# Postgraduate Diploma

## Advanced Rigging
## for Video Games

tech *global university*

# Postgraduate Diploma
## Advanced Rigging
## for 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/videogames/postgraduate-diploma/postgraduate-diploma-advanced-rigging-video-games**

# Index

# 01
# Introduction

There is a conception that developing a video game is a long and tedious task, and this is partly true. However, as in all areas, if the right tools and techniques are available, the process becomes more enjoyable. Therefore, in this qualification the professional will learn to work, among other things, with the Unity video game engine. Used in titles such as Hearthstone, Pokemon Go or Hitman Sniper. An accessible engine that offers all the functionalities a *Rigger* may need. In addition, the methodology is 100% online and without timetables, which allows students to organize themselves according to their own schedule and facilitates work-life balance.

> *TECH will teach you how to work with Unity, the video game engine behind such successful titles as Hearthstone or Pokemon Go"*

For a project to be realistic, it is not enough to know how to use video game development tools. There are many other complementary techniques that also influence the final result. One of the most important is cybersecurity. Above all, in the Rigger's work, elaborating a correct skeleton is fundamental to facilitate the animator's work and create a good product.

The syllabus delves into Rigging for video games, with the aforementioned Unity engine and other tools with Mixamo. There are also additional techniques that complement the basic techniques of the Rigger's work. For example, retopology, 2D facial Rig on 3D models or video editing for Reel.

On the other hand, the elements that form part of a muscular system will be detailed, capsules will be created to elaborate muscular systems, the professional use of the Muscle Builder tool will be learned and skin deformation will be configured, among other techniques related to human anatomy.

All of them, in a 100% online mode and without timetables. So that the student can access the contents as and when he/she wants. In addition, the entire syllabus will be available from the first day, to facilitate personal and work conciliation.

This **Postgraduate Diploma in Advanced Rigging for Videogames** contains the most complete and up-to-date program on the market. The most important features include:

- Case studies presented by experts in videogame Rigging
- 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
- 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

*Working with muscle systems can lead to performance problems. Solve them with the theme that has been dedicated to caching"*

*" The program makes a professional review of tools such as Mixamo and Human IK, or techniques such as retopology and Motion Tracking"*

*Take your project to the next level with the use of Plugins like MGTools Pro3 or Autodesk Maya Bonus Tools.*

*In TECH you will learn how to generate synergies by exporting movie skeletons to video games through Python.*

The program includes, in its teaching staff, professionals from the sector who bring to this program the experience of their work, in addition to recognized specialists from prestigious reference societies and 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 education 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 Postgraduate Diploma in Advanced Rigging for Video Games Postgraduate Diploma will provide the keys to face a sector in constant change. They will learn the techniques and tools most used by Riggers nowadays, both main and complementary. In addition, a complete anatomical analysis will be performed so that future projects are realistic and attractive to the public.

