

# Postgraduate Diploma Video Game Testing



## Postgraduate Diploma Video Game Testing

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

Website: [www.techtitute.com/pk/videogames/postgraduate-diploma/postgraduate-diploma-video-game-testing](http://www.techtitute.com/pk/videogames/postgraduate-diploma/postgraduate-diploma-video-game-testing)

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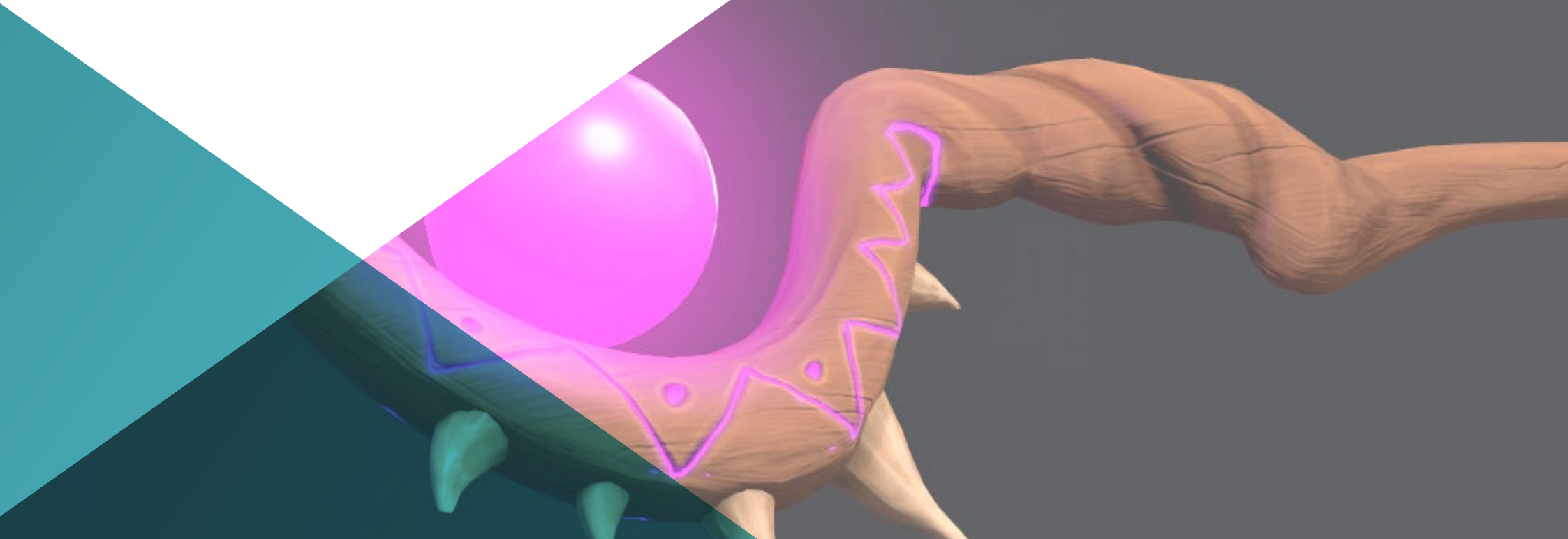
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# 01

# Introduction

Over the years, many video games have been published full of bugs that have led to the downfall of entire companies. There is a process that could have prevented this: Testing. It consists of subjecting work to a review process in order to find as many errors and flaws as possible, so the game is published in its most optimal form. Large companies, therefore, need talented testers for their creations to be successful, and this program precisely offers its students all the necessary knowledge to become specialists in this process, positioning them to succeed in the video game industry.





“

*Lead your company to success by ensuring that your video games are published without errors thanks to this Postgraduate Diploma”*

When a video game is released without proper testing, negative events can befall the company: players spend money on an unfinished product, resulting in complaints that damage the company's reputation, which, in turn, causes that video game's sales and the company's future titles to decline.

As such, an inadequate or non-existent Testing phase can ultimately lead to the demise of the company. That is why it is so important, and why companies are giving more and more importance to the role of Testers. However, to perform this task, one must possess specific knowledge in the field, since not just anyone can occupy a position of such responsibility.

