

Postgraduate Diploma





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.techtute.com/us/design/postgraduate-diploma/postgraduate-diploma-3d-human-

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01

Introduction

Human anatomy is complex and representing it reliably in 3D models can be complicated without the proper knowledge. The design professional must not only be familiar with the most sophisticated techniques of software such as Maya or Mari, but must also have a deep understanding of the human body and how it interacts with its environment, in order to be able to represent it in the best possible way in virtual spaces. This TECH qualification was created with the aim of instructing students in all the most relevant issues of human anatomy and 3D modeling of people, being a great opportunity for design professionals seeking to specialize in this artistic branch of great demand in every studio.





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Knowing everything about the human body, you will be prepared to tackle any 3D modeling project of male or female figures”

The modeling of people has always been a matter of vital importance for graphic designers, as the public is more demanding with the quality and verisimilitude of human characters. To achieve realistic movements and poses, the professional must be knowledgeable about how the human body behaves as a whole, including its bones, muscles, joints and skin.

Additionally, there is the added difficulty of transferring all this anatomical knowledge to the main 3D modeling software such as Maya or Mari. As these are programs where their use is not so much emphasized in traditional design faculties, professionals may often find that they do not really know the potential and usefulness of these tools for their work, especially when it comes to developing human bodies.

This TECH Postgraduate Diploma responds to this labor demand with advanced knowledge both in human anatomy and in the most advanced handling of the common tools with which the designer works. Therefore, it is an excellent opportunity to improve professionally with skills that distinguish you from the rest of your peers.

A program that also takes into account the student's needs, since it is offered in a completely online format that greatly facilitates the student's study work. Without the need to attend classes or a physical center, the students are free to adapt all the theoretical material to their own personal or work needs, choosing the pace of study that best suits them.

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 practical cases 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



Top design studios expect to incorporate advanced experts in 3D human modeling. Join the elite in your profession with this 100% online TECH

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Use the most avant-garde techniques of the market taught by TECH to be a reference when creating 3D models based on

The program's teaching staff includes professionals from the sector 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 educational year. This will be done with the help of an innovative system of interactive videos made by renowned experts.

Knowing how a human moves and acts, you will be able to mimic their characteristics to the millimeter in your 3D

The design industry expects the best from its workers. Exceed their expectations thanks to an expert knowledge in 3D Human



02 Objectives

This Postgraduate Diploma in 3D Human Modeling contains the most advanced knowledge of the design industry so that the professional who graduates from this program can perfectly master the creation and representation of any human figure. As a result, the student will be much better positioned to achieve better job positions in an increasingly competitive and demanding market, in which complementary knowledge and skills are necessary to successfully differentiate themselves.





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Your career goal should be to be eligible for design positions at the best companies in the industry. That's why TECH gives you the best possible educational content to distinguish yourself with honors in your



General Objectives

- ◆ Expand knowledge of human and animal anatomy in order to develop hyper-realistic creatures
- ◆ Master 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



Your career goals will be much closer as you graduate from this qualification with a much greater understanding of 3D Human Modeling"





Specific Objectives

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. UVs and Texturing with Allegorithmic Substance Painter and Mari

