3. Web Game Design and Development

- Design Games and Interactive Web Applications with the corresponding Documentation
- Evaluate the main features of Games and Interactive Web Applications for professional and adequate communication

03
Structure and Content

The program contains a highly specialized syllabus that has been designed by leading experts in the field. That way, students will enjoy knowledge fully focused on professional practice, which will facilitate the task of becoming highly sought-after workers in the industry. For that reason, this Postgraduate Diploma in Video Game Programming Languages is the solution for all those who want to turn their career around, putting them in the best position to thrive in this complex field.

"You won't find a better syllabus to specialize in Video Game Programming Language"

Module 1. Object Oriented Programming

1.1.   Introduction to Object Oriented Programming
    1.1.1.   Introduction to Object Oriented Programming
    1.1.2.   Class Design
    1.1.3.   Introduction to Unified Modeling Language (UML) for Problem Modeling

1.2.   Class Relations
    1.2.1.   Abstractions and Heritage
    1.2.2.   Advanced Concepts of Heritage
    1.2.3.   Polymorphism
    1.2.4.   Composition and Aggregation

1.3.   Introduction to Design Patterns for Object Oriented problems
    1.3.1   What Are Design Patterns?
    1.3.2.   Factory Pattern
    1.3.3.   Singleton Pattern
    1.3.4.   Observer Pattern
    1.3.5.   Composite Pattern

1.4.   Exceptions
    1.4.1.   What Are Exceptions?
    1.4.2.   Catching and Handling Exceptions
    1.4.3.   Launching Exceptions
    1.4.4.   Creating Exceptions

1.5.   User Interface
    1.5.1.   Introduction to Qt
    1.5.2.   Positioning
    1.5.3.   What Are Events?
    1.5.4.   Events: Definition and Catching
    1.5.5.   User Interface Development

1.6.   Introduction to Concurrent Programming
    1.6.1.   Introduction to Concurrent Programming
    1.6.2.   Concept of Process and Thread
    1.6.3.   Process and Thread Interaction
    1.6.4.   C++ Threads
    1.6.5.   Advantages and Disadvantages of Concurrent Programming

1.7.   Thread Management and Synchronization
    1.7.1.   Thread Life Cycle
    1.7.2.   Thread Class
    1.7.3.   Thread Planning
    1.7.4.   Thread Groups
    1.7.5.   Daemon Threads
    1.7.6.   Synchronization
    1.7.7.   Locking Mechanisms
    1.7.8.   Communication Mechanisms
    1.7.9.   Monitors

1.8.   Common Problems in Concurrent Programming
    1.8.1.   Producer-Consumer Problem
    1.8.2.   Readers-Writers Problem
    1.8.3.   Dining Philosophers Problem

1.9.   Software Testing and Documentation
    1.9.1.   Why Is It Important to Document Software?
    1.9.2.   Design Documentation
    1.9.3.   Documentation Tool Use

1.10.   Software Tests
    1.10.1.   Introduction to Software Tests
    1.10.2.   Types of Tests
    1.10.3.   Unit Test
    1.10.4.   Integration Test
    1.10.5.   Validation Test
    1.10.6.   System Test

Module 2. 3D Modeling

Module 3. Web Game Design and Development

3.1.   Web Origins and Standards
    3.1.1.   Internet Origins
    3.1.2.   World Wide Web
    3.1.3.   First Web Standards
    3.1.4.   Rise Web Standards
3.2.   HTTP and Client-Server Structure
    3.2.1.   Client-Server Role
    3.2.2.   Client-Server Communication
    3.2.3.   Recent History
    3.2.4.   Centralized Computing
3.3.   Web Programming: Introduction
    3.3.1.   Basic Concepts
    3.3.2.   Preparing Web Servers
    3.3.3.   Basic Concepts of HTML5
    3.3.4.   HTML Forms
3.4.   Introduction to HTML and Examples
    3.4.1.   HTML5 History
    3.4.2.   HTML5 Elements
    3.4.3.   Application Programming Interface (API)
    3.4.4.   CCS3
3.5.   Document Object Model
    3.5.1.   What Is a Document Object Model?
    3.5.2.   Using DOCTYPE
    3.5.3.   The Importance of Validating the HTML
    3.5.4.   Accessing Elements
    3.5.5.   Creating Elements and Texts
    3.5.6.   Using InnerHTML
    3.5.7.   Deleting an Element or Text Node
    3.5.8.   Reading and Writing Element Attributes
    3.5.9.   Manipulating Element Styles
    3.5.10.   Attaching Multiple Files at Once