For that reason, this Postgraduate Diploma in Video Game Testing is the answer for all those who endeavor to work in this industry as Testers in one of the big companies. The program offers students all the knowledge they require to carry out various types of tests and simulations in video games, so as to ensure that they are published without errors, thereby favoring their commercial success.

This **Postgraduate Diploma in Video Game Testing** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ Practical cases presented by experts in video game Testing
- ◆ 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 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
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*The knowledge you're looking for to become a great video game tester is right here"*

“

*You've always wanted to be the first to test new video games, and this course will help you get there"*

*Companies are looking for testing specialists to make their video games successful.*

*You need specific knowledge to work as a Tester. This educational program teaches you everything about the profession.*

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 specialization programmed to learn in real situations.

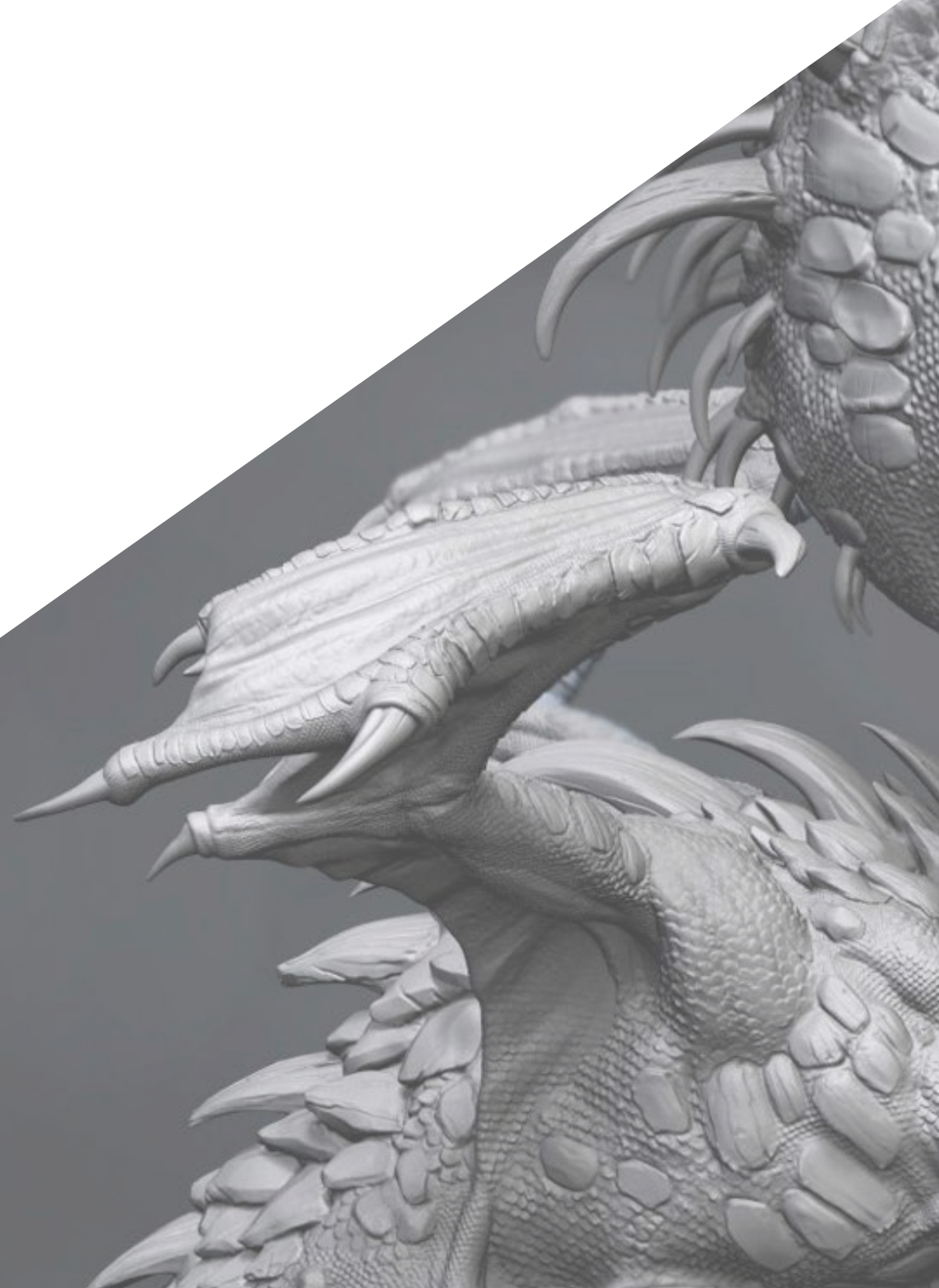
This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.