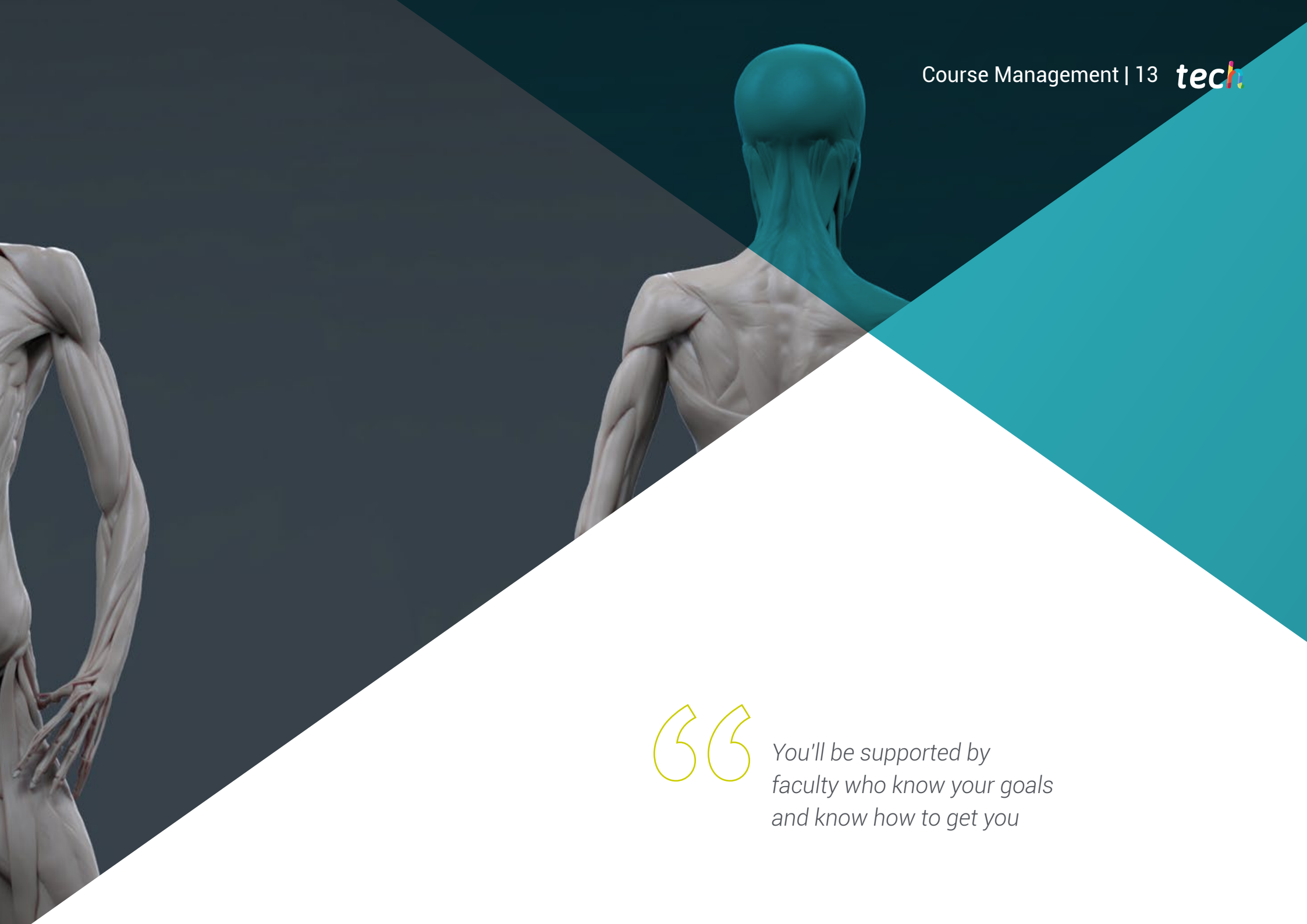
- ◆ Study the most optimal way to UVS's in Maya and UDIM systems
- ◆ Develop the knowledge to texture in Substance Painter for video games
- ◆ Knowledge of texturing in Mari for hyper-realistic models
- ◆ Learn how to create XYZ textures and displacement maps on our models
- ◆ Delve into the import of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

03

Course Management

TECH chooses the best possible professionals for the elaboration of all the teaching content that students will access, so that they can obtain education from experts with experience in the subject being taught. For this Postgraduate Diploma in 3D Human Modeling, we have assembled a team that has been actively working on the creation of people for all kinds of jobs and projects. In this way, the students are gaining first-rate knowledge with which to improve their professional performance even before completing their qualification.





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*You'll be supported by
faculty who know your goals
and know how to get you*

International Guest Director

Joshua Singh is a leading professional with over 20 years of experience in the **video game** industry, internationally recognized for his skills in **art direction** and **visual development**. With solid training in **software** such as Unreal, Unity, Maya, ZBrush, Substance Painter and Adobe Photoshop, he has made a significant mark in the field of **game design**. In addition, his experience spans **visual development** in both 2D and 3D, and is distinguished by his ability to collaboratively and thoughtfully solve problems in **production environments**.

