

Hybrid Master's Degree

Organic 3D Modeling



Hybrid Master's Degree Organic 3D Modeling

Modality: Hybrid (Online + Internship)

Duration: 12 months

Certificate: TECH Global University

Website: www.techtitude.com/us/design/hybrid-masters-degree/hybrid-masters-degree-organic-3d-modeling

Index

01

Introduction

p. 4

02

Why Study this Hybrid
Master's Degree?

p. 8

03

Objectives

p. 12

04

Skills

p. 18

05

Course Management

p. 22

06

Educational Plan

p. 26

07

Internship

p. 36

08

Where Can I Do the
Internship?

p. 42

09

Method

p. 46

10

Certificate

p. 54

01

Introduction

In architecture, construction, medicine, but especially in the video game industry and in the film industry, 3D modeling has a great application and acceptance among professionals and users. The rise of this digital technique has caused the *gaming* industry and the seventh art to grow, at the same time that new software and program updates emerge that must be mastered, without any doubt, by the graphic design professional. Given this favorable outlook for the sector, this 100% online program is born in its theoretical framework that provides an excellent preparation on Organic Modeling at a time when there is a demand for personnel with extensive creative skills and an exquisite knowledge of the most advanced techniques in 3D creation.



“

Apply all the techniques and tools in your 3D creations and succeed in the gaming industry"

3D modeling is part of our lives and has revalued the quality of movies, animated series or the scenarios where the plots of video games are developed. These products are consumed by more and more people in the world, who value both the improvement of the designs, their presentation and the realism achieved by graphic designers.

The role of 3D modeling professionals is key to many sectors, which is why the main creative studios require personnel with higher qualifications and specialization in this field. In order to reach the top in this area it is necessary to know the main tools. Therefore, in this Hybrid Master's Degree in Organic 3D Modeling, students will acquire advanced knowledge in the programs most used by professionals: Maya, Zbrush, Blender and *Unreal Engine*.

Likewise, graphic design professionals will have at their disposal a teaching team specialized in the area that will provide them with up-to-date multimedia content on the main tools used in the audiovisual industry. Upon completion of this training, students will have sharpened skills to create the composition of a human figure, handle advanced facial retopology and generate poses and final presentation of each model or project work. Also, students will be able to specialize in the design of animals, their hair, feathers and the general structure of their bodies.

TECH allows students to take this program in 100% online mode in its theoretical phase, where they can access the entire syllabus from the first day and distribute the course load according to their needs. Once this stage is completed, the student has a 3-week internship in leading companies in the sector, which allows for a more complete learning experience that is closer to the reality of the industry.

This **Hybrid Master's Degree in Organic 3D Modeling** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ Development of more than 100 case studies related to Organic 3D Modeling
- ♦ The graphic, schematic and eminently practical contents with which it is conceived, gather technical information on Organic 3D Modeling
- ♦ The development of case studies presented by experts in 3D modeling
- ♦ 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
- ♦ All of this will be complemented by 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
- ♦ In addition, you will be able to do an internship in one of the leading companies in the field of graphic design



A program that allows you to access the entire theoretical framework online, without fixed schedules and with a wide variety of multimedia content"



Take an intensive 3-week internship and learn with the best graphic designers"

In this Hybrid The Professional Master's Degree, with a vocational nature and blended learning modality, the program is aimed at updating nursing professionals who require a high level of qualification. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate the theoretical knowledge in the practice of Organic 3D Modeling, and the theoretical-practical elements will facilitate the updating of knowledge and allow optimal digital creations.

Thanks to its multimedia content developed with the latest educational technology, they will allow the graphic design professional a situated and contextual learning, which means, a simulated environment that will provide an immersive learning 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 throughout the program. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

This Hybrid Master's Degree will allow you to be more efficient in the workflows of your 3D projects. Grow as a professional.

Update your technical knowledge and create more realistic characters with this university program.



02

Why Study this Hybrid Master's Degree?

3D art and its animations have become considerably popular nowadays and are increasingly in demand by the entertainment industries such as film and video games. Organic Modeling, in particular, is one of its most widespread disciplines because it facilitates the creation of non-rigid surfaces. The set of techniques and digital tools that compose it are essential for the creation of human and animal figures, as well as the posing and final representation of the working models. TECH wants to turn its students into great experts in these subjects and therefore has composed an excellent training program that, in addition to providing them with theoretical knowledge in this field, will facilitate their access to highly prestigious companies to develop their practical knowledge.



“

TECH offers you a unique learning opportunity in which you will be able to join prestigious graphic design companies to acquire a complete mastery of the tools and techniques of Organic 3D Modeling"

1. Updating from the Latest Technology Available

Organic 3D Modeling has experienced a dizzying rise in recent years as a result of the development of computer technologies for the creation of their characters. Among these up-to-date digital tools, Maya and ZBrush to Blender stand out and their analysis and management will be present throughout this program of studies.

2. Gaining In-depth Knowledge from the Experience of Top Specialists

TECH provides a personalized teaching guide in all educational phases of this program. To learn the theoretical framework of this Hybrid Master's Degree, students have the best faculty to clarify their doubts and concepts of interest. On the other hand, during the professional practice, in a prestigious company within the field of design, the student will have a designated tutor who will help them to insert themselves holistically in the productive dynamics and work projects.

3. Entering top-notch professional environments

TECH carefully selects all available centers for Internship Programs. Thanks to this, the specialist will have guaranteed access to a prestigious environment in the area of Organic 3D Modeling. In this way, you will be able to see the day-to-day work of a demanding, rigorous and exhaustive sector, always applying the latest theses and scientific postulates in its work methodology.





4. Combining the Best Theory with State-of-the-Art Practice

This program facilitates the assimilation of the most updated theoretical contents of the discipline of Organic 3D Modeling through a 100% online training and free of restrictive schedules. At the same time, students will be able to develop the assimilated knowledge in a prestigious design firm during a 3-week internship.