3.6.   Introduction to CSS and Examples
    3.6.1.   CSS3 Syntax
    3.6.2.   Style Sheets
    3.6.3.   Labels
    3.6.4.   Selectors
    3.6.5.   CSS Web Design
3.7.   Introduction to JavaScript and Examples
    3.7.1.   What Is JavaScript?
    3.7.2.   A Brief History of the Language
    3.7.3.   JavaScript Versions
    3.7.4.   Displaying Dialog Boxes
    3.7.5.   JavaScript Syntax
    3.7.6.   Understanding *Scripts*
    3.7.7.   Spaces
    3.7.8.   Comments
    3.7.9.   Functions
    3.7.10.   On-Page and External JavaScript
3.8.   JavaScript Functions
    3.8.1.   Function Declaration
    3.8.2.   Function Expression
    3.8.3.   Calling Functions
    3.8.4.   Recursion
    3.8.5.   Nested Functions and Closures
    3.8.6.   Variable Preservation
    3.8.7.   Multinested Functions
    3.8.8.   Name Conflicts
    3.8.9.   Closings or Closures
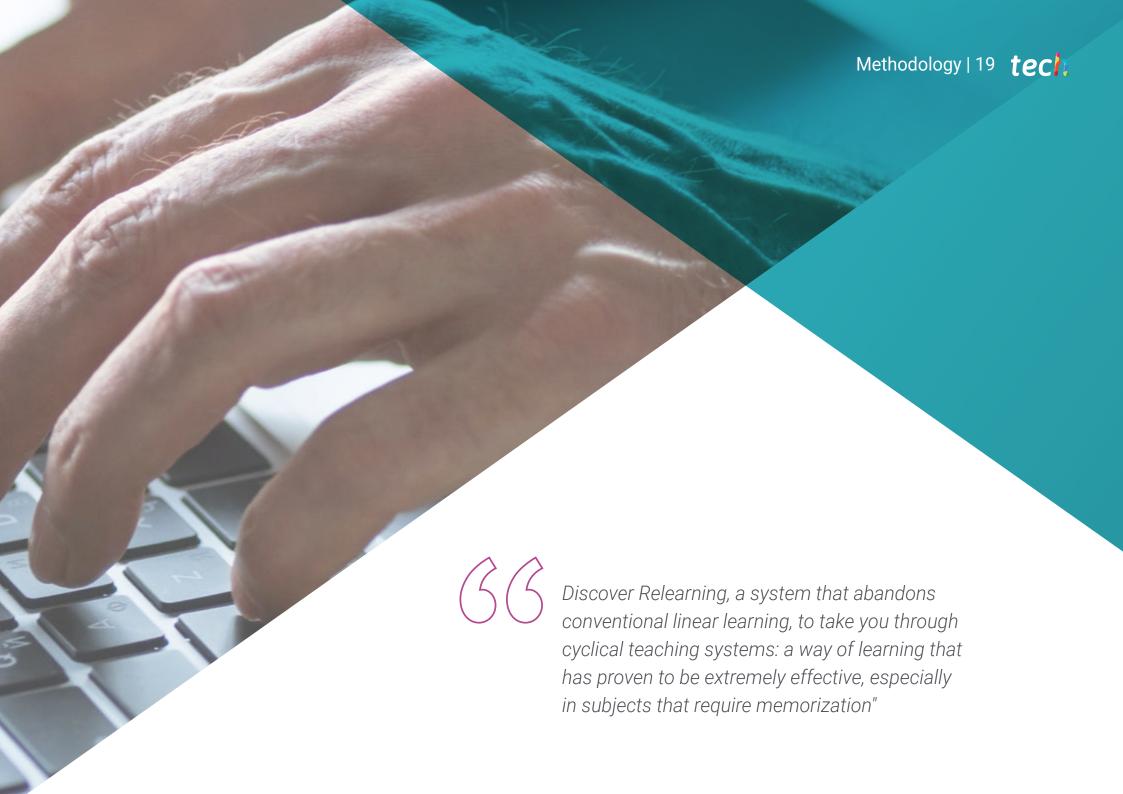   3.8.10.   Function Parameters

Develop the most famous video games of the future thanks to everything you will learn on this program"

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.

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.

" *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.

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.
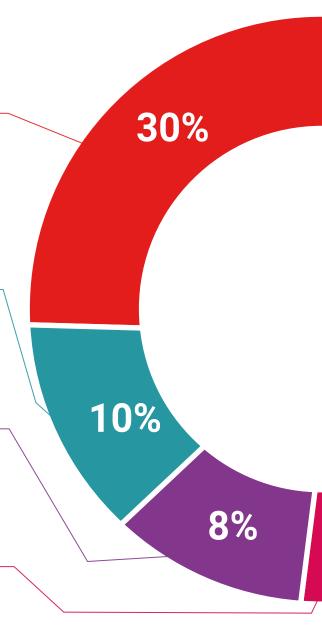
10%

Practising Skills and Abilities

They will carry out activities to develop specific 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.

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

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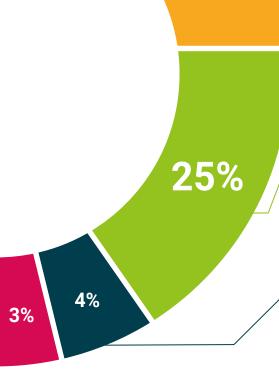
This exclusive multimedia content presentation training Exclusive system was awarded by Microsoft as a "European Success Story".

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.

Certificate

The Postgraduate Diploma in Video Game Programming Language guarantees, in addition to the most rigorous and up-to-date training, access to a qualification issued by TECH Global University.

Successfully complete this training program and receive your certificate without travel or laborious paperwork"

This program will allow you to obtain your **Postgraduate Diploma in Video Game Programming Language** 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 Diploma in Video Game Programming Language**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**

tech global university

Mr./Ms. _____, with identification document _____ has successfully passed and obtained the title of:

Postgraduate Diploma in Video Game Programming Language

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

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 Global University will make the necessary arrangements to obtain it, at an additional cost.

tech global university

Postgraduate Diploma
Video Game Programming Language

» Modality: **online**
» Duration: **6 months**
» Certificate: **TECH Global University**
» Credits: **18 ECTS**
» Schedule: **at your own pace**
» Exams: **online**

Postgraduate Diploma
Video Game Programming Languages

tech global university