

Master's Degree

3D Modeling and Texturing



Master's Degree 3D Modeling and Texturing

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

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

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01

Introduction to the Program

Graphics in video games are essential today. The audience seeks realistic and detailed visual experiences, and the technological development of consoles and platforms has made it possible for video games to achieve stunning levels of realism. In fact, a study conducted by a global organization highlights that more than 70% of players consider the visual quality of a video game to be one of the most important aspects of their experience. In this regard, the modeler plays a key role, as they are responsible for ensuring that visual elements, such as hair or clouds, are as realistic as possible. To achieve this goal, TECH presents an innovative program where students can acquire the necessary skills using cutting-edge tools.





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Thanks to this 100% online Master's Degree, you will master the most advanced texturing techniques, enabling you to create realistic and complex textures”

3D Texturing has made remarkable advancements in recent years, becoming an essential element in achieving realism in video games. For instance, the evolution of texturing techniques has allowed for an impressive level of detail in game environments, as evidenced by the release of The Witcher 3: Wild Hunt, which amazed players with the quality of its textures. In this regard, modelers must have a deep understanding of the most advanced tools and techniques to create realistic visual effects and ensure a more immersive and engaging gaming experience.

In this context, TECH introduces an innovative Master's Degree in 3D Modeling and Texturing. The academic program will dive into geometry visualization methods, allowing professionals to understand how 3D models interact in a virtual space. In line with this, the course will cover essential base materials required to create realistic and detailed textures for modeled objects. Additionally, the educational materials will include rendering techniques using Keyshot. In this way, graduates will develop advanced skills to create 3D models with a high level of detail and realism.

Moreover, the degree is offered in a flexible 100% online format, allowing modelers to organize their learning time without restrictions. In fact, all they need is a device with internet access to enter the Virtual Campus. TECH also integrates its innovative Relearning system, which facilitates the natural and progressive assimilation of technical concepts. As such, graduates will not need to rely on traditional methods such as intensive memorization to consolidate their knowledge. Additionally, students will have access to a wide range of educational resources, such as explanatory videos, interactive summaries, and specialized content with high visual value.

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

- ♦ The development of practical cases presented by experts in video games
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an internet connection



You will perform efficient UV mapping and apply textures to 3D models with precision.

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You will master advanced tools such as Substance Painter to optimize workflows and results.

The teaching staff includes professionals from the video game industry, who share their work experience in this program, along with recognized specialists from leading organizations and prestigious universities.

Its multimedia content, created with the latest educational technology, will provide professionals with a situated and contextualized learning experience. In other words, a simulated environment designed to offer immersive training, preparing you for real-world situations.

This program is designed around Problem-Based Learning, whereby the student must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

With the Relearning system you will not have to invest a great amount of study hours and you will focus on the most relevant concepts.

You will create textures that interact properly with light and other elements within a scene.



02

Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs, available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it has a huge faculty of more than 6,000 professors of the highest international prestige.



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Study at the largest online university in the world and ensure your professional success. The future begins at TECH”

The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future".

Forbes

The best online university in the world

The most complete syllabus

The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

TOP
international faculty

The most effective methodology

A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.

World's No.1
The World's largest online university

The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

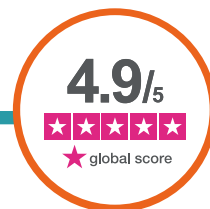
Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.



Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.



The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.



03 Syllabus

This program will provide modelers with the most advanced tools to create highly realistic virtual environments. The curriculum will delve into advanced mesh editing, allowing for detailed manipulation of geometries in each project. Additionally, the syllabus will train graduates in mastering navigation within the 3D environment, a key skill for moving fluidly within any three-dimensional space. The university program will also focus on the use of global illumination multiplier, essential for achieving natural and coherent lighting in scenes.