In addition, as **Art Director** at **Marvel Entertainment**, he has collaborated with and guided elite teams of artists, ensuring that the artwork meets the required quality standards. He has also served as **Lead Character Artist** at **Proletariat Inc.** where he has created a safe environment for his team and has been responsible for all character assets in **video games**.

With an outstanding track record, including **leadership roles** at companies such as **Wildlife Studios** and **Wavedash Games**, Joshua Singh has been an advocate for artistic development and a mentor to many in the industry. Not to mention his time at large and well-known companies, such as **Blizzard Entertainment** and **Riot Games**, where he has worked as a **Senior Character Artist**. And, among his most relevant projects, stands out for his participation in hugely successful **video games**, including **Marvel's Spider-Man 2**, **League of Legends** and **Overwatch**.

Thus, his ability to unify the vision of **Product**, **Engineering** and **Art** has been fundamental to the success of numerous projects. Beyond his work in the industry, he has shared his experience as an instructor at the prestigious **Gnomon School of VFX** and has been a presenter at renowned events such as the **Tribeca Games Festival** and the **ZBrush Summit**.



D. Singh, Joshua

- Art Director at Marvel Entertainment, California, USA
- Lead Character Artist at Proletariat Inc
- Art Director at Wildlife Studios
- Art Director at Wavedash Games
- Senior Character Artist at Riot Games
- Senior Character Artist at Blizzard Entertainment
- Artist at Iron Lore Entertainment
- 3D Artist at Sensory Sweep Studios
- Senior Artist at Wahoo Studios/Ninja Bee
- General Studies from Dixie State University
- Degree in Graphic Design from Eagle Gate Technical College

“Thanks to TECH, you will be able to learn with the best professionals in the world”

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

The structure of this Postgraduate Diploma in 3D Human Modeling has been designed to make it as easy as possible for the student to understand all the knowledge. Therefore, to support the theoretical content, videos on human anatomy have been developed, as well as the use of Maya and Mari, with which to acquire the skills in a much clearer and more direct way. Thanks to the teacher's effort to exemplify the theory, the student is accessing contextual, valuable and direct teaching.





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This qualification will lead you to master the recreation of a person in 3D, accurately modeling their movements, expressions and facial gestures”



Module 1. Anatomy

- 1.1. General Skeletal Masses, 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 of Bones, Muscles and Skin
- 1.3. The 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. Los pies
 - 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. UVs of the Character and Importance of Sizes
 - 2.10.2. Texturing
 - 2.10.3. Displacement Map

Module 3. UVs and Texturing with Allegorithmic 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 UDIMs 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: Video Games and Film
 - 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.



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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.

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At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities



You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire



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 innova-

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.

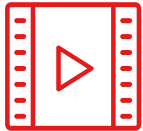
Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

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.



