

# Postgraduate Diploma Testing Video Games



## Postgraduate Diploma Testing Video Games

- » 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-testing-video-games](http://www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-testing-video-games)

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# 01

# Introduction

Before a video game goes to market, it goes through a large number of processes and phases, from origin to launch. And one of the most important stages is testing. To make sure that a video game does not contain errors, exhaustive *Testings* is carried out to detect *Bugs* and malfunctions. Thus, to carry out this task requires in-depth knowledge of the subject, since it is necessary to know how to find these errors and why they occur. This program offers students all the skills to become great Video Game *Testers*, which will result in numerous career opportunities in this dynamic field.



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*Minimize errors in your company's video games and become an essential professional thanks to this Postgraduate Diploma”*

The last phase of a video game project is its market release, marking the moment when users and players can enjoy it. But to reach this stage, a series of complex processes have had to take place, from the Artistic and Narrative Conception, to the Marketing Strategy, through Programming and other highly relevant matters.

However, there is a vital task that is not usually given importance outside the industry: Testing. The *Testing* Phase is absolutely essential for the success of a Video Game, since it is here where the errors that can make it fail will be found. For this reason, this task has to be entrusted to real specialists who know how to deal with it and how to find as many *Bugs* as possible, with the aim of fixing them before the video game is released.

This Postgraduate Diploma in Video Game Testing offers students the best tools and knowledge so they can use them in their professional careers, thus being able to become essential assets in the most prestigious companies in the industry.

This **Postgraduate Diploma in Video Game Testing** 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 *Testing*
- ◆ 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



*Testing work is essential for any video game company. Enroll and advance professionally”*

“

*Without your work as a tester, your company's video games would fail. Specialize and achieve professional success immediately”*

*Your testing work will lead to the success of your company's video games.*

*Don't wait any longer. This is the program you were looking for to stand out in the Video Game Industry.*

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 Testing is to make students great experts in Testing, so they can join the best companies in the field performing this important work. Thus, its contents and approach are completely aimed at ensuring students achieve the best professional performance, opening the doors to this complex industry and making their careers advance immediately.





“

*Advance professionally in the  
Video Game Industry thanks to this  
Postgraduate Diploma”*



## General Objectives

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- ◆ Learn how to do Video Game *Testing*
- ◆ Detect Errors in Video Games during the Testing Phase
- ◆ Know the different Types of Errors that can be detected during the *Testing* phase
- ◆ Know how to Design and Develop a Video Game for more efficient *Testing*



*Your company will appreciate your work as a Tester. Enroll now”*





## Specific Objectives

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### Module 1. Real-Time Programming

- ◆ 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

### Module 2. Video Game Consoles and Devices

- ◆ Know the Basic Operation of the main Input and Output Peripherals
- ◆ Understand the main Design implications on different Platforms
- ◆ Study the Structure, Organization, Operation and Interconnection of Devices and Systems
- ◆ Understand the Role of Operating Systems and Development Kits for Mobile Devices and Video Game Platforms

### Module 3. Multiplayer Networks and Systems

- ◆ Describe the Transmission Control Protocol/Internet Protocol (TCP/IP) Architecture and the Basic Operation of Wireless Networks
- ◆ Analyze Video Games Security
- ◆ Develop Multiplayer Online Games

# 03

## Structure and Content

The contents of this Postgraduate Diploma in Video Game Testing are the most updated on the market, which means students will learn the most innovative skills and knowledge in the field, being able to apply them to their professional careers directly in their companies. With this program, students will learn everything they need for effective testing to detect errors that can cause their video games to fail, becoming, therefore, essential members in their companies.





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*Programming is essential for the video game process development. Specialize in one of the most sought-after positions by companies in the industry”*

