

# Postgraduate Diploma 3D Human Modeling





## Postgraduate Diploma 3D Human Modeling

- » 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-3d-human-modeling](http://www.techtitute.com/pk/videogames/postgraduate-diploma/postgraduate-diploma-3d-human-modeling)

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# 01

# Introduction

The human anatomy is complex and has always represented a challenge for the great artists of any era. But, in 3D modeling the stakes are higher, since many times the rules of proportion can be abused and broken. Therefore, developers and programmers must not only specialize in the use and handling of the tools, but they must also have solid knowledge of human physiology and its interaction with the environment. Thus, and taking into account the needs of professionals in this area, this online program has been designed, which will become the starting point for students who wish to dedicate themselves to designing human characters for video games.





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*By knowing the proportions of the human body, you will be able to create realistic video game characters”*

Knowing how to model human characters in 3D is essential for programmers dedicated to the world of video games. This requires knowing what movements and poses a person performs in a given situation (swinging a sword, running, jumping, etc.) and how light and shadow affect each case. In addition, another component is added: the representativeness of the character. Creating an individual from scratch is not the same as recreating him or her from a specific actor.

This is why large companies have become so selective when it comes to finding the right programmer. You must be able to demonstrate all of the above, as well as possess the necessary skills to work with different software, such as Maya or Mari.

Consequently, this Postgraduate Diploma has been developed to meet the needs of students who wish to specialize in human figure modeling. Differentiating itself from the rest, by allowing a direct qualification (without final work) and an online modality, breaking geographical barriers, accessing the contents from anywhere in the world and at any time of the day or night.

In short, a qualification that will help students to improve their presence in the profession. It will also allow them to begin a new career path, focusing their efforts on becoming independent.

This **Postgraduate Diploma in 3D Human Modeling** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ The development of case studies presented by experts in 3D modeling
- ◆ 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
- ◆ 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



*Do you Want to Create Characters as Realistic as Those in Devil May Cry or Last of Us? Enroll now in a 100% online program"*

“

*Modeling the human figure is a complex job, but in TECH you will learn the secrets of the great professionals to achieve it”*

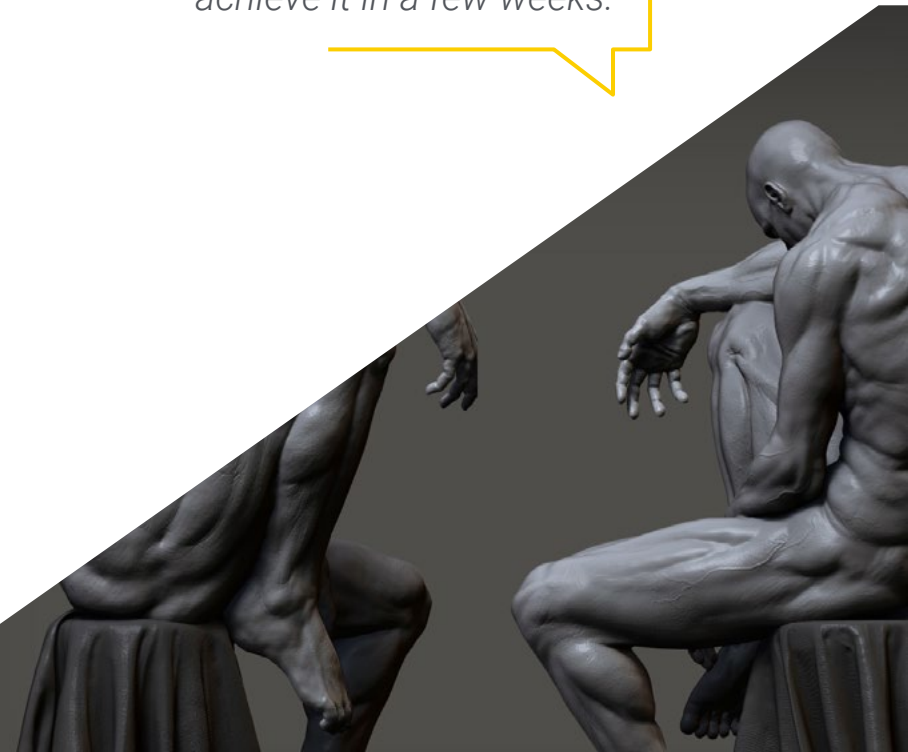
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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.

