

Postgraduate Diploma Video Game Programming Management



Postgraduate Diploma

Video Game Programming Management

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

Website: www.techtitute.com/in/information-technology/postgraduate-diploma/postgraduate-diploma-video-game-programming-management

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01

Introduction

Of all the departments that make up a video game company, the programming department is one of the most important. Although others such as Marketing or Design may be more striking, the one devoted to programming is essential, since the rest depend on it to properly develop the most perceptible sections. Thus, it is a complex and delicate task, and it requires managers who are capable of being in charge of this type of projects. For this reason, this program is essential for every professional who wants to specialize in Video Game Programming Project Management, since it offers them all the necessary skills to perform this task effectively and successfully.



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Learn to program the best video games of the future thanks to this Postgraduate Diploma”

Management and Coordination positions are essential in Audiovisual Projects. This type of initiatives require specialized personnel in different areas, both artistic and technical. And the case of video games is no different, although it contains a series of particularities that make it unique. Thus, the presence of programming tasks makes video games undergo a very delicate development process.

Programming is a key issue in the development of a video game, since it contains the basic instructions for the final product to be the way it is. For example, programming is involved in how graphics react to movements or different element interaction in the game. Without code, video games could hardly be enjoyed.

To coordinate this complex and important task, specialized personnel are needed who know how to successfully carry out Video Game Programming Projects. For that reason, this Postgraduate Diploma in Video Game Programming Management is the answer for all those who want to acquire all the necessary skills to manage a development department in a large video game company.

Students who take this program will enjoy numerous professional opportunities thanks to the skills acquired, which will place them in a privileged position when competing for the best positions in large companies in the field.

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

- ♦ Practical cases presented by experts in video game programming management
- ♦ 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 the self-assessment process can be carried out to improve learning
- ♦ Its 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



Programming is essential for a Video Game. Specialize and become essential to your company"

“

Manage the Programming Department in a large Video Game Company and lead it to success thanks to the skills you will learn on this program”

The program's teaching staff includes professionals from 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.

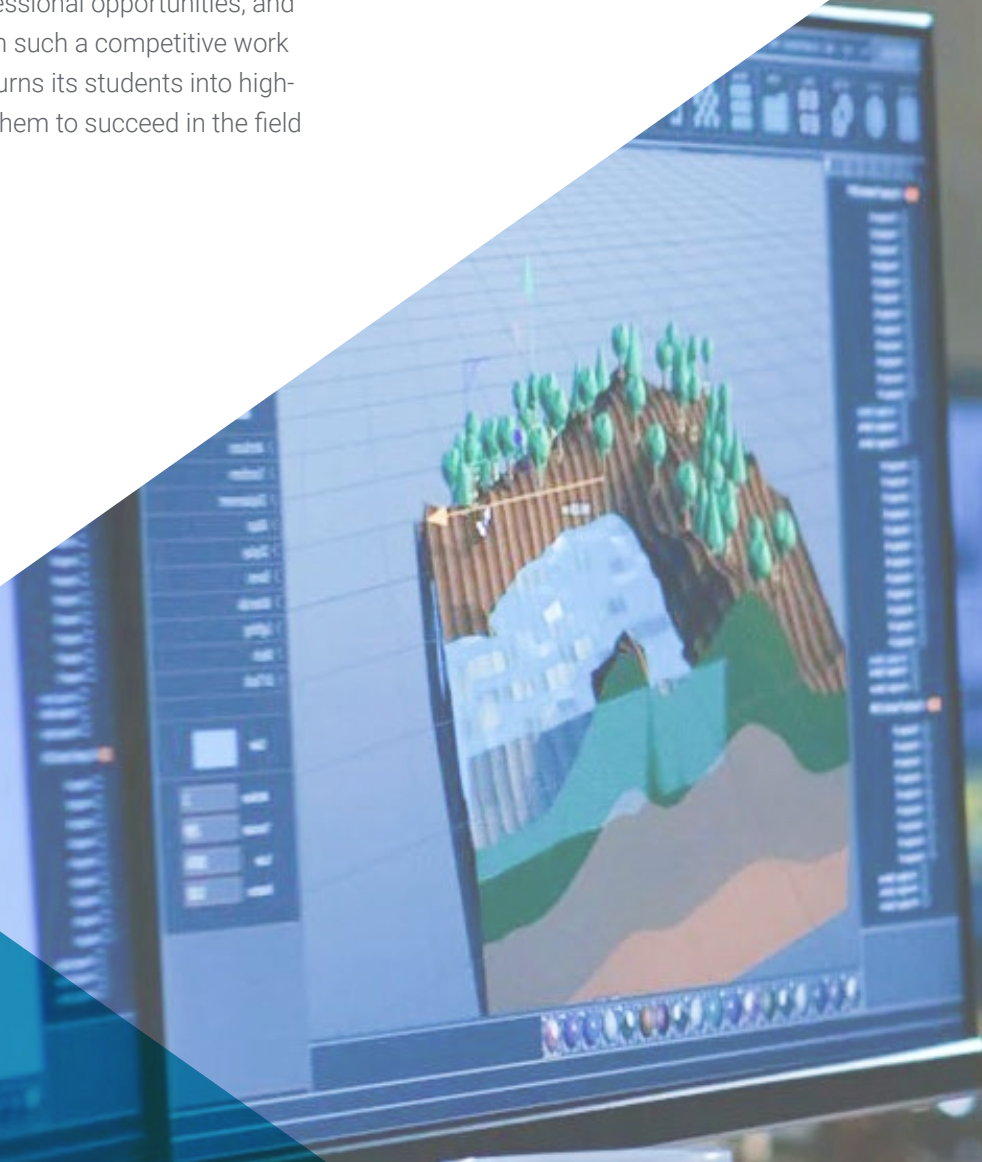
Successfully manage all types of Video Game Programming Projects thanks to this The Postgraduate Diploma.