# 02

# Objectives

Video game testing is vital for companies, so specializing can bring great professional opportunities to those who acquire specific knowledge in the field. As such, the primary objective of this Postgraduate Diploma in Video Game *Testing* is to provide students with all the skills and abilities they require to become elite specialists who are highly valued by their companies, by conducting all kinds of tests and checks on their products to ensure they work as intended.







“

*All your goals will be within your reach when you complete 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

“

*Successfully test different types of video games and become an integral part of your company”*





## 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 ones
- ◆ Understand the basic concepts behind computer systems
- ◆ Acquire the ability to apply the main bases and techniques in real-time programming

### Module 2. Consoles and Devices for Video Games

- ◆ Know the basic functioning of the main input and output peripherals
- ◆ Understand the main implications of design for different platforms
- ◆ Study the structure, organization, functioning and interconnection of devices and systems
- ◆ Understand the function of the operative system and the 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 to analyze video game security
- ◆ Develop multiplayer online games

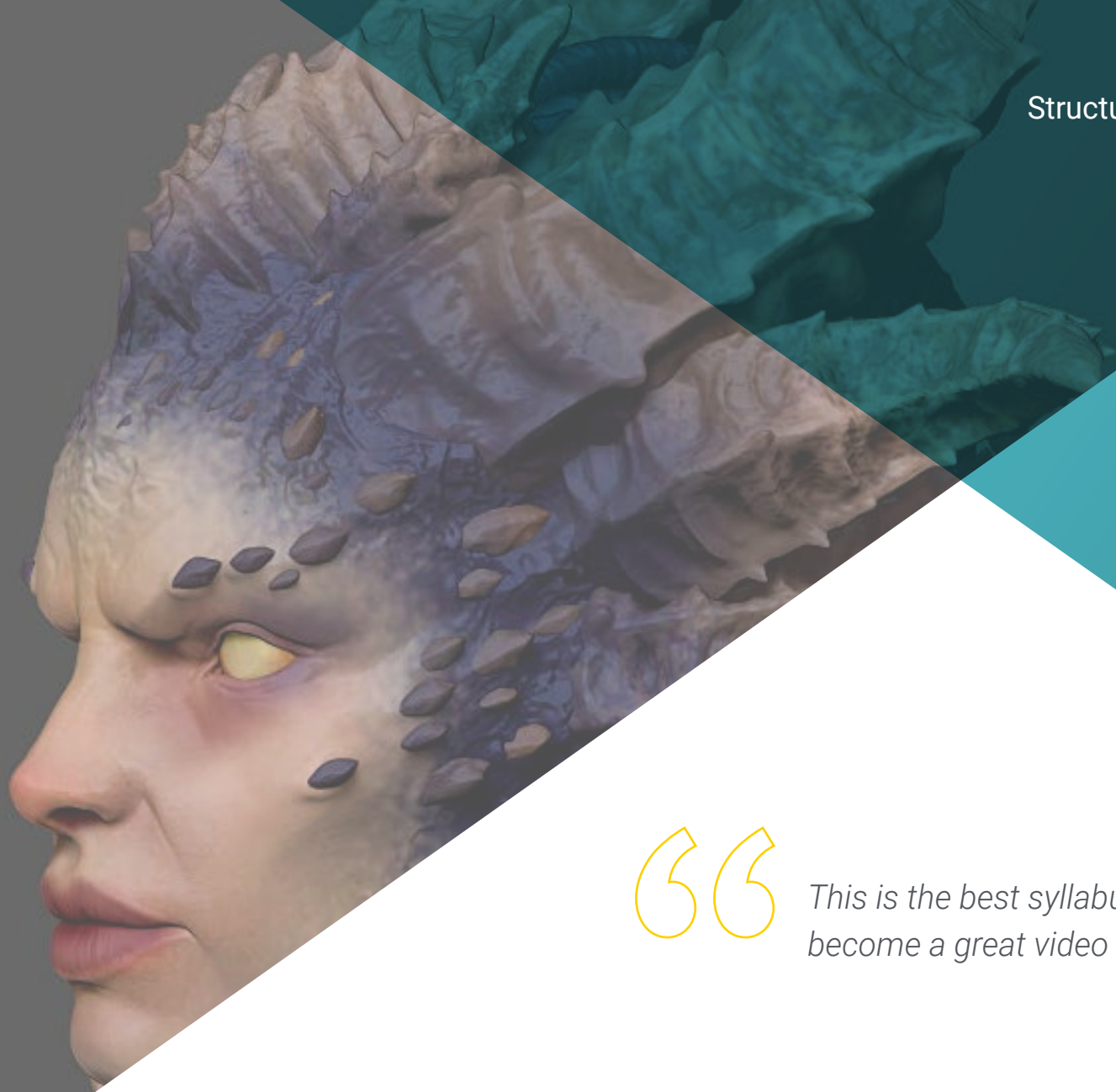


# 03

## Structure and Content

To ensure students learn everything they need to become great testers, the Postgraduate Diploma in Video Game Testing offers them the best content in this area, developing specific and extensive knowledge so they receive a comprehensive education. Students will learn everything about programming in real time, about the operation of consoles and devices, and about networks and multiplayer systems. With this syllabus, students will become great specialists in video game testing.





“

*This is the best syllabus you will find to become a great video game tester”*