## 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

## Module 2. Video Game Consoles and Devices

- 2.1. History of Programming in Video Games
  - 2.1.1. Atari (1977-1985)
  - 2.1.2. Nintendo and Super Nintendo Entertainment Systems (NES and SNES) (1985-1995)
  - 2.1.3. PlayStation / PlayStation 2 (1995-2005)
  - 2.1.4. Xbox 360, PlayStation 3 and Nintendo Wii (2005-2013)
  - 2.1.5. Xbox One, PlayStation 4 and Nintendo Wii U - Switch (2013-present)
  - 2.1.6. Future
- 2.2. History of Playability in Video Games
  - 2.2.1. Introduction
  - 2.2.2. Social Context
  - 2.2.3. Structural Diagram
  - 2.2.4. Future
- 2.3. Adapting to Modern Times
  - 2.3.1. Motion-Based Games
  - 2.3.2. Virtual Reality
  - 2.3.3. Augmented Reality
  - 2.3.4. Mixed Reality
- 2.4. *Unity: Scripting I* and Examples
  - 2.4.1. What Is a *Script*?
  - 2.4.2. Our First *Script*
  - 2.4.3. Adding a *Script*
  - 2.4.4. Opening a *Script*
  - 2.4.5. MonoBehavior
  - 2.4.6. *Debugging*
- 2.5. *Unity: Scripting II* and Examples
  - 2.5.1. Enter Keyboard and Mouse
  - 2.5.2. Raycast
  - 2.5.3. Installation
  - 2.5.4. Variables:
    - 2.5.5. Public and Serialized Variables
- 2.6. *Unity: Scripting III* and Examples
  - 2.6.1. Obtaining Components
  - 2.6.2. Modifying Components
  - 2.6.3. Testing
  - 2.6.4. Multiple Objects
  - 2.6.5. *Colliders* and *Triggers*
  - 2.6.6. Quaternion
- 2.7. Peripherals
  - 2.7.1. Evolution and Classification
  - 2.7.2. Peripherals and Interface
  - 2.7.3. Current Peripherals
  - 2.7.4. Near Future
- 2.8. Video Games: Future Perspectives
  - 2.8.1. Cloud-Based Games
  - 2.8.2. Controller Absence
  - 2.8.3. Immersive Reality
  - 2.8.4. Other Alternatives
- 2.9. Architecture
  - 2.9.1. Special Video Game Requirements
  - 2.9.2. Architecture Evolution
  - 2.9.3. Current Architecture
  - 2.9.4. Differences between Architectures
- 2.10. Development Kits and Evolution
  - 2.10.1. Introduction
  - 2.10.2. Third Generation Development Kits
  - 2.10.3. Fourth Generation Development Kits
  - 2.10.4. Fifth Generation Development Kits
  - 2.10.5. Sixth Generation Development Kits

### Module 3. Multiplayer Networks and Systems

- 3.1. History and Evolution of Multiplayer Video Games
  - 3.1.1. The 1970s: First Multiplayer Games
  - 3.1.2. The 90s: Duke Nuke, Doom and Quake
  - 3.1.3. Rise of Multiplayer Video Games
  - 3.1.4. Local or Online Multiplayer
  - 3.1.5. Party Games
- 3.2. Multiplayer Business Models
  - 3.2.1. Origin and Function of Emerging Business Models
  - 3.2.2. Online Sales Services
  - 3.2.3. Free to Play
  - 3.2.4. Micropayments
  - 3.2.5. Advertising
  - 3.2.6. Monthly Payment Subscription
  - 3.2.7. Pay to Play
  - 3.2.8. Try before You Buy
- 3.3. Local and Network Games
  - 3.3.1. Local Games: Beginnings
  - 3.3.2. Party Games: Nintendo and Family Union
  - 3.3.3. Networks Games: Beginnings
  - 3.3.4. Network Games Evolution
- 3.4. OSI Model: Layers I
  - 3.4.1. OSI Model: Introduction
  - 3.4.2. Physical Layer
  - 3.4.3. Data Link Layer
  - 3.4.4. Network Layer
- 3.5. OSI Model: Layers II
  - 3.5.1. Transport Layer
  - 3.5.2. Session Layer
  - 3.5.3. Presentation Layer
  - 3.5.4. Application Layer





- 3.6. Computer Networks and the Internet
  - 3.6.1. What Are Computer Networks?
  - 3.6.2. Software
  - 3.6.3. Hardware
  - 3.6.4. Servers
  - 3.6.5. Network Storage
  - 3.6.6. Network Protocols
- 3.7. Mobile and Wireless Networks
  - 3.7.1. Mobile Networks
  - 3.7.2. Wireless Networks
  - 3.7.3. How Mobile Networks Work
  - 3.7.4. Digital Technology
- 3.8. Security
  - 3.8.1. Personal Security
  - 3.8.2. Video Game *Hacks* and *Cheats*
  - 3.8.3. Anti-Cheating Security
  - 3.8.4. Anti-Cheating Security Systems Analysis
- 3.9. Multiplayer Systems: Servers
  - 3.9.1. Server Hosting
  - 3.9.2. Massively Multiplayer Online (MMO) Video Games
  - 3.9.3. Dedicated Video Game Servers
  - 3.9.4. Local Area Network (LAN) Parties
- 3.10. Multiplayer Video Game Design and Programming
  - 3.10.1. Multiplayer Video Game Design Basics in Unreal
  - 3.10.2. Multiplayer Video Game Design Basics in Unity
  - 3.10.3. How to Make a Multiplayer Game Fun
  - 3.10.4. Beyond a Controller: Multiplayer Controller Innovation