Finish the program and open the doors to the Video Game Industry. Don't wait any longer and enroll.



02 Objectives

The main objective of this Postgraduate Diploma in Video Game Programming Management is to provide its students with the best professional opportunities, and to offer them the best knowledge and tools to stand out in such a competitive work environment as this industry truly is. Thus, this program turns its students into high-level Programming Directors and Coordinators, enabling them to succeed in the field thanks to their newly acquired skills.



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*Your goals will be within your reach when
you complete this Postgraduate Diploma”*



General Objectives

- ◆ Become familiar the different Programming Languages and Methods applied to Video Games
- ◆ Delve deeper into the Video Game Production Process and Integrate Programming throughout each stage
- ◆ Acquire Management skills applied to the field of Video Game Programming
- ◆ 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



Do not miss the opportunity and become a great Video Game Programming Management Specialist. Your career will advance immediately. Enroll now and find out for yourself"





Specific Objectives

Module 1. Programming Fundamentals

- ◆ Understand the Basic Structure of Computers, Software and the general purpose Programming Languages
- ◆ Analyze the essential elements of a Computer Program, such as the different Data Types, Operators, Expressions, Statements, I/O and Control Statements
- ◆ Interpret Algorithms as the necessary basis to develop Computer Programs

Module 2. Software Engineering

- ◆ Become familiar with the Bases of Software Engineering, as well as the Software Process and the different Development Models, including Agile Technologies
- ◆ Recognize requirements engineering, its development, elaboration, negotiation and validation in order to understand the Main Standards in terms of Software Quality and Project Management

Module 3. Video Game Engines

- ◆ Discover Video Game Engine Operation and Architecture
- ◆ Understand the Basic Features of existing Game Engines
- ◆ Correctly and efficiently program applications applied to Video Game Engines
- ◆ Choose the most appropriate paradigm and programming languages to program applications applied to Video Game Engines

03

Structure and Content

The contents of this The Postgraduate Diploma have been carefully designed by specialists who are perfectly familiar with the Video Game Industry. They know exactly what companies want and, for that reason, they have focused program contents on precisely that, so students can apply it directly in their professional fields. Thanks to this learning process, students will be prepared for all the challenges that await them in their future careers.