*With each case study presented in the Postgraduate Diploma, you will get one step closer to your goal: modeling 3D characters.*

*Imagine working independently doing what you love. With this program you will be able to achieve it in a few weeks.*



# 02 Objectives

This Postgraduate Diploma has a series of objectives that will help students achieve their professional goals. In this sense, you will be provided with up-to-date knowledge to master the 3D modeling software used by the big players in the industry. Thanks to this, the student will be able to demonstrate their skills to recreate a human figure and grow any character following the guidelines of the creative team.







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*It is a challenge, but not impossible. Enroll now to master the different professional sculpting techniques”*



## General Objectives

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- ◆ Expand knowledge of human and animal anatomy in order to develop hyper-realistic creatures
- ◆ Master the retopology, UVS and texturing to perfect the models created
- ◆ Create an optimal and dynamic workflow to work more efficiently with 3D modeling
- ◆ Have the skills and knowledge most in demand in the 3D industry to be able to apply for the best jobs



*Do you want to model characters for Capcom, Blizzard or Konami? Learn new skills and achieve your goals"*





## Specific Objectives

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### Module 1 Anatomy

- ◆ Investigate both male and female human anatomy
- ◆ Develop the highly detailed human body
- ◆ Hyper-realistic face sculpting

### Module 2 Retopology and Maya Modeling

- ◆ Master the different professional sculpting techniques
- ◆ Create advanced full body and face retopology in Maya
- ◆ Delve into how to apply details using alphas and brushes in ZBrush

### Module 3 UV's and Texturing with Allegorithmic Substance Painter and Mari

- ◆ Study the most optimal way to UVs in Maya and UDIM systems
- ◆ Develop the knowledge to texture in Substance Painter for video games
- ◆ Knowledge of texturing in Mari for hyper-realistic models
- ◆ Learn how to create XYZ textures and displacement maps on our models
- ◆ Delve into the import of our textures in Maya

03

# Course Management

The experience of the Postgraduate Diploma teachers will enable students to achieve maximum training. This team of specialists actively work in the development and modeling of video game characters, so they know the ins and outs and secrets of the industry to take a basic geometric figure and turn it into Tidus, Kratos, Link or any new character.





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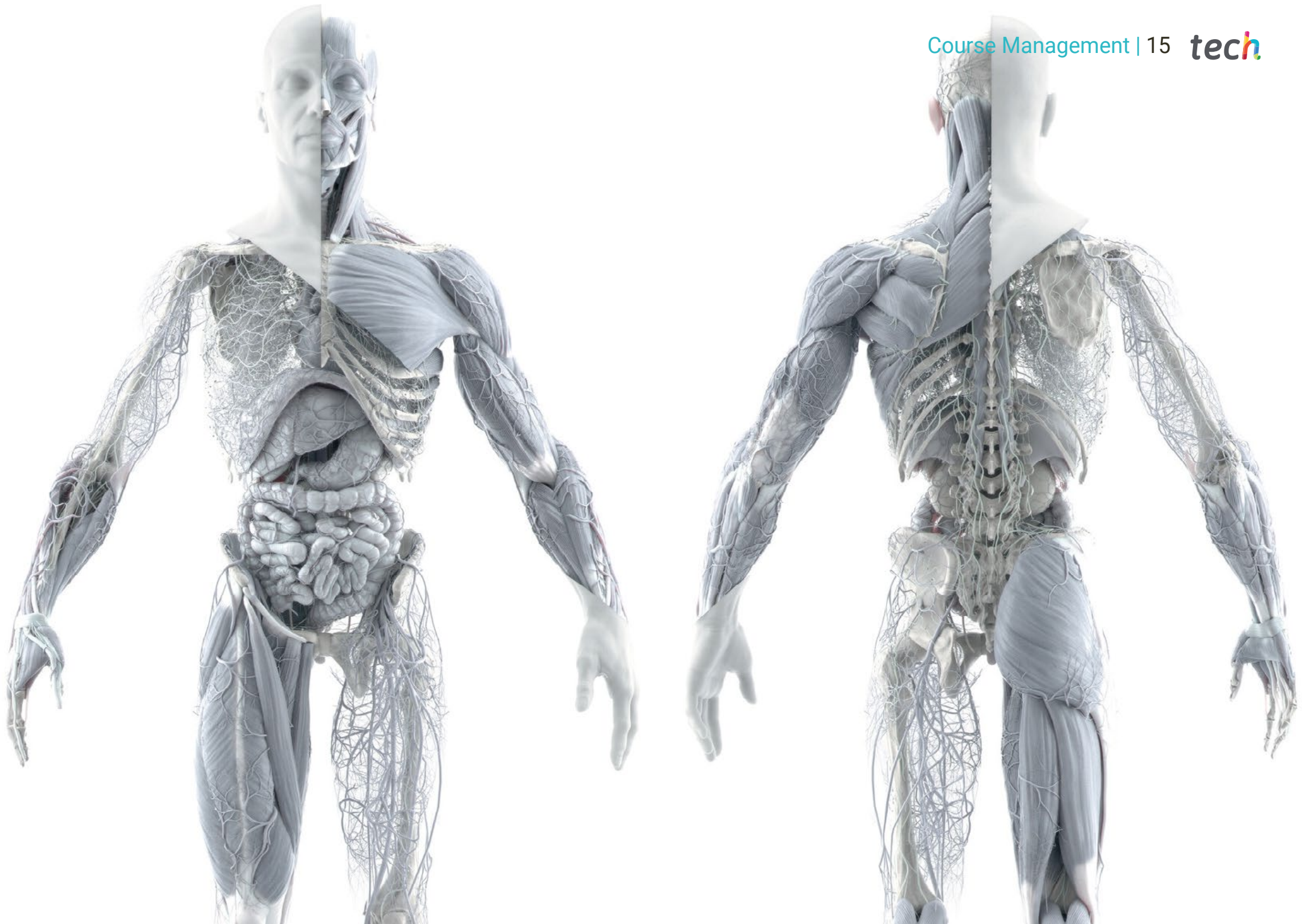
*Modeling characters from scratch won't be so complicated when you get to know the vision and methodology of this teaching staff”*