## 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 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. 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

## Module 2. Consoles and Devices for Videogames

- 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. The Future
- 2.2. History of Gameplay in Video Games
  - 2.2.1. Introduction
  - 2.2.2. The Social Context
  - 2.2.3. Structural Diagram
  - 2.2.4. Future
- 2.3. Adapting to Modern Times
  - 2.3.1. Games Based on Movement
  - 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. Keyboard and Mouse Input
  - 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. Quaternions
- 2.7. Peripherals
  - 2.7.1. Evolution and Classification
  - 2.7.2. Peripherals and Interfaces
  - 2.7.3. Current Peripherals
  - 2.7.4. Near Future
- 2.8. Video Games: Future Perspectives
  - 2.8.1. Games Based in the Cloud
  - 2.8.2. Absence of Controllers
  - 2.8.3. Immersive Reality
  - 2.8.4. Other Alternatives
- 2.9. Architecture
  - 2.9.1. Special Needs in Video Games
  - 2.9.2. Evolution of Architecture
  - 2.9.3. Current Architecture
  - 2.9.4. Differences Between Architecture
- 2.10. Development Kits and Their Evolution
  - 2.10.1. Introduction
  - 2.10.2. Third Generation of Development Kits
  - 2.10.3. Fourth Generation of Development Kits
  - 2.10.4. Fifth Generation of Development Kits
  - 2.10.5. Sixth Generation of 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 Nukem, Doom and Quake
  - 3.1.3. The 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. Microtransactions
  - 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 on 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 the 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"*

## 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.*



### 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 student will learn to solve complex situations in real business environments through collaborative activities and real cases.*

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.



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.