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*Lead high-level projects through this program.
Enroll and watch your career soar in the Video
Game Industry”*

Module 1. Programming Fundamentals

- 1.1. Introduction to Programming
 - 1.1.1. Basic Computer Structure
 - 1.1.2. Software
 - 1.1.3. Programming Languages
 - 1.1.4. Computer Application Life Cycle
- 1.2. Algorithm Design
 - 1.2.1. Problem Solving
 - 1.2.2. Descriptive Techniques
 - 1.2.3. Algorithm Elements and Structure
- 1.3. Program Elements
 - 1.3.1. C++ Origin and Features
 - 1.3.2. Development Environment
 - 1.3.3. Concept of Program
 - 1.3.4. Types of Fundamental Data
 - 1.3.5. Operators
 - 1.3.6. Expressions
 - 1.3.7. Statements
 - 1.3.8. Data Input and Output
- 1.4. Control Statements
 - 1.4.1. Statements
 - 1.4.2. Branches
 - 1.4.3. Loops
- 1.5. Abstraction and Modularity: Functions
 - 1.5.1. Modular Design
 - 1.5.2. Concept of Function and Utility
 - 1.5.3. Definition of Function
 - 1.5.4. Execution Flow When Function Is Called
 - 1.5.5. Function Prototypes
 - 1.5.6. Results Return
 - 1.5.7. Calling Functions: Parameters
 - 1.5.8. Parameter Passing According to Reference and Value
 - 1.5.9. Scope Identifier
- 1.6. Statistical Data Structures
 - 1.6.1. Arrays
 - 1.6.2. Matrices: Polyhedra
 - 1.6.3. Searching and Sorting
 - 1.6.4. Chaining: I/O Functions for Chains
 - 1.6.5. Structures: Unions
 - 1.6.6. New Types of Data
- 1.7. Dynamic Data Structures: Pointers
 - 1.7.1. Concept Definition of Pointer
 - 1.7.2. Pointer Operators and Operations
 - 1.7.3. Pointer Arrays
 - 1.7.4. Pointers and Arrays
 - 1.7.5. Chain Pointers
 - 1.7.6. Structure Pointers
 - 1.7.7. Multiple Indirection
 - 1.7.8. Function Pointers
 - 1.7.9. Function, Structure and Array Passing as Function Parameters
- 1.8. Files
 - 1.8.1. Basic Concepts
 - 1.8.2. File Operations
 - 1.8.3. Types of Files
 - 1.8.4. File Organization
 - 1.8.5. Introduction to C++ Files
 - 1.8.6. Managing Files
- 1.9. Recursion
 - 1.9.1. Definition of Recursion
 - 1.9.2. Types of Recursion
 - 1.9.3. Advantages and Inconveniences
 - 1.9.4. Considerations
 - 1.9.5. Recursive-Iterative Conversion
 - 1.9.6. Recursion Stack



- 1.10. Testing and Documentation
 - 1.10.1. Program Testing
 - 1.10.2. White Box Testing
 - 1.10.3. Black Box Testing
 - 1.10.4. Testing Tools
 - 1.10.5. Program Documentation

Module 2. Software Engineering

- 2.1. Introduction to Software Engineering and Modeling
 - 2.1.1. The Nature of Software
 - 2.1.2. The Unique Nature of Webapps
 - 2.1.3. Software Engineering
 - 2.1.4. Software Process
 - 2.1.5. Software Engineering Practice
 - 2.1.6. Software Myths
 - 2.1.7. How It All Begins
 - 2.1.8. Object Oriented Concepts
 - 2.1.9. Introduction to UML
- 2.2. Software Process
 - 2.2.1. A General Process Model
 - 2.2.2. Prescriptive Process Models
 - 2.2.3. Specialized Process Models
 - 2.2.4. Unified Process
 - 2.2.5. Personal and Team Process Models
 - 2.2.6. What Is Agility?
 - 2.2.7. What Is an Agile Process?
 - 2.2.8. Scrum
 - 2.2.9. Agile Process Toolkit