# 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"*

## 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.



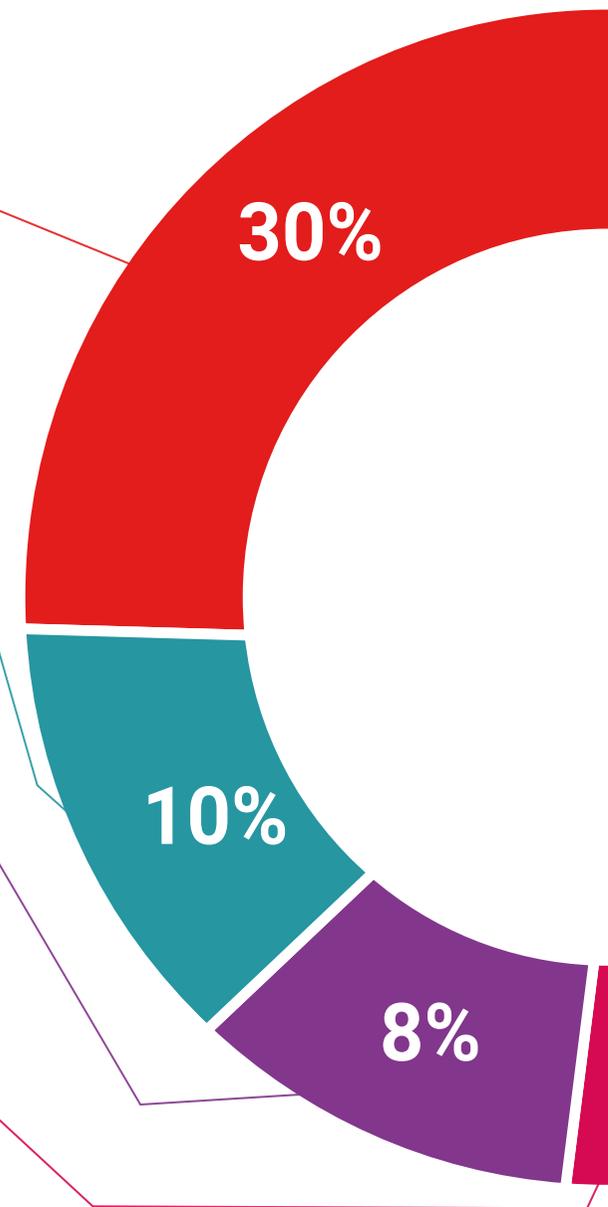
### Practicing Skills and Abilities

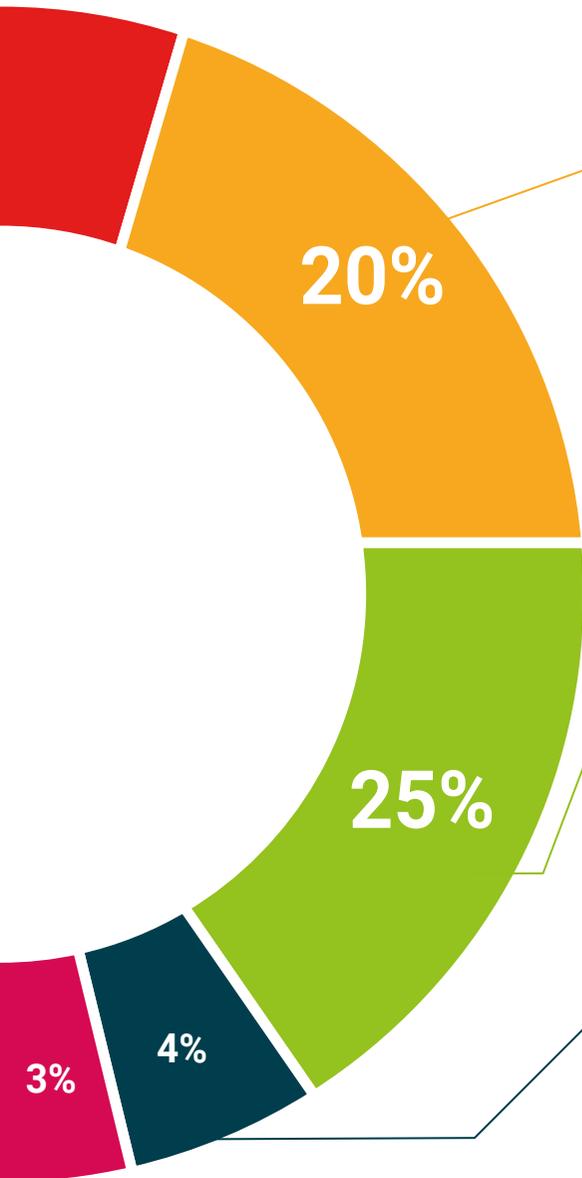
They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



### 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 Testing guarantees, in addition to the most rigorous and up-to-date training, access to a qualification issued by TECH Global University.



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*Successfully complete this training program  
and receive your diploma without travel or  
laborious paperwork”*

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

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**



health future  
confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
online training  
development language  
classroom



## Postgraduate Diploma Testing Video Games

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- » Duration: 6 months
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# Postgraduate Diploma Testing Video Games