"
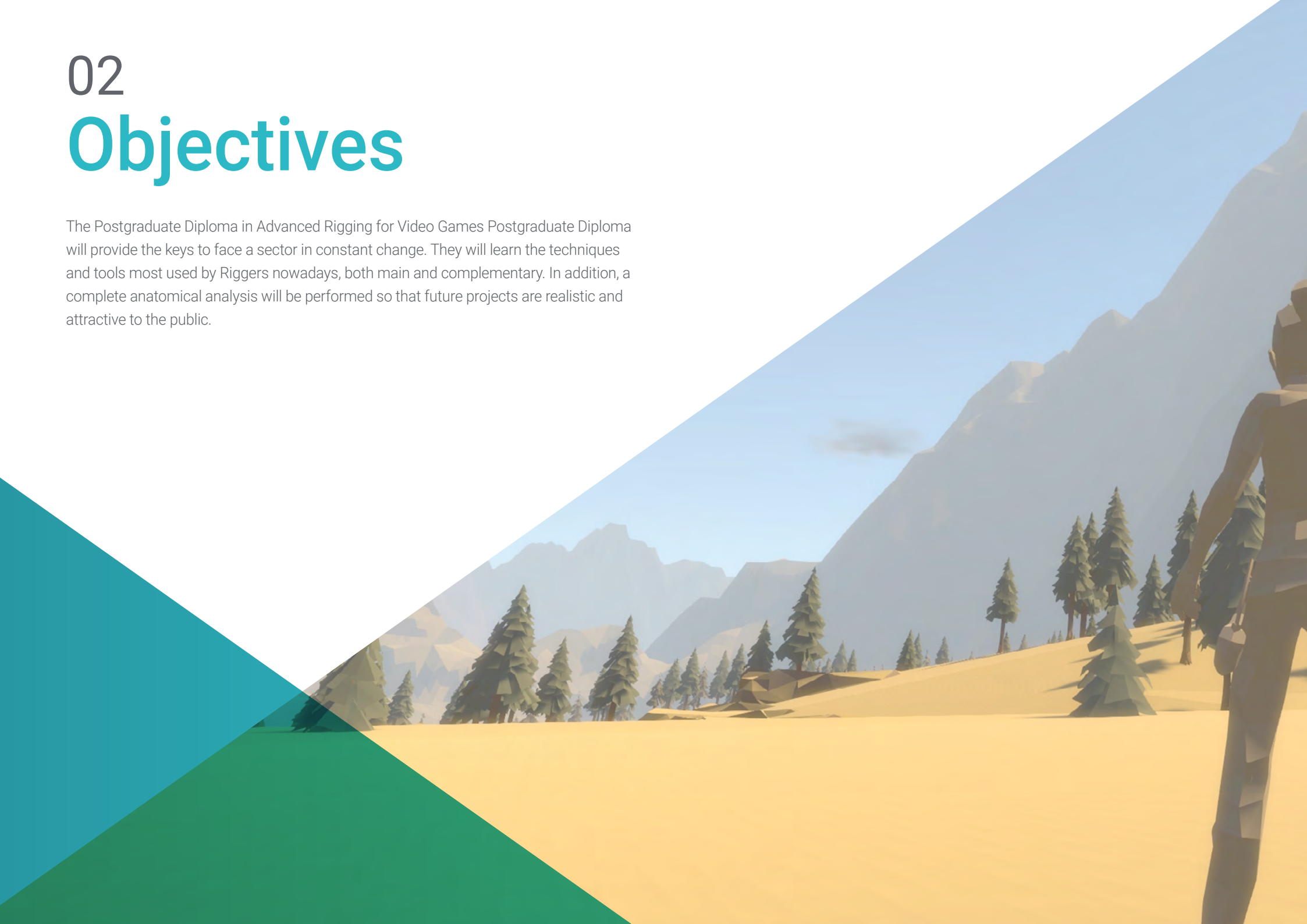
*Learn how to use Unity, one of the most widely used video game engines by the industry's leading companies"*

## General Objectives

- To deepen in the peculiarities of Rigging for videogames
- Perform different processes in video game engines
- Apply online resources to Rigging for videogames
- Study human anatomy to apply it to Rigging
- Control complementary tools to the work of the Rigger

*Learn how to generate realistic movements with the best Motion Tracking techniques and tips"*

## Specific Objectives

### Module 1. Rigging for Video Games

- Analyze the differences between movie rigs and video games
- Know the limitations of Rigging in video game engines
- To know Unity video game engine in a professional way
- Configure a Rig in Unity with Humanoid system
- Adapt a cinematic rig for video games
- Exporting and importing our Rig in the game engine
- Designing online resources for rigging and animation in videogames
- Adapt Rigs and online animations to our character

### Module 2. Muscular Systems

- Specialized knowledge of the use of muscular systems in film productions
- Analyze the muscular anatomy of the human body
- Conceiving the elements involved in a muscular system
- Creating and editing capsules from scratch for muscle systems
- Learn how to use the Muscle Builder tool of Autodesk Maya in a professional way
- Configuring skin deformation with muscular system
- Configuring muscle behavior
- Configure our character's muscle collisions
- Working with the cache to optimize muscle mechanisms