5. Expanding the Boundaries of Knowledge

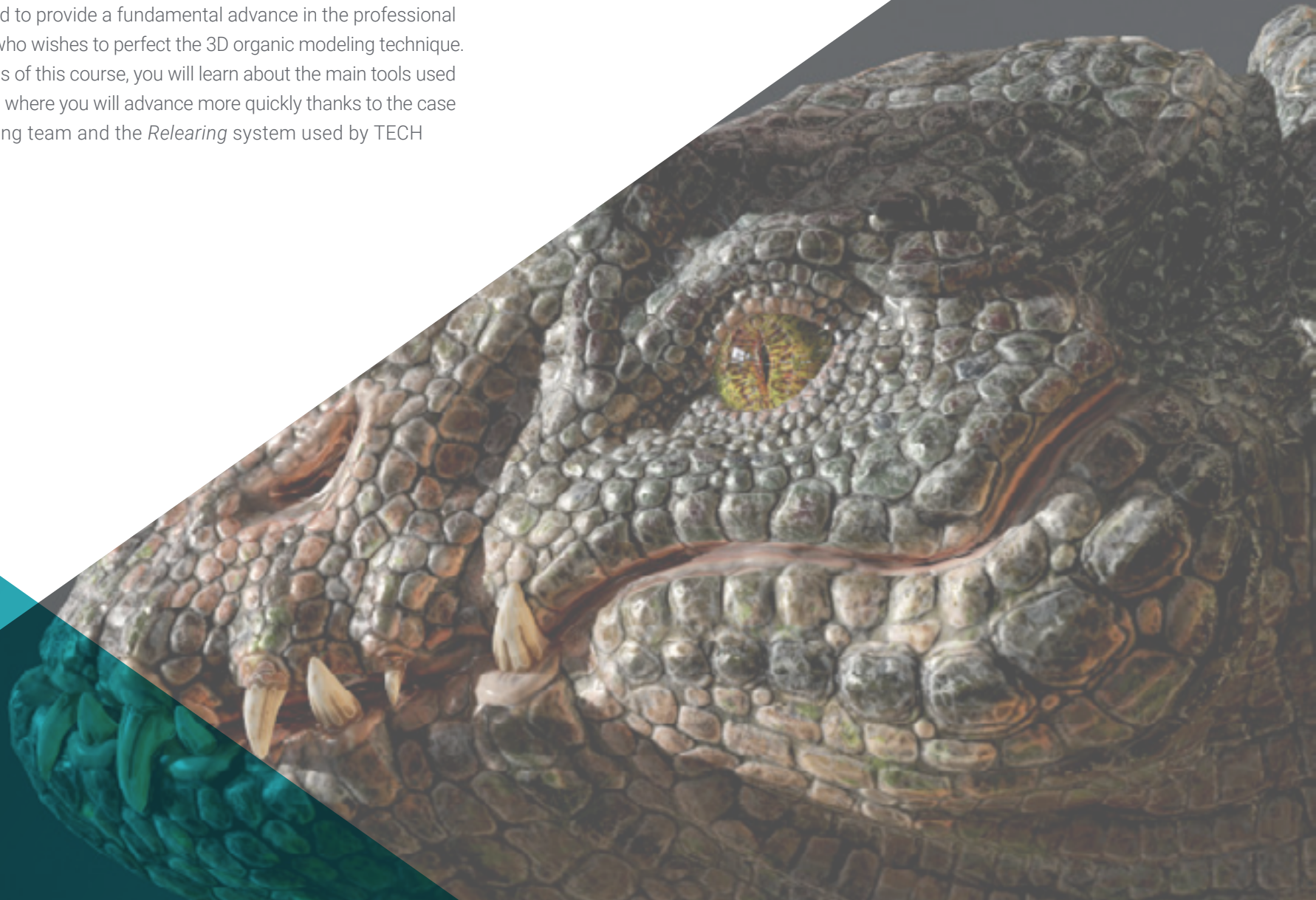
This academic program offers its students access to centers of recognized trajectory in the field of design. It also promotes the linkage of its students with similar institutions in the international sphere. In this way, each specialist can expand the frontiers of their knowledge based on the productive dynamics applied in different latitudes. This is only possible thanks to the network of contacts and collaborations of TECH, the largest digital university in the world.



*You will have full practical immersion
at the center of your choice"*

03 Objectives

The program has been designed to provide a fundamental advance in the professional career of any graphic designer who wishes to perfect the 3D organic modeling technique. In this way, during the 12 months of this course, you will learn about the main tools used in the sector. A learning process where you will advance more quickly thanks to the case studies provided by the teaching team and the *Relearning* system used by TECH in its programs.



“

*Reach your goals in the digital design industry
in the video game sector thanks to the in-depth
knowledge acquired in this program"*



General Objective

- ♦ In the course of this Hybrid Master's Degree, the graphic design professional will obtain a wide range of techniques and tools essential for three-dimensional modeling in the audiovisual field. In this way you will acquire a deep knowledge in human and animal anatomy in order to develop hyper-realistic creatures, you will create an optimal and dynamic workflow to create more efficiently the 3D modeling, acquiring finally the most demanded skills and competences in the industry to progress professionally

“

Master ZBrush, Unreal Engine, Blender or Maya thanks to this Hybrid Master's Degree. Click and enroll in this program"





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. UV and Texturing with Allegorithmic Substance Painter and Mari

- ♦ Study the most optimal way to UV 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

Module 4. Rendering, Lighting and Posing of Models

- ♦ Discover advanced lighting and photography concepts to sell models more efficiently
- ♦ Develop the learning of model posing by means of different techniques
- ♦ Delve into the development of a *Rig* in Maya for the subsequent possible animation of the model
- ♦ Observe the control and use of the rendering of the model, bringing out all its details



Module 5. Hair Creation for Video Games and Movies

- ♦ Delve into the advanced use of Xgen in Maya
- ♦ Create hair for movies
- ♦ Study hair using Cards for video games
- ♦ Develop your own hair textures
- ♦ See the different use of hairbrushes in ZBrush

Module 6. Clothing Simulation

- ♦ Study the use of Marvelous Designer
- ♦ Create fabric simulations in Marvelous Designer
- ♦ Practice different types of complex patterns in Marvelous Designer
- ♦ Delve into the professional *workflow* from Marvelous to ZBrush
- ♦ Develop the texturing and *shading* of clothes and fabrics in Mari

Module 7. Stylized Characters

- ♦ Focus anatomical knowledge in simpler, *cartoon*-like forms
- ♦ Create a *cartoon* model from the base to the detail by applying what has been previously learned
- ♦ Review the techniques learned in the course in a different modeling style

Module 8. Creature Modeling

- ♦ Learn the modeling of different types of animal anatomy
- ♦ Review the different types of reptiles and how to create scales with Displacement and Alphas maps
- ♦ Investigate how to export models to Mari for realistic texturing
- ♦ Learn more about *Grooming* and how to Groom animals with XGen
- ♦ Render models in Arnold Render in Maya



Module 9. Blender: A New Twist in the Industry

- ♦ Outstanding software performance
- ♦ Transfer knowledge of Maya and ZBrush to Blender to create amazing models
- ♦ Delve into Blender's node system to create different shaders and materials
- ♦ Render Blender practice models with the two types of render engines *Eevee* and *Cycles*

Module 10. Creation of Organic Environments in *Unreal Engine*

- ♦ Study software functionality and project configuration
- ♦ Delve into the study of PST and the *Storytelling* of the scene to achieve a good design for our environment
- ♦ Learn the different terrain and organic modeling techniques, as well as the implementation of our own scanned models
- ♦ Delve into the vegetation creation system and how to control it perfectly in *Unreal Engine*
- ♦ Create different types of texturing of the parts of the project, as well as shading and materials with their corresponding configurations
- ♦ Develop knowledge about the different types of lights, atmospheres, particles and fog, how to place different types of cameras and how to take pictures to have our composition in different ways

04 Skills

With this Hybrid Master's Degree, students will acquire the necessary skills to develop in the area of three-dimensional design focused mainly on the creation of objects, characters and scenarios in the audiovisual industry. The specialized teaching team will guide students to improve and master the most common techniques used in this sector.





