



# Postgraduate Certificate

## Technical Animation Systems, Skeletal Meshes and Ragdoll Systems



## Postgraduate Certificate Technical Animation Systems, Skeletal Meshes and Ragdoll Systems

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Accreditation: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/design/postgraduate-certificate/technical-animation-systems-skeletal-meshes-ragdoll-systems](http://www.techtute.com/us/design/postgraduate-certificate/technical-animation-systems-skeletal-meshes-ragdoll-systems)

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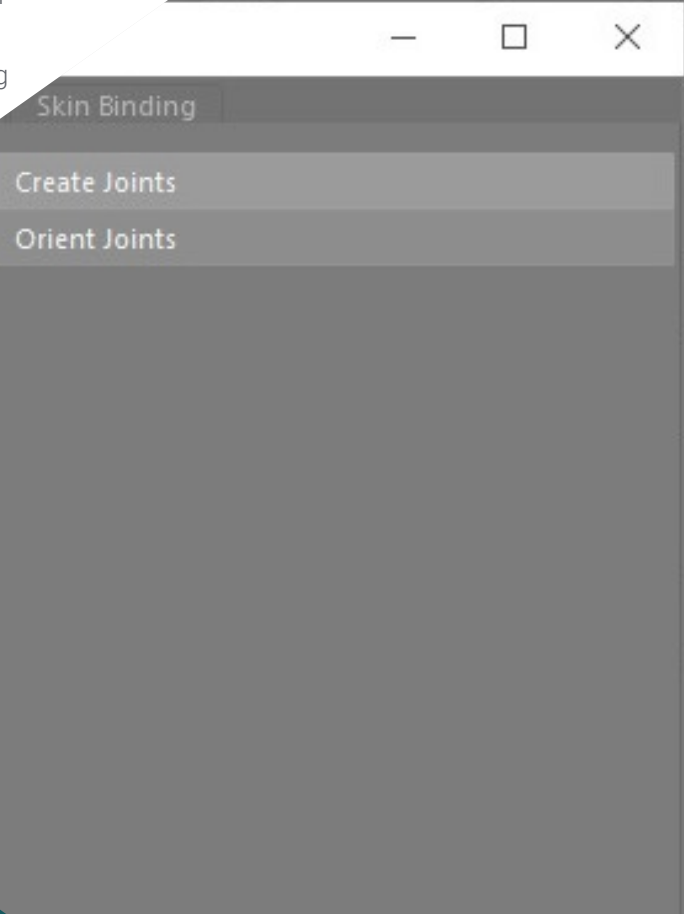
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# 01