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You will create 3D texturing projects from conceptualization to final delivery, maintaining high-quality standards throughout”

Module 1. 3D Modeling with 3DS Max

- 1.1. 3D Modeling with 3DS Max
 - 1.1.1. Orbit, Viewers and Views
 - 1.1.2. Geometry Display Modes
 - 1.1.3. *Steering Wheels*
- 1.2. Transformations and Geometry
 - 1.2.1. Interactive and Parametric Transformations
 - 1.2.2. Standard and Extended Primitives
 - 1.2.3. Scaling Transformation
 - 1.2.4. *Select and Place / Select and Rotate*
 - 1.2.5. Align and Symmetry
- 1.3. Main Operations
 - 1.3.1. Duplicate, Interactive Selection and Selection Groups and Elements
 - 1.3.2. Layers, Grid, Snap, and Pivot Point
 - 1.3.3. Links, Coordinate Systems, Actions, Views and Isolate Geometry
- 1.4. Parametric Modifiers
 - 1.4.1. Bend, Taper, Skew, and Twist
 - 1.4.2. Stretch and Squeeze
 - 1.4.3. Ripple, Wave and Noise
 - 1.4.4. Spherify, Lattice and Mirror
 - 1.4.5. Push and Relax
 - 1.4.6. Slice, Shell and CapHoles
- 1.5. Free Deformation Modifiers
 - 1.5.1. FFD Modifiers
 - 1.5.2. FFD Cyl
 - 1.5.3. FFD Box
- 1.6. Composition Objects
 - 1.6.1. Boolean Operations. Boolean and ProBoolean
 - 1.6.2. Objects Dispersion *Scatter*
 - 1.6.3. Morphism. *Morph*
- 1.7. 2D Shapes. *Splines*
 - 1.7.1. Splines and its Options
 - 1.7.2. The Line and Vertex Types
 - 1.7.3. Vertex, Segment and Splines Subobjects

- 1.8. 2D Shapes. Advanced Splines
 - 1.8.1. Editable Splines and use of Grid and Snap to Create 2D Shapes
 - 1.8.2. Parametric Modifiers, FFD and Booleans with Splines
 - 1.8.3. Extended Splines and Section
- 1.9. Modifiers of Splines
 - 1.9.1. *Extrude*
 - 1.9.2. *Bevel*
 - 1.9.3. *Sweep*
 - 1.9.4. *Lathe*
- 1.10. Composition Objects. *Splines*
 - 1.10.1. *Loft*
 - 1.10.2. *Terrain*
 - 1.10.3. *Shape Merge*

Module 2. Advanced 3D Modeling with 3ds Max

- 2.1. Mesh Editing. Polygonal Editing
 - 2.1.1. Polygonal Editing. EditablePoly and EditPoly
 - 2.1.2. Panels, Selection and Flexible Selection
 - 2.1.3. TurboSmooth, MeshSmooth and HSDS Modifier
- 2.2. Mesh Editing. Geometry
 - 2.2.1. Vertex, Edge and Edge Editing
 - 2.2.2. Polygon, Element and Geometry Editing
 - 2.2.3. Geometry Cutting Planes and Added Resolution
- 2.3. Mesh Editing. Selection Groups
 - 2.3.1. Geometry Alignment and Visibility
 - 2.3.2. Selection Sub-Objects, Material IDs and Smoothing Groups
 - 2.3.3. Surface Subdivision and Vertex Painting
- 2.4. Mesh Editing. *Surface*
 - 2.4.1. Geometry Displacement and Deformation Brush
 - 2.4.2. Flat Mode and EditableMesh
 - 2.4.3. Splines + Surface

