

Professional Master's Degree

Organic 3D Modeling





Professional Master's Degree Organic 3D Modeling

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/us/videogames/professional-master-degree/master-organic-3d-modeling

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01

Introduction

3D modeling is an art in itself, which requires knowledge and well-developed artistic notions to give an original touch to the characters and environments of a video game. In its organic version, it is used to imitate and follow the natural forms found in reality. Thanks to the current technological development, programmers have more powerful tools to do their work. Being at the forefront in this field is indispensable for video game professionals looking to improve the visual effects of their projects. Therefore, this program will provide the opportunity to specialize, online, in a sector in constant growth.



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Do you want to dedicate yourself to Organic 3D Modeling? This program will give you the opportunity to learn from the best in the industry”

The current realism that many video games present can be separated into two branches. There are the deliveries that provide incredible cinematics, with countless realistic effects and that introduce the user in a scene almost similar to that of a movie. On the other hand, there are also titles with fantasy worlds and characters that are out of proportion to reality: long arms, bulging eyes, mouths with fangs, etc. In both cases, they have one thing in common, they have been made following a Organic 3D Modeling system.

In this sense, this technique has come to be considered as an art in itself, in which it is not only enough to have artistic and aesthetic notions, but also necessary to have technical knowledge to handle the tools used for this purpose. Likewise, the basis of modeling focuses on the millimetric control of the elements that affect the geometry (textures, topology, smoothing, etc.), thus obtaining a higher visual quality of the character or the environment that is designed.

For all these reasons, many professionals have begun to specialize in this field, becoming an indispensable requirement for those video game programmers who wish to work with large companies or independently.

Under this premise, this program has been devised, which not only seeks to provide theoretical knowledge about the tools used for Organic 3D Modeling, but goes a step further: to help the video game developers to improve their professional profile. This will be supported by different real cases presented by experts in the sector and by performing practical exercises to polish their skills.

All this condensed in a program that allows a direct qualification, in which it will not be necessary to do a final work to start practicing as a specialist in the area. Likewise, the teaching methodology allows special emphasis to be placed on those competencies that are necessary to achieve professional success.

This **Professional Master's Degree in Organic 3D Modeling** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- ◆ 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 the self-assessment process can be carried out 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



Knowing and handling Organic 3D Modeling will allow you to become professionally independent and undertake your own projects”

“

Today is a good time to start learning. Don't delay any longer and you'll find that career opportunity you're looking for”

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.

Creating figures in Organic 3D Modeling is not easy, but in this program you will discover the tricks of the pros to achieve it.

Hold a university degree from one of the largest digital universities in the world: TECH.



02 Objectives

The objective of this Professional Master's Degree is clear: to help students achieve their professional goals. For this purpose, it has designed a program that contains the theoretical knowledge necessary to apply 3D modeling techniques in the relevant software. Therefore, you will be able to design a character following the correct anatomical shapes or modify them to create new creatures.





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Specializing in Organic 3D Modeling will help you avoid mistakes when recreating the face of an actor or soccer player”



General Objectives

- ◆ 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





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 form of 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

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
- ◆ Studying 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



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In just a few months you will be able to learn everything you need to be the best 3D video game modeler”

03 Skills

Knowledge without skill does not express the capabilities of a professional. Therefore, this program seeks to go further, allowing students to acquire a set of skills that will help them to develop and prove their worth anywhere in the world. Thus, this program will provide them with the basis to adapt to the demands of the video game in which they participate, critically reasoning about their work and contributing new ideas to the team.



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By enrolling in this program, you will acquire the skills and competencies to achieve new professional goals”

After completing this training, the professional will be able to:



General Skills

- ◆ Create any kind of completely organic living being including its clothing 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

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The competencies that this program will provide you with will be your letter of introduction at the professional level"





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
- ◆ Master rendering to avoid models that look bad or do not meet the 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 value of 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

04

Course Management

The teachers brought together to teach the contents of the program have extensive experience in the sector. They have dedicated their careers to specializing in Organic 3D design and modeling in various prestigious international companies. Therefore, they are trained not only to provide up-to-date knowledge, but also to help students develop a set of skills that will enable them to advance in this sector.





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If you want to be the best, you have to learn from the best. Enroll now to start growing in the world of video games”

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

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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



05

Structure and Content

The contents of this Professional Master's Degree meet all the requirements that video game professionals are looking for when specializing in Organic 3D Modeling: time flexibility thanks to its online mode; availability of the contents at any time; and a direct degree, in which it will not be necessary to submit a final work to obtain the accreditation. In addition, students are provided with a complete syllabus and updated to the requirements of the sector.





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Want to know how Final Fantasy characters' hair is created? Then this program is for you"

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 Uv's 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 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: 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 AOVs
 - 4.8.1. AOVs
 - 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. UVs 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. UVs 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. UV's
 - 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 UVs in Blender
 - 9.5.1. Retopology
 - 9.5.2. UVs
 - 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

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

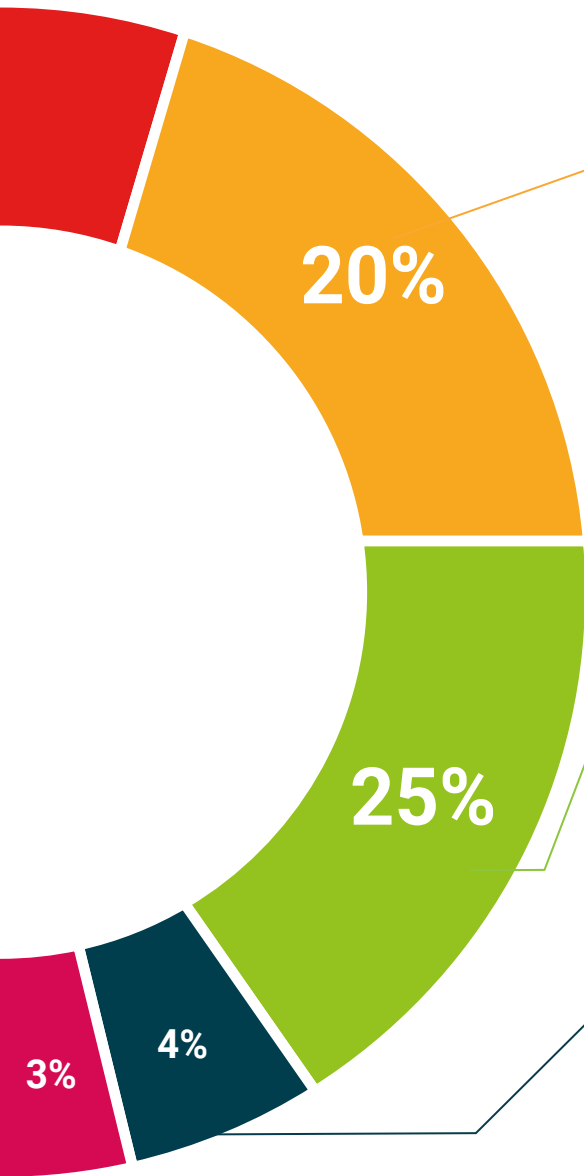
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



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.



07

Certificate

The Professional Master's Degree in Organic 3D Modeling guarantees, in addition to the most rigorous and up-to-date training, access to a certificate 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 **Professional 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: **Professional Master's Degree in Organic 3D Modeling**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**



*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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



Professional Master's Degree

Organic 3D Modeling

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Professional Master's Degree

Organic 3D Modeling