# Introduction

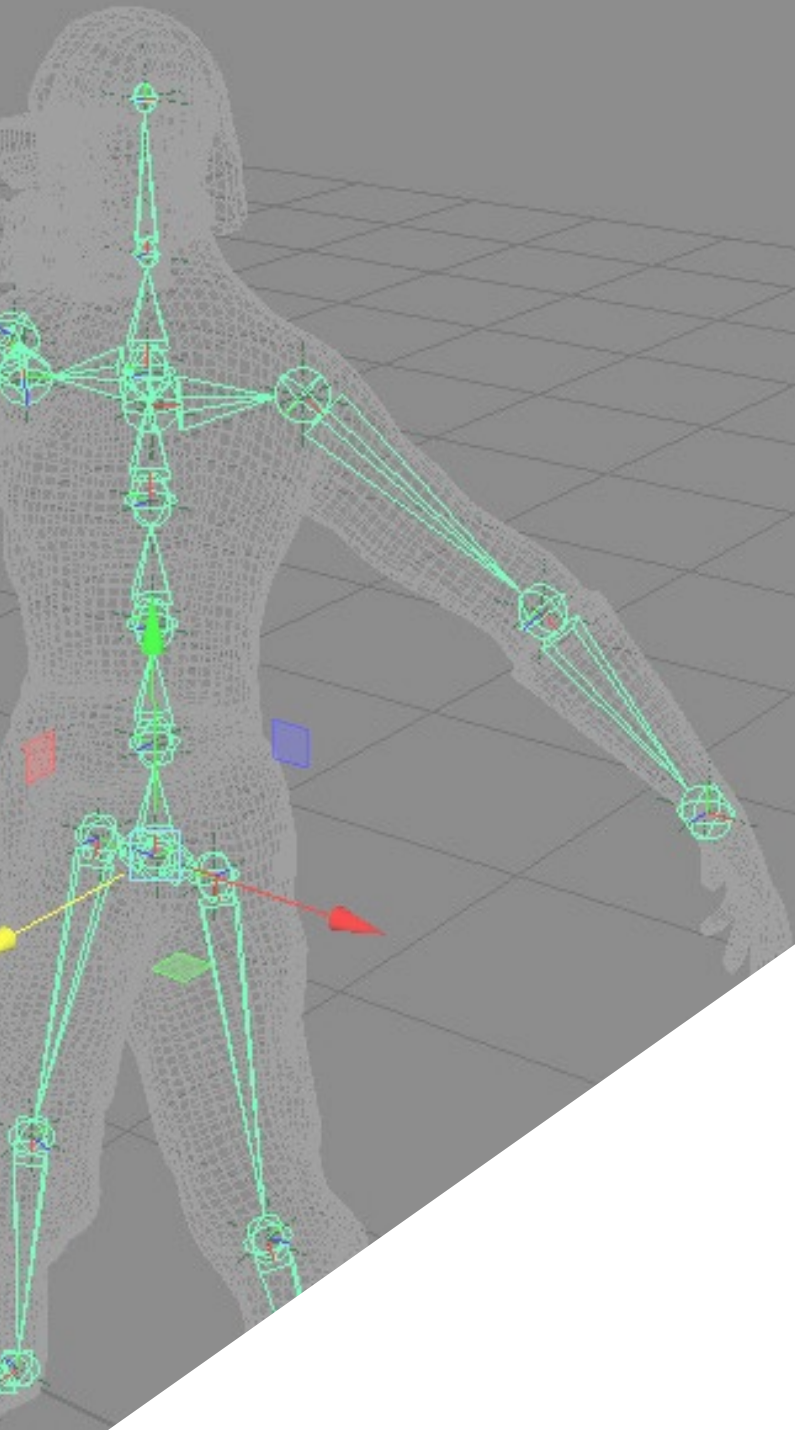
To offer a better experience to the public, the audiovisual entertainment industry seeks to give its characters an animation that allows realistic movements, providing a product of higher quality and design. This is something that the producers demand from the creatives, since they are the ones in charge of bringing inanimate figures to life through *ragdoll* or *skeletal meshes techniques*. However, the operation of these advanced systems requires specialized knowledge, especially in the field of video games, where the demands are high. For this reason, TECH has created the present program, with distinctive practical and additional theoretical material that delves into the most useful resource libraries, as well as the technical processes involved in character creation. All of this in a 100% online format, without face-to-face classes or preset schedules giving you flexibility for the specialists themselves.



Skin Binding

Create Joints

Orient Joints



“

*Do you want to stand out with your character design and make them as globally relevant as Mario Bros, Sonic and even Pikachu? Learn in this program how to give them the iconic features to make them known around the globe"*

Today's technology far exceeds the limits of imagination. The ability of designers and artists to create perfectly animated and believable video game characters knows no limits. The demand for professionals specialized in this area is growing exponentially, at the same time as the industry is booming. For this reason, design students and professionals must modify their capabilities and improve their skills to grow both their work and their own personal brand, and can direct their careers towards the most prestigious studios in the industry.

This context has motivated the creation of the Postgraduate Certificate in Technical Animation Systems, Skeletal Meshes and Ragdoll System. In it, a group of highly qualified experts in the video game sector have poured all their knowledge, both theoretical and practical, of the animation and prototyping processes of video games at the highest level.

TECH offers its students a program full of updates in the field of animation, in order to give movement, personification and unique characteristics to fictional and non-fictional characters within the virtual world. These techniques are the ones that mark, in many occasions, the characteristic features of the characters, being of vital importance for every modern designer. The format of the program is completely online, making it easy for the designer to combine it with his or her more demanding professional or personal responsibilities.