“

Upgrade your 3D modeling skills and improve your technique with this training. Enroll now”



General Skills

- ♦ Create any kind of completely organic living being including its clothes and *Props* autonomously and with high quality
- ♦ Adapt to any type of *workflow* in the sector, using the most suitable one for each type of work
- ♦ Create the skeleton of a character using a *Rig* to test its functionality and correct bugs.
- ♦ Use the best and most widespread software in the industry in the field of 3D modeling and sculpting

“

With this academic program, you will develop practical and theoretical skills to apply facial retopologies with great detail to human characters created by you using Organic 3D Modeling techniques"





Specific Skills

- ♦ In-depth knowledge of the anatomy of the body, making the most of every detail
- ♦ Lay the artistic foundations to differentiate yourself from other designers
- ♦ Create great human models, both male and female
- ♦ Solve problems of other work departments
- ♦ Increase the professionalism of the student with cross-cutting competencies in retopology
- ♦ Understand the influence of a good topology at all levels of production
- ♦ Master Mari software, which is widely used in the film industry
- ♦ Knowledge of the standard in video game texturing through Substance
- ♦ Delve into the current demands of the film and video game industry to offer the best possible design solutions
- ♦ Mastering rendering to avoid models that look bad or do not meet required standards
- ♦ Present design models and portfolios in a professional manner
- ♦ Refine the composition of light, shape, color and pose of the models to enhance the work
- ♦ Know and meet the demands in hair creation for film and video games
- ♦ Create hair mastering different artistic styles
- ♦ Master the Marvelous Designer tool and its complex patterns
- ♦ Create realistic or *cartoon* characters in a versatile and plausible manner
- ♦ Know the anatomy of all types of creatures in order to represent them accurately
- ♦ Master *Unreal Engine* and Blender more effectively than most designers

05

Course Management

TECH offers quality learning in all of its programs, applying the technology currently available in academic education. It also rigorously selects the faculty that teaches each of the programs to give students the most innovative and specialized content in their sector. In this case, the graphic design professional has an expert teacher in 3D organic modeling design, who has been part of creative studios that have worked on international projects.





“

A professional with experience in projects with multinationals will be responsible for guiding you in this Hybrid Master's Degree. Click and specialize with the best"

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 Animation Specialist
- ♦ Concept Artist, 3D Modeler and Shading in Timeless Games Inc
- ♦ Vignettes and animations design consultant for commercial proposals in Spanish multinationals
- ♦ 3D Specialist at Blue Pixel 3D
- ♦ Advanced Technician in 3D Animation, video games and interactive environments at CEV School of Communication, Image and Sound



06

Educational Plan

The syllabus of this Hybrid Master's Degree has been developed by the teacher who teaches this program and who has experience in the industry, so she knows firsthand the main tools and software that must master the students who want to progress in the audiovisual industry with their three-dimensional designs. Therefore, during the 10 modules that make up this course, the graphic design professional will learn the main techniques for the modeling of figures, characters and virtual environments with the design programs used by the major studios in the sector.



“

The library of multimedia resources and case studies will give you all the knowledge you need to advance in the field of 3D modeling”

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 UV and Application of Displacement Mapping
 - 2.10.1. UV of the Character and Importance of Sizes
 - 2.10.2. Texturing
 - 2.10.3. Displacement Map

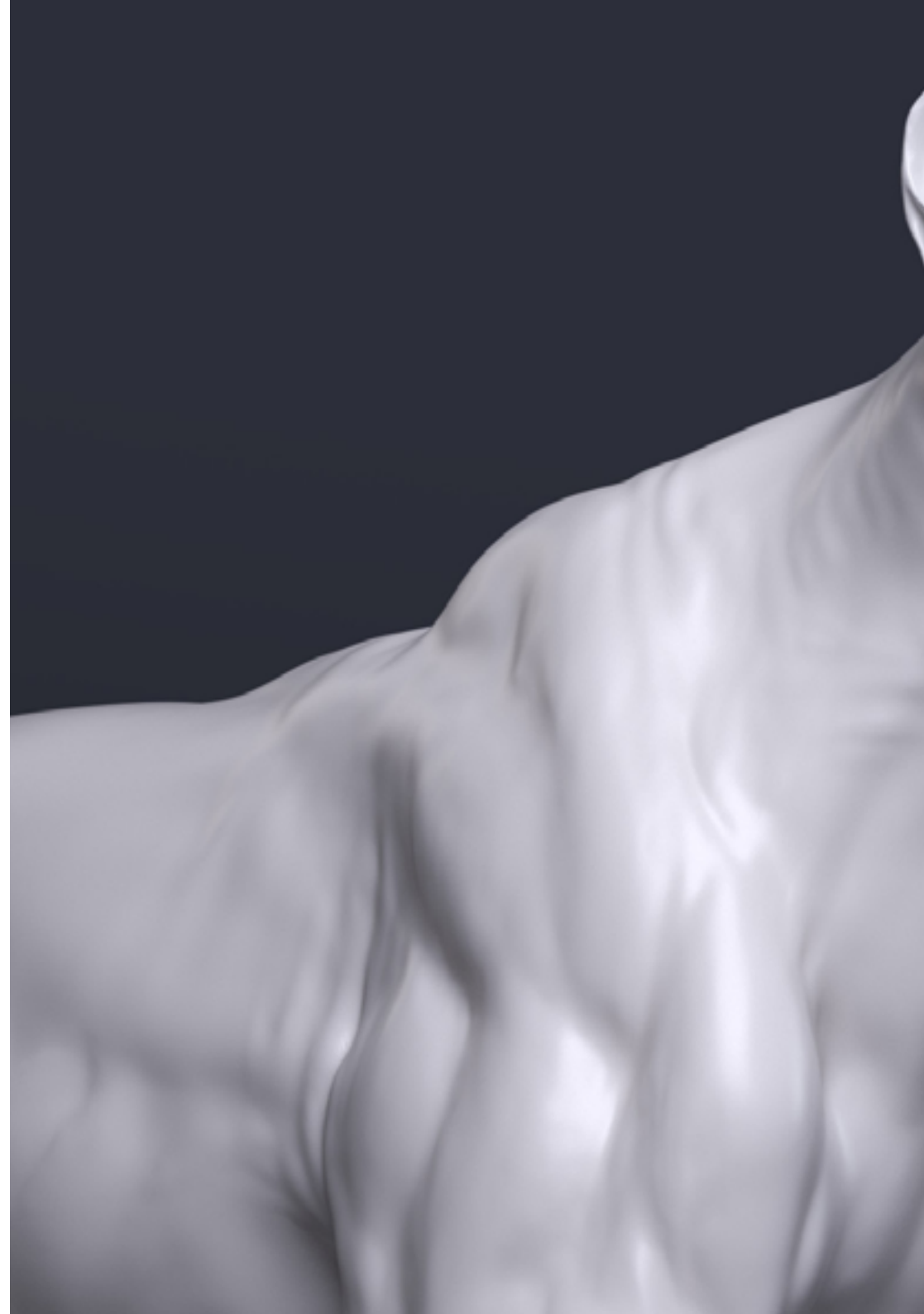
Module 3. UV and Texturing with Allegorithmic Substance Painter and Mari