- 2.5. Advanced Mesh Editing
 - 2.5.1. *EditablePatch*
 - 2.5.2. Model Sheet and Setup for Modeling
 - 2.5.3. Symmetry Tracing and Symmetry
- 2.6. User Customization
 - 2.6.1. Display Floater Tool and Panel Display
 - 2.6.2. Object Properties and Preferences
 - 2.6.3. UI Personalization. Shortcuts, Menus and Colors
 - 2.6.4. Viewer Configuration
- 2.7. Object Distribution
 - 2.7.1. Orthographic View
 - 2.7.2. Spacing Tool and SnapShot
 - 2.7.3. Cloning and Alignment Tool
 - 2.7.4. Matrices. *Array*
- 2.8. Geometric Operations
 - 2.8.1. Polygonal and Parametric Combination
 - 2.8.2. Polygonal Combination and Shapes
 - 2.8.3. Polygonal and Boolean Combination
 - 2.8.4. Polygonal, Spline, Parametric and Boolean Combination
- 2.9. Other Tools
 - 2.9.1. Loops, Constraints and Edge Splitting
 - 2.9.2. Isoline and Collapse Modifiers
 - 2.9.3. Polygon Counter and Types of Optimization
- 2.10. Plugins and Scripts
 - 2.10.1. Plugins and Scripts. *Grass-o-Matic*
 - 2.10.2. Creation of Herbs and Fibers with *Grass-o-Matic*
 - 2.10.3. *Plugin Greeble*
 - 2.10.4. *Script Voronoi. Fracture*

Module 3. 3D Modeling with Blender

- 3.1. Interface
 - 3.1.1. Installation and Initial Setup
 - 3.1.2. Dropdown Menus and Interface Modes
 - 3.1.3. Navigation in the 3D Environment
- 3.2. Object Creation and Selection
 - 3.2.1. Modify Basic Topology
 - 3.2.2. Work Modes
- 3.3. Editing
 - 3.3.1. Add New Geometry
 - 3.3.2. Modify Geometries
 - 3.3.3. Modifiers and Mirror
- 3.4. Geometry
 - 3.4.1. Smooth Modifier
 - 3.4.2. Join and Separate Meshes
 - 3.4.3. Untriangularize
- 3.5. *Edit Mode*
 - 3.5.1. Basic Modeling Units
 - 3.5.2. *Loops*
 - 3.5.3. Tris and Ngons
 - 3.5.4. Subdivision Tool and Modifier
 - 3.5.5. Visibility - Hide and Reveal Objects
 - 3.5.6. *Snap*
 - 3.5.7. Smooth or Flat Preview Modes
- 3.6. Retopology
 - 3.6.1. Conform a Mesh onto Another
 - 3.6.2. Creating Objects Using the 3D Cursor
- 3.7. Organic Modeling
 - 3.7.1. Shape and Topology
 - 3.7.2. Use of Curves
 - 3.7.3. Surface and Nurbs

- 3.8. *Sculpting*
 - 3.8.1. Brushes and Commands
 - 3.8.2. Use of the Remesher
- 3.9. Selection
 - 3.9.1. Mesh Selection
 - 3.9.2. Modify Selections
 - 3.9.3. Select by Vertices, Edges, or Faces
- 3.10. Vertex Paint
 - 3.10.1. Brush Options
 - 3.10.2. Create ID Maps

Module 4. 3D Modeling with ZBrush

- 4.1. ZBrush
 - 4.1.1. Interface and Basic Controls
 - 4.1.2. Subtools, Symmetry, Transpose and Deformation
 - 4.1.3. Brushes and Alphas
- 4.2. Main Tools
 - 4.2.1. Masks and Polygroups
 - 4.2.2. Subdivisions, Dynamesh y ZRemesher
 - 4.2.3. Modify Topology, Matcaps and BPR
- 4.3. Modification Tools
 - 4.3.1. *Insert Multi Mesh*
 - 4.3.2. Layers and Morph Target
 - 4.3.3. Projections and Extract
- 4.4. Advanced Tools
 - 4.4.1. Crease and Bevel
 - 4.4.2. Surface and Shadowbox
 - 4.4.3. *Decimation Master*
- 4.5. ZSpheres and Adaptive Skin
 - 4.5.1. ZSpheres Controls
 - 4.5.2. *ZSketch*
 - 4.5.3. *Adaptive Skin*