## Management



### Ms. Gómez Sanz, Carla

- ♦ 3D Generalist at Blue Pixel 3D
- ♦ Concept Artist, 3D Modeler, *Shading* in Timeless Games Inc
- ♦ Collaboration with multinational consulting firm for the design of vignettes and animation for commercial proposals
- ♦ Advanced Technician in 3D Animation, video games and interactive environments at CEV School of Communication, Image and Sound
- ♦ Master's Degree and Bachelor's Degree in 3D Art, Animation and Visual Effects for video games and cinema at CEV School of Communication, Image and Sound



# 04

## Structure and Content

This Postgraduate Diploma in 3D Human Modeling has a program divided into three modules. The first of these will present a basic introduction to human anatomy, essential knowledge for any expert modeling programmer. Then, the professional sculpting and the digital tools used to achieve textures can be used. Finally, at the end of the program, the students will be equipped to take on, on their own, any international project that requires their services.







“

*No knowledge of anatomy? Do you want to know the correct proportion of a human body? You've come to the right program"*

## Module 1. Anatomy

- 1.1. General Skeletal Masses and Proportions
  - 1.1.1. Bones
  - 1.1.2. The Human Face
  - 1.1.3. Anatomical Canons
- 1.2. Anatomical Differences between Genders and Sizes
  - 1.2.1. Shapes Applied to Characters
  - 1.2.2. Curves and Straight Lines
  - 1.2.3. Behavior, Bones, Muscles and Skin
- 1.3. Head
  - 1.3.1. The Skull
  - 1.3.2. Muscles of the Head
  - 1.3.3. Layers: Skin, Bone and Muscle Facial Expressions
- 1.4. The Torso
  - 1.4.1. Torso Musculature
  - 1.4.2. Central Axis of the Body
  - 1.4.3. Different Torsos
- 1.5. The Arms
  - 1.5.1. Joints: Shoulder, Elbow and Wrist
  - 1.5.2. Arm Muscle Behavior
  - 1.5.3. Detail of the Skin
- 1.6. Hand Sculpting
  - 1.6.1. Hand Bones
  - 1.6.2. Hand Muscles and Tendons
  - 1.6.3. Hand Skin and Wrinkles
- 1.7. Leg Sculpting
  - 1.7.1. Joints: Hip, Knee and Ankle
  - 1.7.2. Muscles of the Leg
  - 1.7.3. Detail of the Skin
- 1.8. The Feet
  - 1.8.1. Bone Construction for the Foot
  - 1.8.2. Foot Muscles and Tendons
  - 1.8.3. Foot Skin and Wrinkles

- 1.9. Whole Human Figure Composition
  - 1.9.1. Complete Creation of a Human Base
  - 1.9.2. Joint and Muscle Attachment
  - 1.9.3. Skin Composition, Pores and Wrinkles
- 1.10. Complete Human Model
  - 1.10.1. Model Polishing
  - 1.10.2. Hyper Skin Detail
  - 1.10.3. Composition