This **Postgraduate Certificate in Technical Animation Systems, Skeletal Meshes and Ragdoll Systems** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ The development of practical cases presented by experts in Video Games and Video Technologies
- ◆ The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis on 3D modeling and animation in virtual environments
- ◆ 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



*Design in complex and advanced programs the characters of the video games of the future"*



“Give your own characteristics and design memorable characters in adventure, fantasy and action stories with the advanced blend space creation and animation montage skills you will acquire in this program”

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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 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 during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

Take this program and be part of the most acclaimed designers in the video game industry.

Emulate mythological and spectacular events, just like Kratos in the famous game God of War, and mold characters that will be remembered for generations.



# 02 Objectives

The main objective of this Postgraduate Certificate is that the student learns the basics of animation and can give their characters enough value to be part of major productions, whether in video games, movies or animated series. In the same way, the student will have at their disposal a highly qualified material to design memorable characters from their knowledge. To this end, the latest and most exhaustive information will be made available to you, as well as the best academic tools to facilitate the expansion of your knowledge in a guaranteed manner.





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*The objectives of this program are based on your needs, so you can learn and strengthen those areas that are most important to give a distinctive boost to your professional career”*



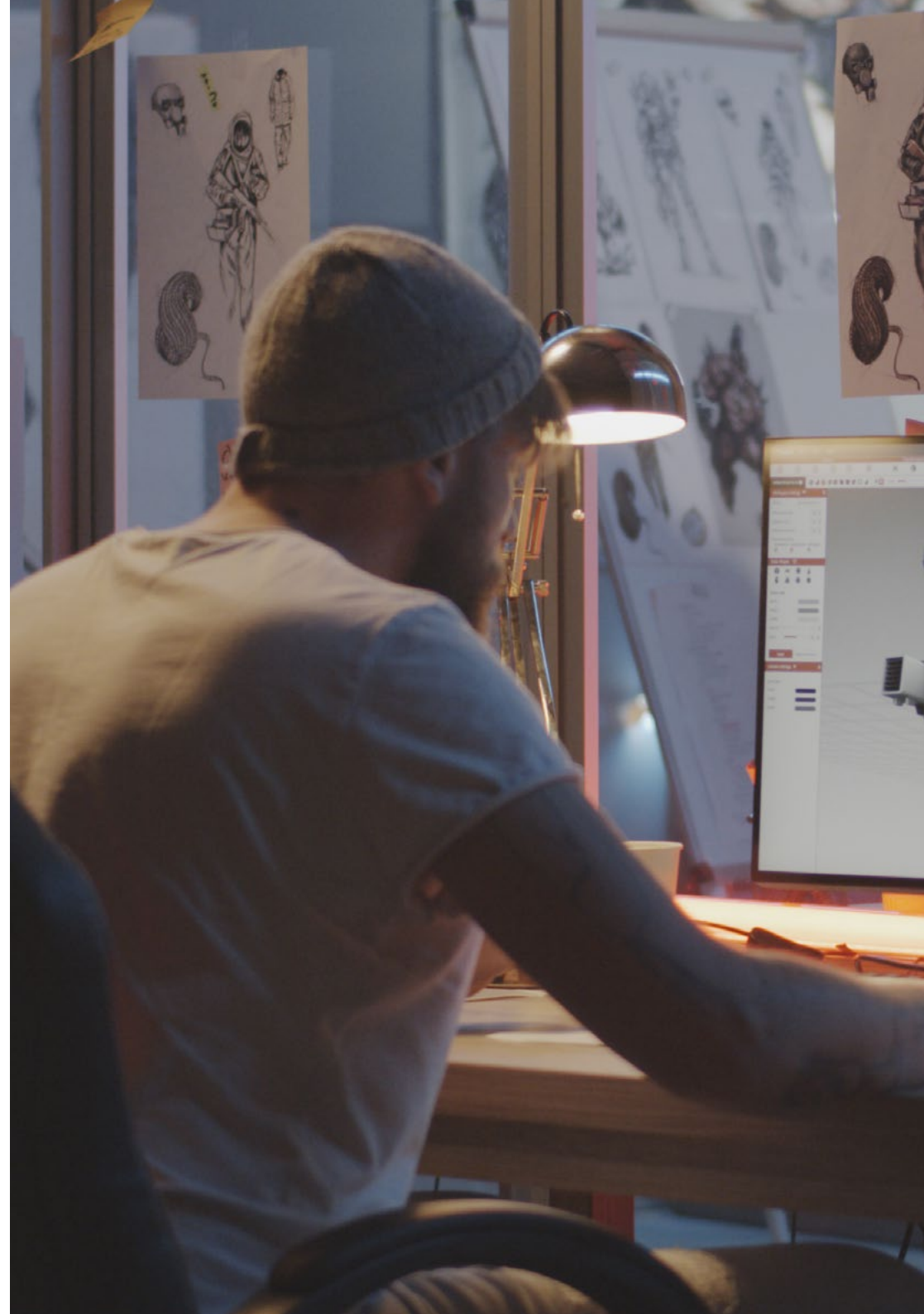
## General Objectives

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- ◆ Develop advanced characters for 3D video games
- ◆ Use animation systems and other resources as libraries in professional projects
- ◆ Prepare projects for proper export

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*A program that will allow you to learn in detail the latest resources for the creation of characters and the manipulation of materials in the development of video games"*





## Specific Objectives

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- ◆ Work with *low-poly* and *high-poly* models in professional developments under Unity 3D environment
- ◆ Implement advanced functionalities and behaviors in video game characters