- 3.1. Creation of High-Level UVs in Maya
 - 3.1.1. Facial UVs
 - 3.1.2. Creation and Layout
 - 3.1.3. Advanced UV
- 3.2. UV Preparation for UDIM Systems Focused on High Throughput Models
 - 3.2.1. UDIM
 - 3.2.2. UDIM in Maya
 - 3.2.3. Textures in 4K
- 3.3. XYZ textures: what they are 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

Module 4. Rendering, Lighting and Posing of Models

- 4.1. Characters Posing in ZBrush
 - 4.1.1. Rig in ZBrush with ZSpheres
 - 4.1.2. Transpose Master
 - 4.1.3. Professional Finish
- 4.2. Rigging and Weighting of our Own Skeleton in Maya
 - 4.2.1. Rig in Maya
 - 4.2.2. Rigging Tools with Advanced Skeleton
 - 4.2.3. Rig Weighting
- 4.3. Blend Shapes to Give Life to Your Character's Face
 - 4.3.1. Facial Expressions
 - 4.3.2. Blend Shapes of Maya
 - 4.3.3. Animation with Maya
- 4.4. Mixamo, a Quick Way to Present Our Model
 - 4.4.1. Mixamo
 - 4.4.2. Mixamo Rigs
 - 4.4.3. Animations
- 4.5. Lighting Concepts
 - 4.5.1. Lighting Techniques
 - 4.5.2. Light and Color
 - 4.5.3. Shade
- 4.6. Arnold Render Lights and Parameters
 - 4.6.1. Lights with Arnold and Maya
 - 4.6.2. Lighting Control and Parameters
 - 4.6.3. Arnold Parameters and Configuration
- 4.7. Lighting of our Models in Maya with Arnold Render
 - 4.7.1. Lighting Set Up
 - 4.7.2. Model Lighting
 - 4.7.3. Mixing Light and Color
- 4.8. Going Deeper in Arnold: Denoising and the Different AOV
 - 4.8.1. AOV
 - 4.8.2. Advanced Noise Treatment
 - 4.8.3. Denoiser





- 4.9. Real-Time Rendering in Marmoset Toolbag
 - 4.9.1. Real-Time vs. Ray Tracing
 - 4.9.2. Advanced Marmoset Toolbag
 - 4.9.3. Professional Presentation
- 4.10. Post-Production Rendering in Photoshop
 - 4.10.1. Image Processing
 - 4.10.2. Photoshop: Levels and Contrasts
 - 4.10.3. Layers: Characteristics and their Effects

Module 5. Hair Creation for Video Games and Movies

- 5.1. Differences Between Videogame Hair and Film Hair
 - 5.1.1. FiberMesh and Cards
 - 5.1.2. Tools for Hair Creation
 - 5.1.3. Hair Software
- 5.2. ZBrush Hair Sculpting
 - 5.2.1. Basic Shapes for Hairstyles
 - 5.2.2. Creating Brushes in ZBrush for Hair
 - 5.2.3. Curve Brushes
- 5.3. Hair Creation in XGen
 - 5.3.1. XGen
 - 5.3.2. Collections and Descriptions
 - 5.3.3. Hair vs. Grooming
- 5.4. XGen Modifiers: Adding Realism to Hair
 - 5.4.1. Clumping
 - 5.4.2. Coil
 - 5.4.3. Hair Guides
- 5.5. Color and Region Maps:: for Absolute Hair Control
 - 5.5.1. Maps of Hair Regions
 - 5.5.2. Cuts: Curly, Shaved and Long Hair
 - 5.5.3. Micro Detail: Facial Hair
- 5.6. Advanced Xgen: Use of Expressions and Refinement
 - 5.6.1. Expressions
 - 5.6.2. Utilities
 - 5.6.3. Hair Refinement

- 5.7. Cards Placement in Maya for Videogame Modeling
 - 5.7.1. Fibers in Cards
 - 5.7.2. Cards by Hand
 - 5.7.3. Cards and Real-Time Engine
- 5.8. Optimization for Movies
 - 5.8.1. Optimization of the Hair and its Geometry
 - 5.8.2. Preparation for Physics with Movements
 - 5.8.3. XGen Brushes
- 5.9. Hair Shading
 - 5.9.1. Arnold Shader
 - 5.9.2. Hyper-realistic Look
 - 5.9.3. Hair Treatment
- 5.10. Render
 - 5.10.1. Rendering When Using XGen
 - 5.10.2. Lighting
 - 5.10.3. Noise Elimination

Module 6. Clothing Simulation

- 6.1. Importing your Model to Marvelous Designer and Program Interface
 - 6.1.1. Marvelous Designer
 - 6.1.2. Software Functionality
 - 6.1.3. Real-Time Simulations
- 6.2. Creation of Simple Patterns and Clothing Accessories
 - 6.2.1. Creations: T-shirts, Accessories, Hats and Pockets
 - 6.2.2. Fabric
 - 6.2.3. Patterns, Zippers and Seams
- 6.3. Advanced Clothing Creation: Complex Patterns
 - 6.3.1. Pattern Complexity
 - 6.3.2. Physical Qualities of Fabrics
 - 6.3.3. Complex Accessories