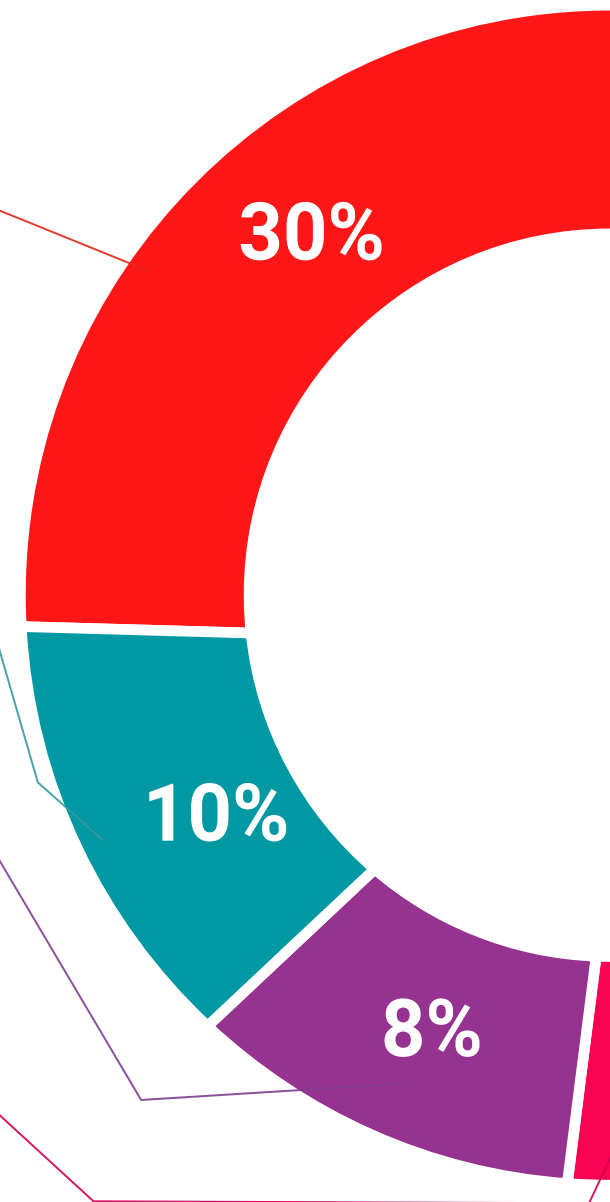
### Practising Skills and Abilities

They will carry out activities to develop specific 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.

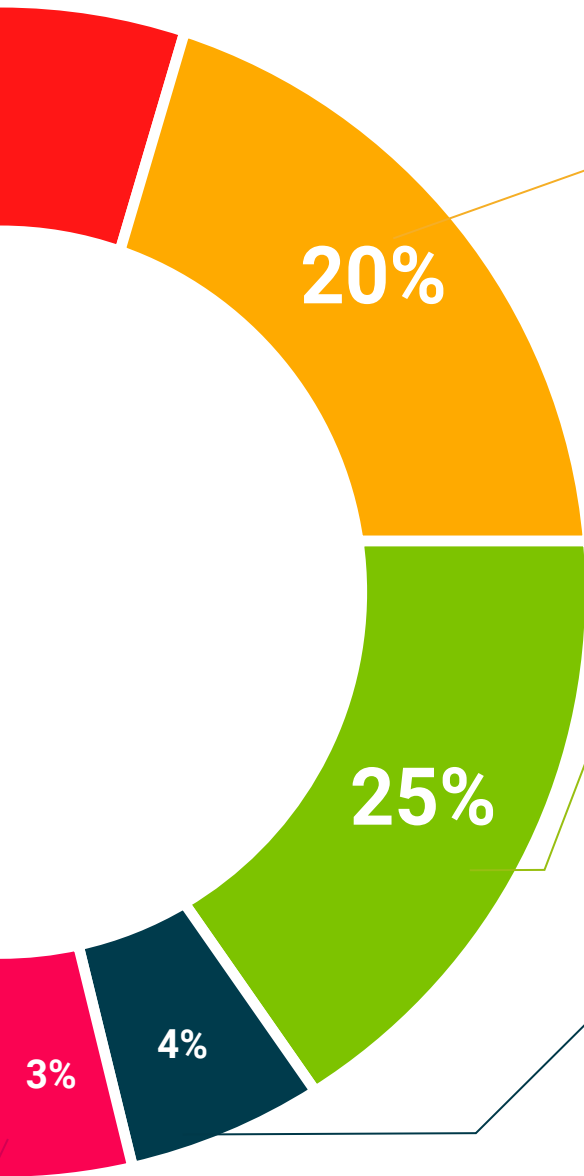


### Additional Reading

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

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 Diploma in Video Game Testing guarantees students, in addition to the most rigorous and up-to-date education, access to a qualification issued by TECH Technological University.



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*Successfully complete this program  
and receive your university qualification  
without having to travel or fill out laborious  
paperwork”*

This **Postgraduate Diploma in Video Game Testing** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their 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 it meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Video Game Testing**

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.



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