- ◆ Correctly import character animations into the working environment
- ◆ Control *ragdoll systems* y *skeletal meshes*
- ◆ Master the available resources such as *asset libraries* and functionalities and import them into the project configured by students
- ◆ Discover the key points of teamwork for technical professionals involved in 3D programming and animation
- ◆ Configure the project to export it correctly and ensure that it works correctly

# 03

## Course Management

The faculty of this program in Technical Animation Systems, Skeletal Meshes and Ragdoll Systems is designed by a team of industry experts. Highly qualified teachers who belong or have belonged to major animation companies. In this way the student will learn from their extensive professional experience, being able to apply that knowledge to their path and career in the world of video games, film or animated series.







“

*What happens if you have any questions during the through of the program? Well, you will be able to solve it with the teaching team through Direct Message”*

## Management



### Mr. Ortega Ordóñez, Juan Pablo

- ♦ Director of Engineering and Gamification Design for the Intervenía Group
- ♦ Professor at ESNE of Video Game Design, Level Design, Video Game Production, Middleware, Creative Media Industries, etc
- ♦ Advisor in the foundation of companies such as Avatar Games or Interactive Selection
- ♦ Author of the book Video Game Design
- ♦ Member of the Advisory Board of Nima World

## Professors

### Mr. Martínez Alonso, Sergio

- ♦ Senior Unity Developer at NanoReality Games Ltd
- ♦ Lead Programmer and Game Designer at NoobO Games
- ♦ Teacher in several educational centers such as iFP, Implika or Rockbotic
- ♦ Programmer at Stage Clear Studios
- ♦ Professor at the University School of Design, Innovation and Technology
- ♦ Degree in Computer Engineering from the University of Murcia
- ♦ Professional Master's Degree in Video Game Design and Development from the University School of Design, Innovation and Technology





# 04

# Structure and Content

The syllabus of this Postgraduate Certificate has been designed by a team of experts who know and understand the needs of today's industry. TECH, together to its teaching staff has to create a detailed program with accurate information that will help students achieve their professional goals. Filled with informative, pedagogical and multidisciplinary content, the topics of this course will provide the student with the necessary skills to be one of the best professionals in the world of animation.







“

*You will be able to consult all the Syllabus from the comfort of your smartphone or device of choice with an Internet connection”*