- 2.3. Software Engineering Guiding Principles
 - 2.3.1. Process Guiding Principles
 - 2.3.2. Practice Guiding Principles
 - 2.3.3. Communication Principles
 - 2.3.4. Planning Principles
 - 2.3.5. Modeling Principles
 - 2.3.6. Building Principles
 - 2.3.7. Deployment Principles
- 2.4. Understanding Requirements
 - 2.4.1. Requirement Engineering
 - 2.4.2. Establishing Bases
 - 2.4.3. Requirements Inquiry
 - 2.4.4. Use Case Development
 - 2.4.5. Requirements Model Development
 - 2.4.6. Requirements Negotiation
 - 2.4.7. Requirements Validation
- 2.5. Requirements Modeling: Scenarios, Information and Types of Analysis
 - 2.5.1. Requirements Analysis
 - 2.5.2. Scenario-Based Modeling
 - 2.5.3. UML Models Providing Use Cases
 - 2.5.4. Concepts of Data Modeling
 - 2.5.5. Class-Based Modeling
 - 2.5.6. Class Diagrams
- 2.6. Requirements Modeling: Flow, Behavior and Patterns
 - 2.6.1. Strategy-Modeling Requirements
 - 2.6.2. Flow-Oriented Modeling
 - 2.6.3. Status Diagrams
 - 2.6.4. Creating Behavior Models
 - 2.6.5. Sequence Diagrams
 - 2.6.6. Communication Diagrams
 - 2.6.7. Requirements Modeling Patterns
- 2.7. Design Concepts
 - 2.7.1. Design in Software Engineering
 - 2.7.2. Design Process
 - 2.7.3. Design Concepts
 - 2.7.4. Object-Oriented Design Concepts
 - 2.7.5. Design Model
- 2.8. Architecture Design
 - 2.8.1. Software Design
 - 2.8.2. Architectural Genres
 - 2.8.3. Architectural Styles
 - 2.8.4. Architectural Design
 - 2.8.5. Evolution of Alternative Designs for Architecture
 - 2.8.6. Mapping Architecture Using Data Flows
- 2.9. Component-Level and Pattern-Based Design
 - 2.9.1. What Is a Component?
 - 2.9.2. Class-Based Component Design
 - 2.9.3. Producing Component-Level Designs
 - 2.9.4. Traditional Component Design
 - 2.9.5. Component-Based Development
 - 2.9.6. Design Patterns
 - 2.9.7. Pattern-Based Software Design
 - 2.9.8. Architectural Patterns
 - 2.9.9. Component-Level Design Patterns
 - 2.9.10. User Interface Design Patterns
- 2.10. Software Quality and Project Administration
 - 2.10.1. Quality
 - 2.10.2. Software Quality
 - 2.10.3. The Software Quality Dilemma
 - 2.10.4. Achieving Software Quality
 - 2.10.5. Ensuring Software Quality
 - 2.10.6. The Administrative Spectrum
 - 2.10.7. The Staff
 - 2.10.8. The Product
 - 2.10.9. The Process
 - 2.10.10. The Project
 - 2.10.11. Principles and Practices

Module 3. Video Game Engines

- 3.1. Video Games and Information Communication Technologies (ICTs)
 - 3.1.1. Introduction
 - 3.1.2. Opportunities
 - 3.1.3. Challenges
 - 3.1.4. Conclusions
- 3.2. History of Video Game Engines
 - 3.2.1. Introduction
 - 3.2.2. Atari
 - 3.2.3. The 80s
 - 3.2.4. First Engines: The 90s
 - 3.2.5. Current Engines
- 3.3. Video Game Engines
 - 3.3.1. Types of Engines
 - 3.3.2. Video Game Engine Parts
 - 3.3.3. Current Engines
 - 3.3.4. Selecting an Engine
- 3.4. Motor Game Maker
 - 3.4.1. Introduction
 - 3.4.2. Scenarios Design
 - 3.4.3. Sprites and Animations
 - 3.4.4. Collisions
 - 3.4.5. Scripting in Game Maker Languages (GML)
- 3.5. Unreal Engine 4: Introduction
 - 3.5.1. What Is Unreal Engine 4? What Is Its Philosophy?
 - 3.5.2. Materials
 - 3.5.3. UI
 - 3.5.4. Animation
 - 3.5.5. Particle Systems
 - 3.5.6. Artificial Intelligence
 - 3.5.7. Frames Per Second (FPS)
- 3.6. Unreal Engine 4: Visual Scripting
 - 3.6.1. Blueprints and Visual Scripting Philosophy
 - 3.6.2. Debugging
 - 3.6.3. Types of Variables
 - 3.6.4. Basic Flow Control
- 3.7. Unity 5 Engine
 - 3.7.1. C# y Visual Studio Programming
 - 3.7.2. Creating Prefabs
 - 3.7.3. Using Gizmos to Control Video Games
 - 3.7.4. Adaptive Engine: 2D and 3D
- 3.8. Godot Engine
 - 3.8.1. Godot Design Philosophy
 - 3.8.2. Object- and Composition-Oriented Design
 - 3.8.3. All in One Package
 - 3.8.4. Open and Community-Driven Software
- 3.9. RPG Maker Engine
 - 3.9.1. RPG Maker Philosophy
 - 3.9.2. Taking as a Reference
 - 3.9.3. Creating a Game with Personality
 - 3.9.4. Commercially Successful Games
- 3.10. Source 2 Engine
 - 3.10.1. Source 2 Philosophy
 - 3.10.2. Source and Source 2: Evolution
 - 3.10.3. Community Use: Audiovisual Content and Video Games
 - 3.10.4. Future of Source 2 Engine
 - 3.10.5. Successful Mods and Games