### Module 3. Processes and extra tools for the Rigger in Industry

- Organize the Rig elements in our scene
- Manage the weighting of deformation influences of our Rig
- Prepare and protect the model for the animator's use
- Be highly knowledgeable in the technique of retopology
- Develop a 2D facial Rigging system on 3D models
- Master Spine2D as a 2D Rig and animation software
- Download and install plugins and online tools in our Autodesk Maya program
- Handle Motion Tracking in a professional way
- Develop professional set-up with the MGTools Pro 3 tool
- Develop auto rigs with Rdm Tools v2
- Edit and develop a presentation Reel of our Rig
- Training on how to search for official documentation online

03

# Course Management

The management of this Postgraduate Diploma has selected a complete and updated syllabus. With all the elements that concern the work of the Rigger for video games. You will learn to use the most current tools and the most innovative techniques, complemented techniques, complementing them with an anatomical study to create realistic rigs. During the process will be present a faculty expert in the field and with extensive experience in and with a wide experience in the sector will be present during the process.

"
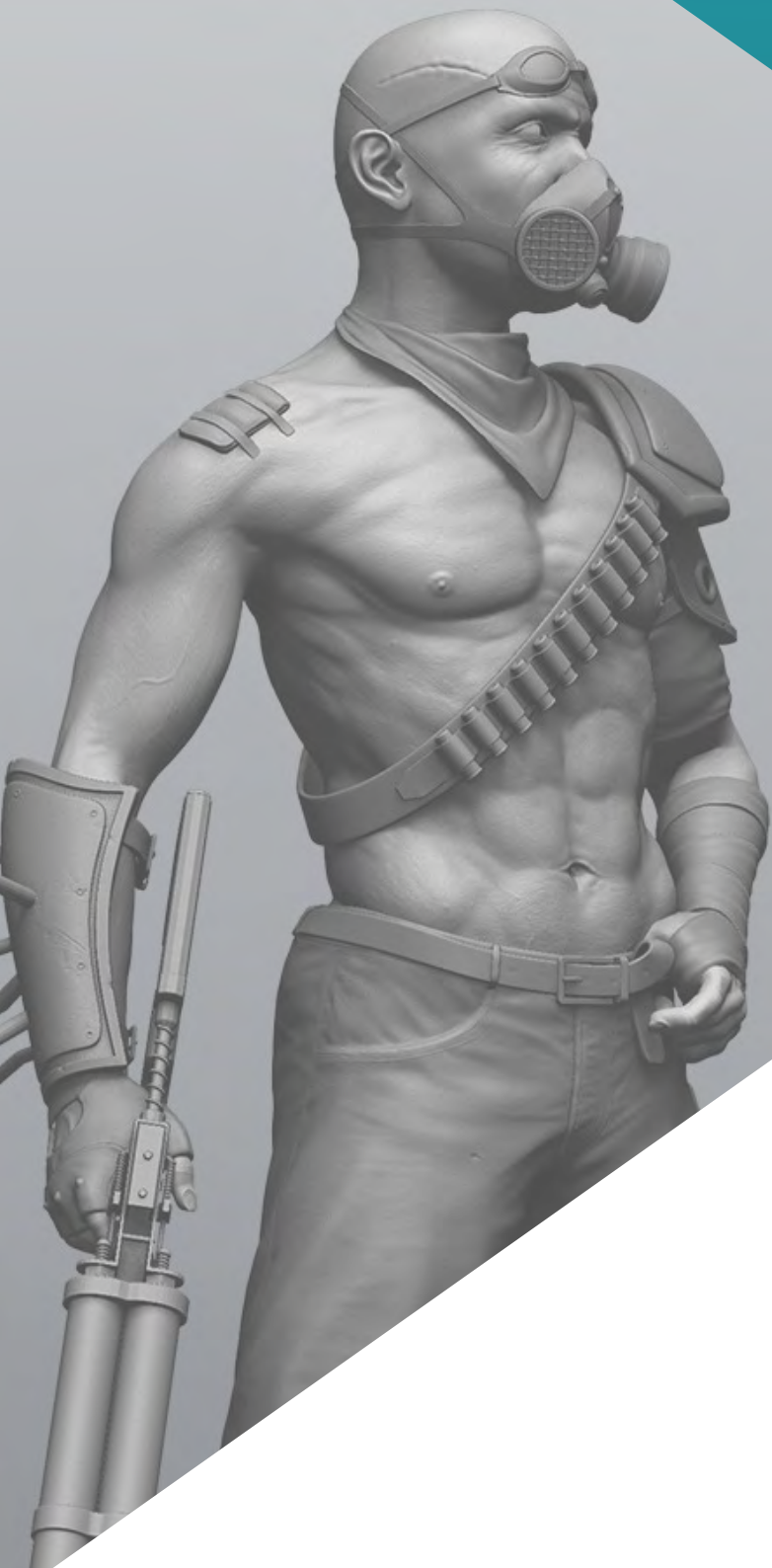
*The teaching staff of this Postgraduate Diploma has been selected from among the best in the industry to provide you with the best quality learning"*