## Module 1. Programming, Mechanics Generation and Video Game Prototyping Techniques

- 1.1. Technical Process
  - 1.1.1. *Low-Poly* and *High-Poly* Unity Models
  - 1.1.2. Material Settings
  - 1.1.3. High-Definition Render Pipeline
- 1.2. Character Design
  - 1.2.1. Movement
  - 1.2.2. Collider Design
  - 1.2.3. Creation and Behavior
- 1.3. Importing Skeletal Meshes into Unity
  - 1.3.1. Exporting *Skeletal Meshes* from the 3D Software
  - 1.3.2. *Skeletal Meshes* in Unity
  - 1.3.3. Anchor Points for Accessories
- 1.4. Importing Animations
  - 1.4.1. Animation Preparation
  - 1.4.2. Importing Animations
  - 1.4.3. Animator and Transitions
- 1.5. Animation Editor
  - 1.5.1. Creating *Blend Spaces*
  - 1.5.2. Creating *Animation Montage*
  - 1.5.3. Editing *Read-Only* Animations
- 1.6. *Ragdoll* Creation and Simulation
  - 1.6.1. Configuration of a *Ragdoll*
  - 1.6.2. *Ragdoll* to an Animation Graph
  - 1.6.3. Simulation of a *Ragdoll*
- 1.7. Resources for Character Creation
  - 1.7.1. Libraries
  - 1.7.2. Importing and Exporting Library Materials
  - 1.7.3. Handling of Materials







- 1.8. Work Teams
  - 1.8.1. Hierarchy and Work Roles
  - 1.8.2. Version Control Systems
  - 1.8.3. Conflict Resolution
- 1.9. Requirements for Successful Development
  - 1.9.1. Production for Success
  - 1.9.2. Optimal Development
  - 1.9.3. Essential Requirements
- 1.10. Publication Packaging
  - 1.10.1. *Player Settings*
  - 1.10.2. *Build*
  - 1.10.3. Installer Creation

“Download all the content and obtain a reference guide useful even after you have completed the program”

# 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 is the most widely used learning system in the best faculties in the world. 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 we face in the case method, an action-oriented learning method. Throughout the program, the studies 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.

## 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.

With this methodology we have 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, markets, and financial 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 that we are experiencing.



### 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.



# 06 Certificate

The Postgraduate Certificate in Technical Animation Systems, Skeletal Meshes and Ragdoll Systems guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 program will allow you to obtain your **Technical Animation Systems, Skeletal Meshes and Ragdoll Systems**, 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.

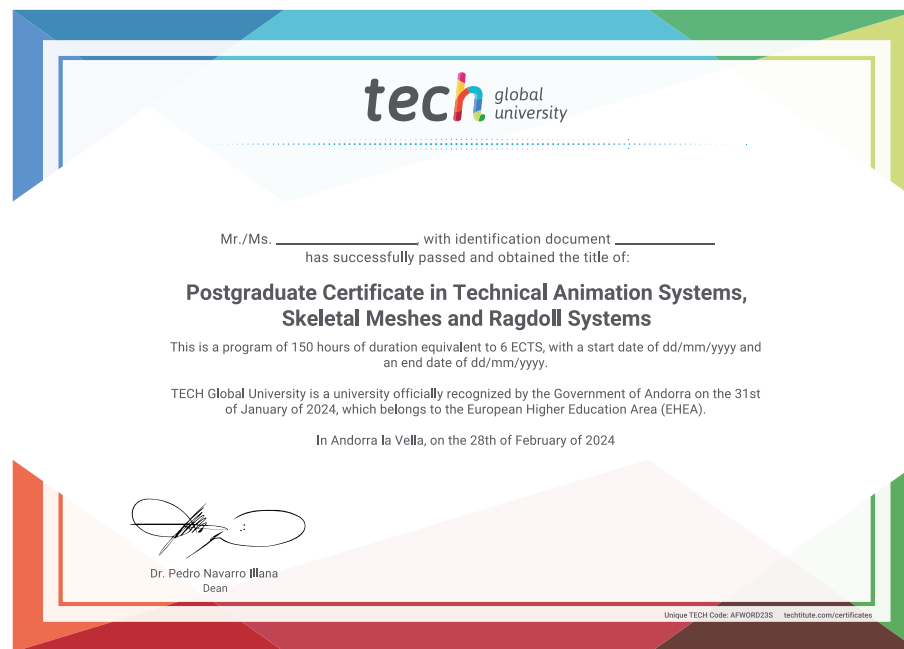
This **TECH Global University** title, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Technical Animation Systems, Skeletal Meshes and Ragdoll Systems**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**





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



## Postgraduate Certificate Technical Animation Systems, Skeletal Meshes and Ragdoll Systems

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Technical Animation Systems, Skeletal  
Meshes and Ragdoll Systems