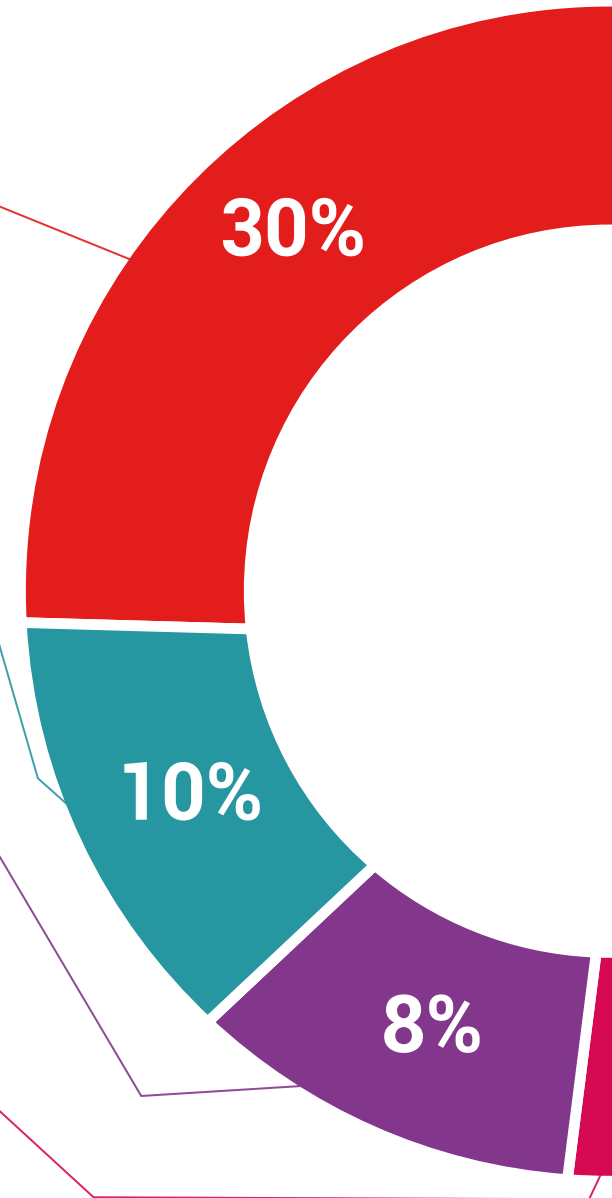
Practising Skills and Abilities

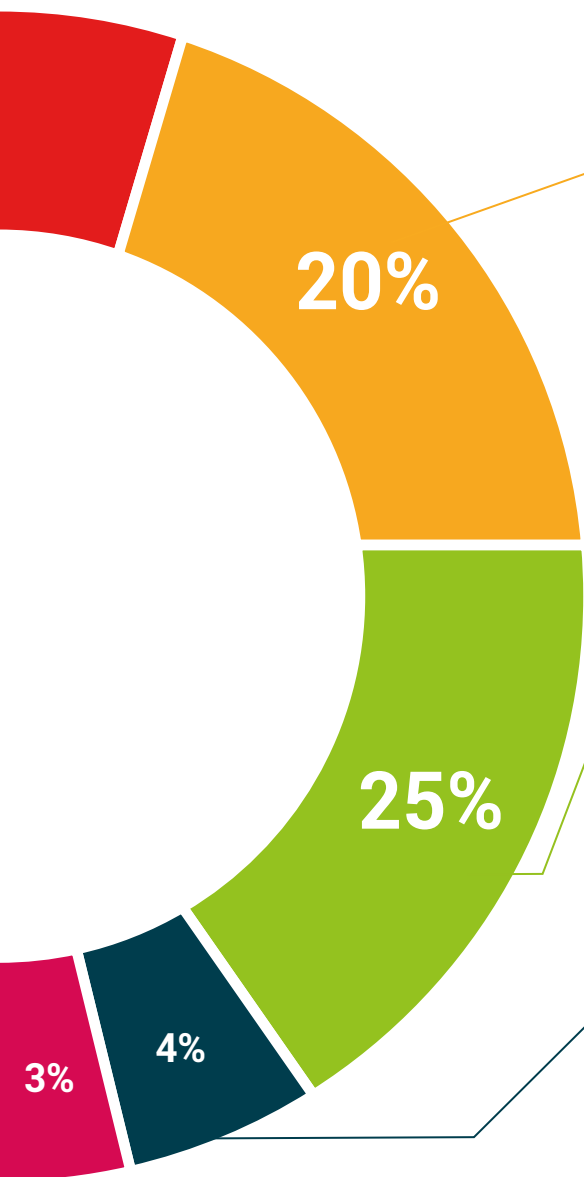
They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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 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*

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 Diploma issued by **TECH Technological University** via tracked delivery*.

The diploma 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 Diploma in 3D Human Modeling**

Official N° of Hours: **450 h.**



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

tech technological
university

Postgraduate
Diploma
3D Human Modeling

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University

Postgraduate Diploma