- 6.4. Clothing Simulation at Marvelous
 - 6.4.1. Animated Models at Marvelous
 - 6.4.2. Fabric Optimization
 - 6.4.3. Model Preparation
- 6.5. Export of Clothing from Marvelous Designer to ZBrush
 - 6.5.1. Low Poly in Maya
 - 6.5.2. UV in Maya
 - 6.5.3. ZBrush, Use of Reconstruct Subdiv
- 6.6. Refinement of Clothing
 - 6.6.1. Workflow
 - 6.6.2. Details in ZBrush
 - 6.6.3. Clothing Brushes in ZBrush
- 6.7. Improve the Simulation with ZBrush
 - 6.7.1. From Tris to Quads
 - 6.7.2. UV Maintenance
 - 6.7.3. Final Carving
- 6.8. High Detail Clothing Texturing in Mari
 - 6.8.1. Tileable Textures and Fabric Materials
 - 6.8.2. Baking
 - 6.8.3. Texturing in Mari
- 6.9. Maya Fabric Shading
 - 6.9.1. Shading
 - 6.9.2. Textures Created in Mari
 - 6.9.3. Realism with Arnold Shaders
- 6.10. Render
 - 6.10.1. Clothing Rendering
 - 6.10.2. Illumination in Clothing
 - 6.10.3. Texture Intensity

Module 7. Stylized Characters

- 7.1. Choice of a Stylized Character and Blocking of Base Forms
 - 7.1.1. References and Concept Arts
 - 7.1.2. Base Forms
 - 7.1.3. Deformities and Fantastic Shapes
- 7.2. Conversion of our Low Poly into High Poly Model: Head, Hair and Face Sculpting
 - 7.2.1. Head Blocking
 - 7.2.2. New Hair Creation Techniques
 - 7.2.3. Improvements
- 7.3. Model Refinement: Hands and Feet
 - 7.3.1. Advanced Sculpting
 - 7.3.2. Refinement of General Shapes
 - 7.3.3. Shape Cleaning and Smoothing
- 7.4. Creation of Jaw and Teeth
 - 7.4.1. Creation of Human Teeth
 - 7.4.2. Increase its Polygons
 - 7.4.3. Fine Detailing of Teeth in ZBrush
- 7.5. Modeling Clothing and Accessories
 - 7.5.1. Types of Cartoon Clothing
 - 7.5.2. Zmodeler
 - 7.5.3. Applied Maya Modeling
- 7.6. Retopology and Clean Topology Creation from Scratch
 - 7.6.1. Retopology
 - 7.6.2. Loops According to the Model
 - 7.6.3. Optimization of the Mesh
- 7.7. UV Mapping and Baking
 - 7.7.1. University of Valencia
 - 7.7.2. Substance Painter: Baking
 - 7.7.3. Polishing Baking

- 7.8. Texturing and Painting In Substance Painter
 - 7.8.1. Substance Painter: Texturing
 - 7.8.2. Hand Painted Cartoon Techniques
 - 7.8.3. Fill Layers with Generators and Masks
- 7.9. Lighting and Rendering
 - 7.9.1. Lighting of Our Character
 - 7.9.2. Color Theory and Presentation
 - 7.9.3. Substance Painter: Render
- 7.10. Posing and Final Presentation
 - 7.10.1. Diorama
 - 7.10.2. Posing Techniques
 - 7.10.3. Presentation of Models

Module 8. Creature Modeling

- 8.1. Understanding Animal Anatomy
 - 8.1.1. Study of the Bones
 - 8.1.2. Proportions of an Animal Head
 - 8.1.3. Anatomic Differences
- 8.2. Anatomy of the Skull
 - 8.2.1. Animal Face
 - 8.2.2. Muscles of the Head
 - 8.2.3. Skin Layer, Over Bones and Muscles
- 8.3. Anatomy of the Spine and Thoracic Cage
 - 8.3.1. Animal Torso and Hip Musculature
 - 8.3.2. Central Axis of its Body
 - 8.3.3. Creation of Torsos in Different Animals
- 8.4. Animal Musculature
 - 8.4.1. Muscle
 - 8.4.2. Synergy Between Muscles and Bones
 - 8.4.3. Shapes of an Animal Body

- 8.5. Reptiles and Amphibians
 - 8.5.1. Reptilian Skin
 - 8.5.2. Small Bones and Ligaments
 - 8.5.3. Fine Detail
- 8.6. Mammals
 - 8.6.1. Fur
 - 8.6.2. Larger, Stronger Bones and Ligaments
 - 8.6.3. Fine Detail
- 8.7. Animals with Feathers
 - 8.7.1. Plumage
 - 8.7.2. Elastic and Light Bones and Ligaments
 - 8.7.3. Fine Detail
- 8.8. Analysis of the Jaw and Creation of Teeth
 - 8.8.1. Animal Specific Teeth
 - 8.8.2. Detailing of Teeth
 - 8.8.3. Teeth in the Jaw Cavity
- 8.9. Creation of Fur, Fur for Animals
 - 8.9.1. XGen in Maya: Grooming
 - 8.9.2. XGen: Feathers
 - 8.9.3. Render
- 8.10. Fantastic Animals
 - 8.10.1. Fantastic Animal
 - 8.10.2. Complete Modeling of the Animal
 - 8.10.3. Texturing, Lighting and Rendering

Module 9. Blender: A New Twist in the Industry

- 9.1. Blender vs. ZBrush
 - 9.1.1. Advantages and Differences
 - 9.1.2. Blender and the 3D Art Industry
 - 9.1.3. Advantages and Disadvantages of Freeware
- 9.2. Blender Interface and Program Knowledge
 - 9.2.1. Interface
 - 9.2.2. Customization
 - 9.2.3. Experimentation

- 9.3. Head Sculpting and Transpolation of Controls from ZBrush to Blender
 - 9.3.1. The Human Face
 - 9.3.2. 3D Sculpting
 - 9.3.3. Blender Brushes
- 9.4. Full Body Sculpting
 - 9.4.1. The Human Body
 - 9.4.2. Advanced Techniques
 - 9.4.3. Detail and Refinement
- 9.5. Retopology and UV in Blender
 - 9.5.1. Retopology
 - 9.5.2. University of Valencia
 - 9.5.3. Blender UDIMS
- 9.6. From Maya to Blender
 - 9.6.1. Hard Surface
 - 9.6.2. Modifiers
 - 9.6.3. Keyboard Shortcuts
- 9.7. Blender Tips & Tricks
 - 9.7.1. Range of Possibilities
 - 9.7.2. Geometry Nodes
 - 9.7.3. Workflow
- 9.8. Nodes in Blender: Shading and Texture Placement
 - 9.8.1. Nodal System
 - 9.8.2. Shaders Through Nodes
 - 9.8.3. Textures and Materials
- 9.9. Rendering in Blender with Cycles and Eevee
 - 9.9.1. Cycles
 - 9.9.2. Eevee
 - 9.9.3. Lighting
- 9.10. Implementation of Blender in our Workflow as Artists
 - 9.10.1. Implementation in the Workflow
 - 9.10.2. Search for Quality
 - 9.10.3. Types of Exports