## International Guest Director

Jessica Bzonek is a leading **designer** and **creator** of **3D characters**, with more than ten years of experience in the **video game** industry that have established her as an influential professional in the international scene. In fact, her career has been characterized by her commitment to **innovation** and **collaboration**, fundamental aspects in her work, where **technology** and **art** are creatively intertwined. She has contributed to the realization of important **animation projects**, including **"Avatar: Frontiers of Pandora"** and **"The Division 2: Year 4",** which has consolidated her reputation as an expert in the creation of **pipelines** and **rigging**.

She has also held the position of **Associate Technical Director of Cinematics** at **Ubisoft Toronto**, where she has been essential in the production of high-quality **cinematic sequences**. Here, she has been particularly noted for her participation as a **co-presenter** at the 2**024 Ubisoft Developers Conference**, a testament to her leadership in the industry. She has also played a crucial role at **Stellar Creative La**b, where she co-developed a **custom automated system** for **character rigs**. In this regard, her ability to manage the communication of issues and solutions between departments has been instrumental in optimizing workflows.

Jessica Bzonek's career has also included significant work at **DHX Media**, where she has worked closely with supervisors and other **pipeline** workers to solve problems and test new tools, organizing learning sessions that have promoted team cohesion. At **Rainmaker Entertainment Inc.** he has developed **character and element rigs**, using a **modular rigging system** that has improved the functionality of the production process. Finally, her work as a **Junior Rigging Artist**, at **Bardel Entertainment**, has allowed her to develop **scripts** to optimize the **workflow**.

# Ms. Bzonek, Jessica

- Associate Technical Director of Cinematics at Ubisoft, Toronto, Canada
- Technical Director of Pipeline / Rigging at Stellar Creative Lab
- Pipeline Technical Director at DHX Media
- Character Pipeline Technical Director at DHX Media
- Creature Pipeline Technical Director at Rainmaker Entertainment Inc.
- Junior Rigging Artist at Bardel Entertainment
- Course in 3D Animation and Visual Effects at the Vancouver Film School
- Course in Advanced Character Rigging by Gnomon
- Course in Introduction to Python by UBC - Continuing Education
- B.A. in Multimedia and History from McMaster University

*Thanks to TECH, you will be able to learn with the best professionals in the world"*

## Management

**Mr. Guerrero Cobos, Alberto**

- Rigger and animator Video Games video game Vestigion Lovem Games
- Master of Art and Production in Animation by the University of South Wales
- Master in 3D Character Modeling at ANIMUM
- Master in 3D Character Animation for Film and Video Games by ANIMUM
- Degree in Multimedia and Graphic Design at the University School of Design and Technology (ESNE)

## 04
# Structure and Content

This qualification analyzes Rigging for video games from different perspectives It will delve into the Unity engine for video games and the 3D graphics developer Mixamo, techniques such as skinning, facial rigging or the adaptation of film rigging for video games, and tools such as Human IK A module has been reserved to deal with human anatomy and its behavior, with tools such as Muscle Builder or Muscle Spline Deformer Finally, a number of very useful tools and techniques have been included, for example Spine 2D, MGtools Pro3 or Motion Tracking systems.