## Module 2 Retopology and Maya Modeling

- 2.1. Advanced Facial Retopology
  - 2.1.1. Importing into Maya and the Use of Quad Draw
  - 2.1.2. Retopology of the Human Face
  - 2.1.3. *Loops*
- 2.2. Human Body Retopology
  - 2.2.1. Creation of Loops in the Joints
  - 2.2.2. Ngons and Tris and When to Use Them
  - 2.2.3. Topology Refinement
- 2.3. Retopology of Hands and Feet
  - 2.3.1. Movement of Small Joints
  - 2.3.2. Loops and Support Edges to Improve the Base Mesh of Feet and Hands
  - 2.3.3. Difference of Loops for Different Hands and Feet
- 2.4. Differences Between Maya Modeling vs. ZBrush Sculpting
  - 2.4.1. Different Workflows for Modeling
  - 2.4.2. Low Poly Base Model
  - 2.4.3. High Poly Model
- 2.5. Creation of a Human Model from Scratch in Maya
  - 2.5.1. Human Model Starting From the Hip
  - 2.5.2. General Base Form
  - 2.5.3. Hands and Feet and their Topology

- 2.6. Transformation of Low poly Model to High Poly
    - 2.6.1. ZBrush
    - 2.6.2. High poly: Differences Between Divide and *Dynamesh*
    - 2.6.3. Sculpting Form: Alternation Between Low Poly and High Poly
  - 2.7. Detail Application in ZBrush: Pores, Capillaries, etc.
    - 2.7.1. Alphas and Different Brushes
    - 2.7.2. Detail: Dam-Standard Brush
    - 2.7.3. Projections and Surfaces in ZBrush
  - 2.8. Advanced Eye Creation in Maya
    - 2.8.1. Creation of the Spheres: Sclera, Cornea and Iris
    - 2.8.2. Lattice Tool
    - 2.8.3. Displacement Map from ZBrush
  - 2.9. Use of Deformers in Maya
    - 2.9.1. Maya Deformers
    - 2.9.2. Topology Movement: Polish
    - 2.9.3. Polishing of the Final Mesh
  - 2.10. Creation of Final UVs and Application of Displacement Mapping
    - 2.10.1. Character UVs and Importance of Sizes
    - 2.10.2. Texturing
    - 2.10.3. Displacement Map
- Module 3 UVs and Texturing with Algorithmic Substance Painter and Mari**
- 3.1. Creation of High-Level UVs in Maya
    - 3.1.1. Facial UVs
    - 3.1.2. Creation and Layout
    - 3.1.3. Advanced UVs
  - 3.2. Preparation of UVs for UDIM's Systems Focused on Large Production Models
    - 3.2.1. UDIMs
    - 3.2.2. UDIMs in Maya
    - 3.2.3. Textures in 4K
  - 3.3. XYZ Textures: What Are They and How to Use Them?
    - 3.3.1. XYZ. Hyperrealism
    - 3.3.2. *Multichannel Maps*
    - 3.3.3. *Texture Maps*
  - 3.4. Texturing: Videogames and Cinema
    - 3.4.1. Substance Painter
    - 3.4.2. Mari
    - 3.4.3. Types of Texturing
  - 3.5. Texturing in Substance Painter for Videogames
    - 3.5.1. Baking from *High to Low Poly*
    - 3.5.2. PBR Textures and Their Importance
    - 3.5.3. ZBrush with Substance Painter
  - 3.6. Finalizing our Substance Painter Textures
    - 3.6.1. *Scattering, Translucency*
    - 3.6.2. Model Texturing
    - 3.6.3. Scars, Freckles, Tattoos, Paints or Makeup
  - 3.7. Hyper-Realistic Facial Texturing with XYZ Textures and Color Mapping
    - 3.7.1. XYZ Textures in ZBrush
    - 3.7.2. *Wrap*
    - 3.7.3. Correction of Errors
  - 3.8. Hyper-Realistic Facial Texturing with XYZ Textures and Color Mapping
    - 3.8.1. Mari's Interface
    - 3.8.2. Texturing in Mari
    - 3.8.3. Projection of Skin Textures
  - 3.9. Advanced Detailing of Displacements Maps in ZBrush and Mari
    - 3.9.1. Texture Painting
    - 3.9.2. *Displacement* for Hyperrealism
    - 3.9.3. Layer Creation
  - 3.10. Shading and Texture Implementation in Maya
    - 3.10.1. Skin Shaders in Arnold
    - 3.10.2. Hyperrealistic Eye
    - 3.10.3. Touch-ups and Tips

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.*



### 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.



# 06 Certificate

The Postgraduate Diploma in 3D Human Modeling guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 3D Human Modeling** 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 certificate**, 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 career evaluation committees.

Title: **Postgraduate certificate in 3D Human Modeling**

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 quality  
development language  
virtual classroom

**tech** technological  
university

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