Module 10. Creation of Organic Environments in *Unreal Engine*

- 10.1. Unreal Engine Configuration and Project Organization
 - 10.1.1. Interface and Configuration
 - 10.1.2. Folder Organization
 - 10.1.3. Search for Ideas and References
- 10.2. Blocking an Environment in Unreal Engine
 - 10.2.1. Primary, Secondary and Tertiary PST Elements
 - 10.2.2. Scene Design
 - 10.2.3. Storytelling
- 10.3. Terrain Modeling: Unreal Engine and Maya
 - 10.3.1. Unreal Terrain
 - 10.3.2. Terrain Sculpting
 - 10.3.3. Heightmaps: Maya
- 10.4. Modeling Techniques
 - 10.4.1. Rock Sculpting
 - 10.4.2. Rock Brushes
 - 10.4.3. Cliffs and Optimization
- 10.5. Creation of Vegetation
 - 10.5.1. Speedtree Software
 - 10.5.2. Low-Poly Vegetation
 - 10.5.3. Unreal's Foliage System
- 10.6. Texturing in Substance Painter and Mari
 - 10.6.1. Stylized Terrain
 - 10.6.2. Hyper-realistic Texturing
 - 10.6.3. Tips and Guidelines
- 10.7. Photogrammetry
 - 10.7.1. Megascan Library
 - 10.7.2. Agisoft Metashape Software
 - 10.7.3. Model Optimization

- 10.8. Shading and Materials in Unreal Engine
 - 10.8.1. Blending of Textures
 - 10.8.2. Material Settings
 - 10.8.3. Final Touches
- 10.9. Lighting and Post-Production of our Environment in Unreal Engine
 - 10.9.1. Scene Look
 - 10.9.2. Types of Lights and Atmospheres
 - 10.9.3. Particles and Fog
- 10.10. Cinematic Rendering
 - 10.10.1. Camera Techniques
 - 10.10.2. Video and Screen Capture
 - 10.10.3. Presentation and Final Finishing

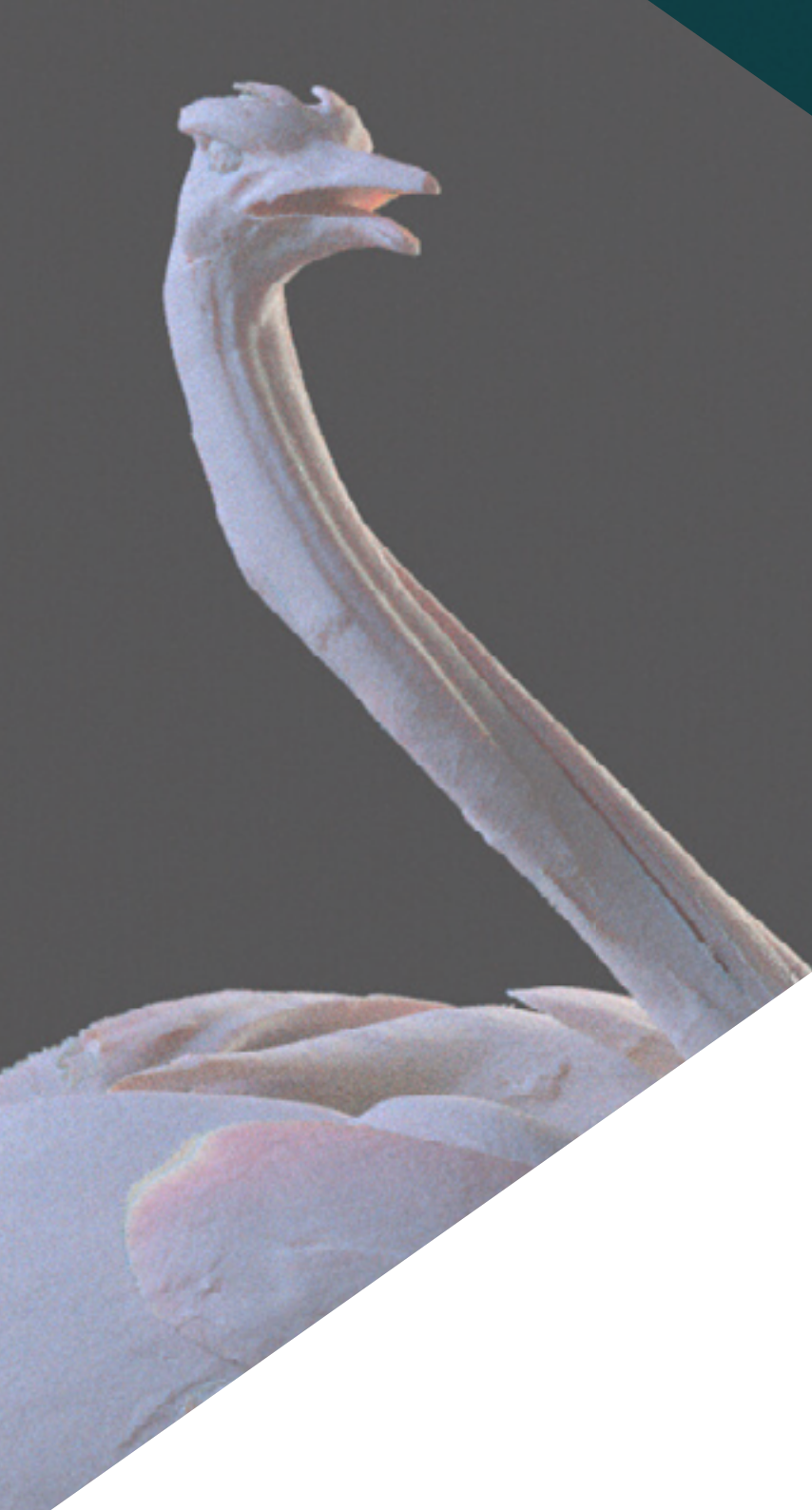


This Hybrid Master's Degree provides you with a learning that will allow you to have an optimal final finish of your 3D modeling"

07

Internship

Once the first theoretical stage of the Hybrid Master's Degree has been completed, students will undergo a stage consisting of an internship in a leading company in the sector with professionals in the field of graphic design in the audiovisual industry. This will provide a more complete learning about Organic 3D Modeling.



“

*Do your internship in a professional environment
and with the main tools used in the graphic
design sector”*

The Internship Program of this 3D Organic Modeling program consists of an internship in a leading company in the graphic design industry. Therefore, students will be present from Monday to Friday with 8 consecutive hours of practical teaching with specialists in this field.

In this phase, the student will live an experience closer to the work environment, where they will be able to apply all the technical knowledge acquired in the theoretical part.

The TECH teaching team will be accompanying students during this stage to ensure that their objectives are met and that the teaching they receive is sufficient for the student to advance in their professional career through an experience close to an increasingly demanding industry.