*In TECH you will learn how to use anatomical modeling tools such as Muscle Builder and Muscle Spline Deformer"*

## Module 1. Rigging for Video Games

1.1.  Rigging for Video Games in Unity
    1.1.1.  Film and Video Game Rig
    1.1.2.  Download and Installation
    1.1.3.  Unity Interface and Navigation
1.2.  Unity Rigging Tools
    1.2.1.  Unity Rig Types
    1.2.2.  Avatar Tool
    1.2.3.  Retargeting
1.3.  Rigging Facial para videojuegos
    1.3.1.  Problem and Solution Approach
    1.3.2.  System Creation
    1.3.3.  Painting of Influences
1.4.  Adapt a Cinematic Rig to Video Games
    1.4.1.  Rig Exploration and Limitations
    1.4.2.  Creation of skeleton for Unity Humanoid
    1.4.3.  Connecting Video Game Skeleton to Movie Skeleton with Python
1.5.  Skinning for Video Games
    1.5.1.  Limitations of Skin Cluster Deformer for Unity
    1.5.2.  Influence Weighing
    1.5.3.  Facial controllers treatment
1.6.  Completed Rig for Video Games
    1.6.1.  Character clothing Rig
    1.6.2.  Root Motion and Character Weapons
    1.6.3.  Juntas de Torsión
1.7.  Human IK
    1.7.1.  Human IK Tool
    1.7.2.  Creation of Character Definition
    1.7.3.  Eyes, Auxiliary Joints and Rig Control
1.8.  Mixamo
    1.8.1.  Free Rig Tool and Mixamo animations
    1.8.2.  Library of Characters and Animations
    1.8.3.  Rig Creation with Mixamo
1.9.  Import and Export of Rigs and Animations
    1.9.1.  Export
    1.9.2.  Import
    1.9.3.  Baking Animations
1.10.  Rig Import in Unity
    1.10.1.  Rig import Configuration in Unity
    1.10.2.  Humanoid Configuration
    1.10.3.  Rig Physics Configuration

## Module 2. Muscular Systems

2.1.  Muscular Systems
    2.1.1.  Muscular Systems
    2.1.2.  Behavior of Elastic Masses
    2.1.3.  Workflow with Maya Muscle System
2.2.  Muscular Anatomy Focused on Character Rigging
    2.2.1.  Upper Body
    2.2.2.  Undercarriage
    2.2.3.  Arms
2.3.  Capsule Creation
    2.3.1.  Capsule Creation
    2.3.2.  Capsule Configuration
    2.3.3.  Conversion of Rig Elements To Capsules
2.4.  Muscle Building
    2.4.1.  Muscle Creation Window
    2.4.2.  State of Poses and Muscle Sculpting
    2.4.3.  Muscle Editing
2.5.  Muscle Builder Tool
    2.5.1.  Muscle Building with Muscle Builder
    2.5.2.  Muscle Shape Editing
    2.5.3.  Muscle Finish
2.6.  Muscle Spline Deformer with Muscle Spline Deformer
    2.6.1.  Create Muscle Spline Deformer
    2.6.2.  Spline Deformer Configuration
    2.6.3.  Master Muscle Control

## Module 3. Processes and Extra Tools for the Rigger in Industry

*"Thanks to TECH you will learn how to auto rig with Rdm Tools v2 and speed up your projects"*

# 05
# 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.

### 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.

**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.

# Certificate

The Postgraduate Diploma in Advanced Rigging for Video Games guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Diploma in Advanced Rigging for Video Games** 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 Advanced Rigging for Video Games**

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 Advanced Rigging for Video Games**

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
### Advanced Rigging
### for Video Games

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

# Postgraduate Diploma
## Advanced Rigging
## for Video Games

tech global university