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 Technological 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 Technological 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.



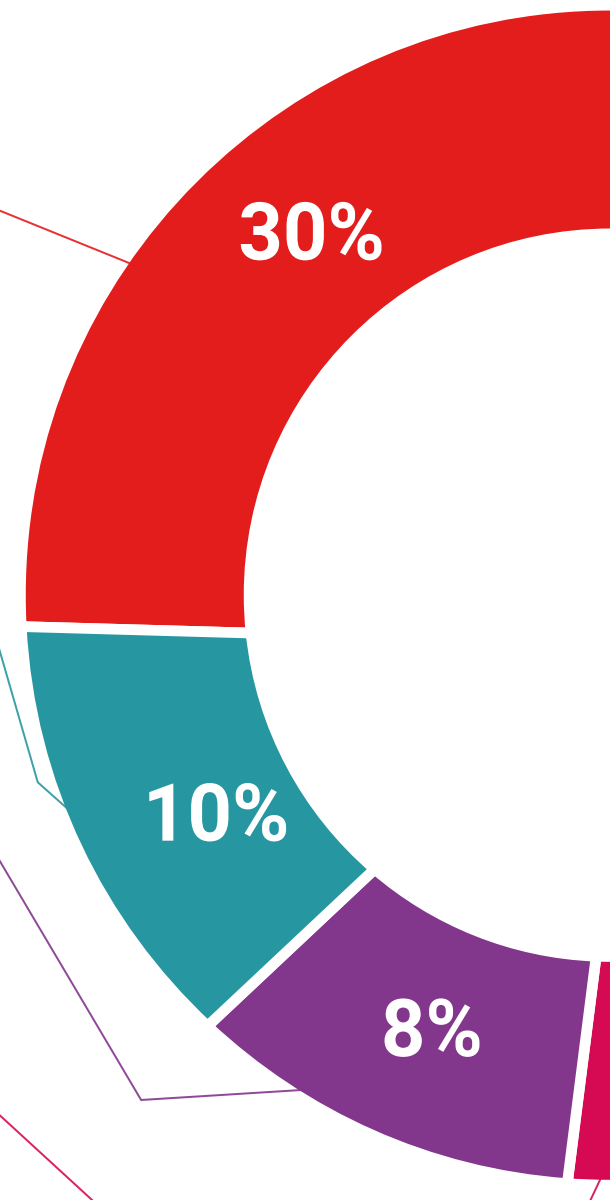
Practising Skills and Abilities

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 Diploma in Video Game Programming Management guarantees, in addition to the most rigorous and update training, access to a Postgraduate Diploma issued by TECH Technological University.



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

This **Postgraduate Diploma in Video Game Programming Management** contains the scientific most complete and update program on the market.

After you have passed the evaluations, you will receive your corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional from career evaluation committees.

Title: **Postgraduate Diploma in Video Game Programming Management**

Official N° of hours: **450 h.**



*Apostille Convention. In the event that the student wishes to have their paper certificate 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
online training
development language
classroom



Postgraduate Diploma Video Game Programming Management

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Postgraduate Diploma

Video Game Programming Management