In this completely practical Internship Program, students will work alongside professionals in the sector who will show them the main techniques to create a composition of a complete human figure, creatures and all the elements that make up the scenery of video games or animated films.

Equally important at this stage will be the knowledge of the programs that allow a correct retopology and rendering, resulting in an optimal 3D organic modeling. It is, therefore, an excellent opportunity to learn alongside professionals with the latest technology used by the leading studios in this field.

The practical part will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other training partners that facilitate teamwork and multidisciplinary integration as transversal competencies for the praxis of physical therapy (learning to be and learning to relate).





The procedures described below will be the basis of the practical part of the training, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:

Module	Practical Activity
Technologies and software applied to organic 3D modeling	Advanced facial retopology with Maya Modeling
	Texture models in <i>Substance Painter</i>
	Refine hair sculpting with Xgen Advanced
	Export clothing files from Marvelous Designer to Zbrush
	Sculpt with <i>Low Poly to High Poly heads, hairs and faces</i>
	Illuminate concrete models in Maya with Arnold Render
	Creating a high-level UV map in Maya
Organic 3D modeling techniques	Create a composition of a complete human figure
	Perform post-production rendering in Photoshop
	Design clean topology from scratch for the models to be worked on.
	Apply a good posing and final presentation of the worked model
	Develop the postproduction of the environment in <i>Unreal Engine</i> for a good rendering
Organic 3D Modeling for characters and animals	Pass models and controls from Maya and ZBrush to Blender
	Sculpt an anatomically correct body, taking into account head, torso and arm dimensions and specific parts such as hands and legs.
	Create <i>rigging and posing of characters in Maya and ZBrush respectively.</i>
	Perform adequate and optimal rendering of clothing and lighting
	Model the skull, spine and rib cage anatomy of different creatures, as well as their muscles.
Organic 3D modeling of clothes and soft surfaces	Create a coat suitable for the type of animal you are working with
	Create simple and complex clothing patterns with accessories in Marvelous Designer
	Refine hair sculpting with Xgen Advanced
	Create realistic environments and terrains in <i>Unreal Engine</i>

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Hybrid Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Hybrid Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

Where Can I Do the Internship?

This Hybrid Master's Degree program includes in its program an internship in a relevant company in the audiovisual industry, which has in its team professionals with extensive experience in the design sector, especially in the phase of three-dimensional modeling in the field of video games and animated films.



“

Complete your learning with an internship in one of the leading companies in the graphic design sector"

tech 46 | Where Can I Do the Internship?



The student will be able to complete the practical part of this Hybrid Professional Master's Degree at the following centers:



Design

Goose & Hopper

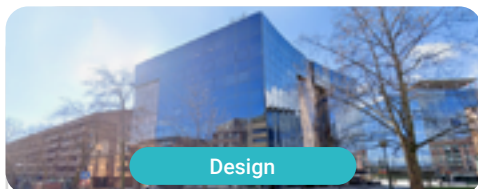
Country	City
Spain	Valencia

Address: La Marina de Valencia, Muelle de la Aduana S/N Edificio Lanzadera 46024

Advertising, design, technology and creative agency

Related internship programs:

- Digital Communication and Reputation Management
- Organic 3D Modeling



Design

Lab66

Country	City
Spain	Navarra

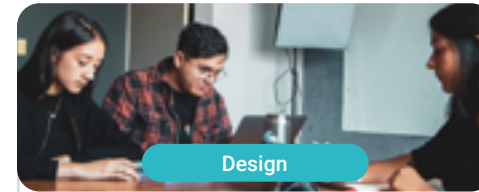
Address: Tomás Caballero nº2,
1ª Planta Oficina 9, 31005

Studio specialized in Virtual Reality and 3D Rendering

Related internship programs:

- Organic 3D Modeling
- Video Game Programming





Design

Goose & Hopper

Country	City
Mexico	Michoacán de Ocampo

Address: Avenida Solidaridad Col. Nueva Chapultepec Morelia, Michoacan

Advertising, design, technology and creative agency

Related internship programs:

- Digital Communication and Reputation Management
- Organic 3D Modeling



You will combine theory and professional practice through a demanding and rewarding educational approach"

09

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.

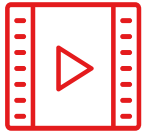
Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

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.



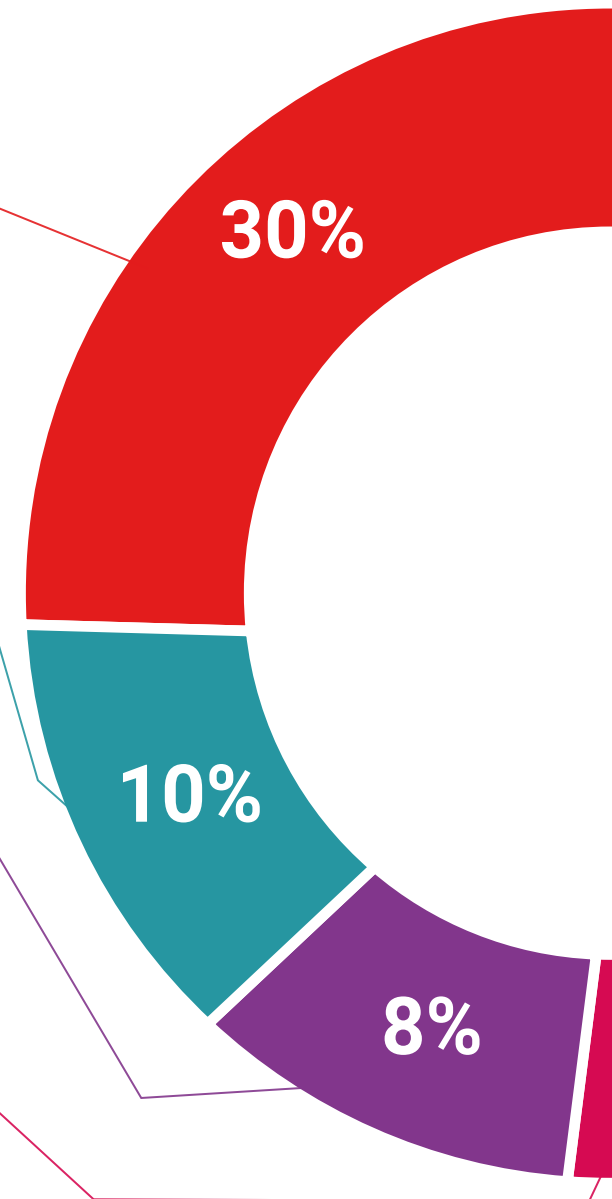
Practising Skills and Abilities

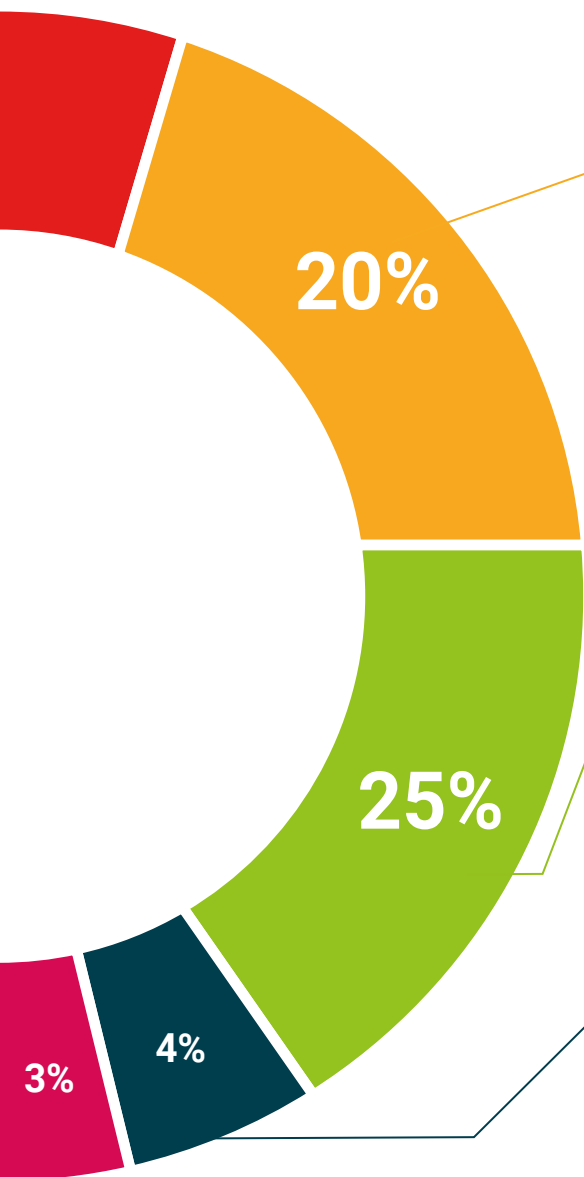
They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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.



10 Certificate

The Hybrid Master's Degree in Organic 3D Modeling guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Master's Degree 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 **Hybrid Master's Degree diploma in Organic 3D Modeling** 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.

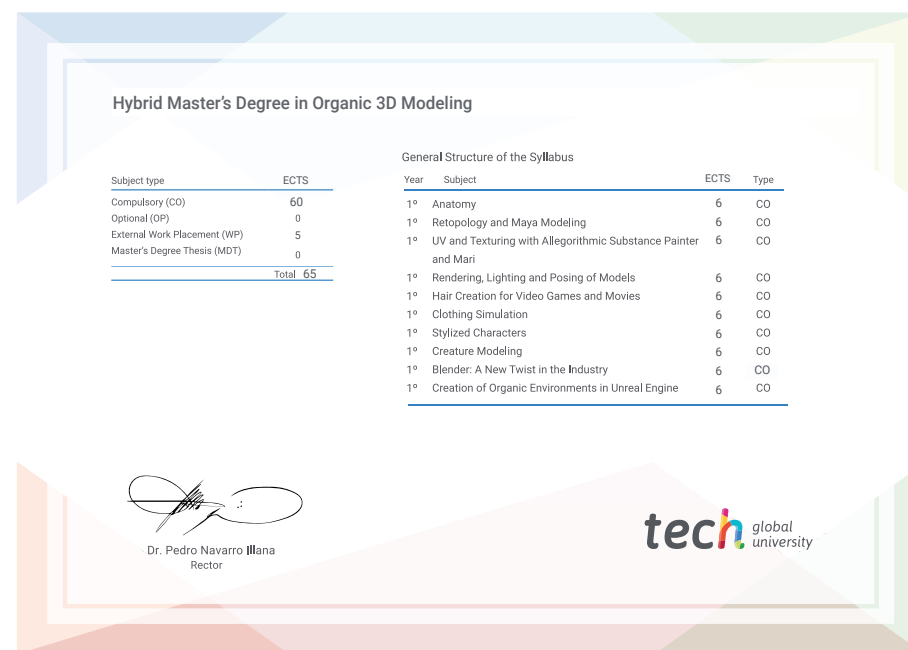
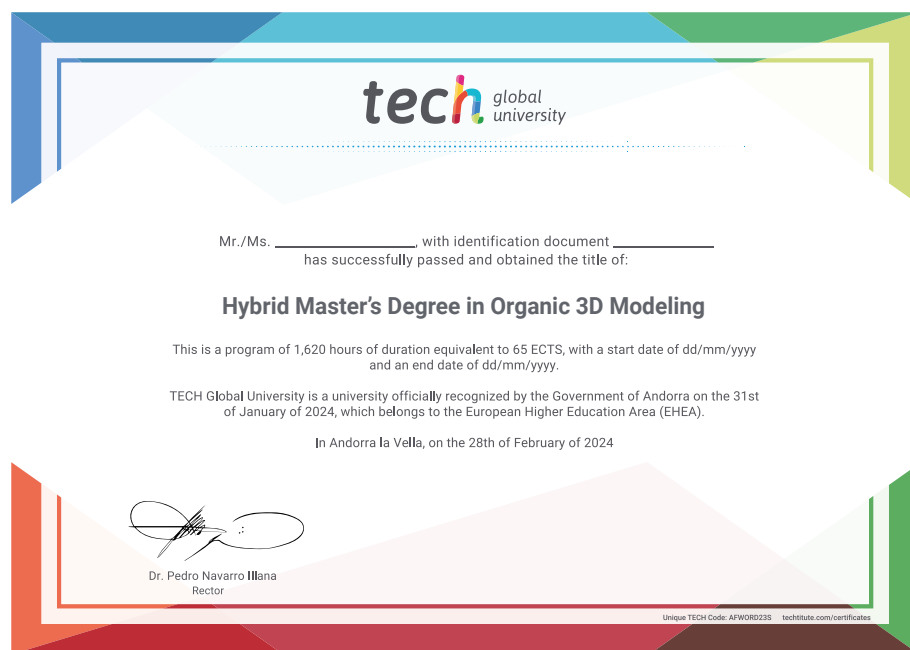
Title: **Hybrid Master's Degree in Organic 3D Modeling**

Course Modality: **Hybrid (Online + Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

Recognition: **60 + 5 ECTS Credits**





Hybrid Master's Degree Organic 3D Modeling

Modality: Hybrid (Online + Internship)

Duration: 12 months

Certificate: TECH Global University

Hybrid Master's Degree

Organic 3D Modeling