- 4.6. Dynamesh and advanced Zremesher
 - 4.6.1. *Booleans*
 - 4.6.2. Brushes
 - 4.6.3. Zremesher Using Guides
- 4.7. Curve Brushes
 - 4.7.1. Controls and Modifiers
 - 4.7.2. Curve Surface and Other Brushes
 - 4.7.3. Creating Brushes with Curve
- 4.8. *Hard Surface*
 - 4.8.1. Segments with Masks
 - 4.8.2. *Polygroupit*
 - 4.8.3. Panel Loops
 - 4.8.4. ZModeler
 - 4.8.5. Primitives
- 4.9. Modifiers
 - 4.9.1. Extender and Multi Slice
 - 4.9.2. Deformer and Blend Twist
 - 4.9.3. Taper and Flatten
 - 4.9.4. Bend Arc and Bend Curve
- 4.10. *Transpose Master*
 - 4.10.1. Posing a character with Transpose Master
 - 4.10.2. Correct Details
 - 4.10.3. Prepare Character for Rendering

Module 5. Texturing

- 5.1. Texturing
 - 5.1.1. *Baking*
 - 5.1.2. PBR. Physically-Based Rendering
 - 5.1.3. Basic and Composite Texturing
 - 5.1.4. Tileable Textures
- 5.2. Mapping Coordinates. UV
 - 5.2.1. Unwrap and Seams
 - 5.2.2. UVW Editor
 - 5.2.3. Editor Options

- 5.3. Object ID
 - 5.3.1. Assigning IDs and Functionality
 - 5.3.2. Multi-Subobject Material
 - 5.3.3. Applying Materials as Instances
- 5.4. HighPoly and Normal Baking in 3ds Max
 - 5.4.1. HighPoly and LowPoly
 - 5.4.2. Projection Settings for Normal Map Baking
 - 5.4.3. Normal Map Texture Baking
 - 5.4.4. Normal Map Settings
- 5.5. Bake other materials in 3DS Max
 - 5.5.1. Application and Diffuse Map Baking
 - 5.5.2. Composite Material
 - 5.5.3. Mask Adjustment
- 5.6. Retopology in 3ds Max
 - 5.6.1. *Retopology Tools*
 - 5.6.2. Retopology with Graphite Tool
 - 5.6.3. Rhetopology Settings
- 5.7. Texturing with 3ds Max
 - 5.7.1. Material properties
 - 5.7.2. Texture Baking
 - 5.7.3. Textural Toasting. Complete Map, Normal Map, and AO Map
- 5.8. Texturing with Photoshop
 - 5.8.1. Coordinate Template
 - 5.8.2. Adding Details in Photoshop and Reimporting Template with Textures
 - 5.8.3. Tile a Texture
 - 5.8.4. Create Normal Map
- 5.9. Mapping Coordinates with ZBrush
 - 5.9.1. UV Master
 - 5.9.2. *Control Painting*
 - 5.9.3. Desenvolver y Aplanar
- 5.10. Texturing with Zbrush
 - 5.10.1. Painting Mode
 - 5.10.2. *Noise Maker*
 - 5.10.3. Image Projection

Module 6. Texturing with Substance Painter

- 6.1. Substance Painter
 - 6.1.1. Create New Project and Reimport Models
 - 6.1.2. Basic Controls and Interface. 2D and 3D Views
 - 6.1.3. *Baking*
- 6.2. Baking Layers
 - 6.2.1. *World Space Normal*
 - 6.2.2. *Ambient Occlusion*
 - 6.2.3. *Curvature*
 - 6.2.4. *Position*
 - 6.2.5. ID, Normal, Thickness
- 6.3. Layers
 - 6.3.1. *Base Color*
 - 6.3.2. *Roughness*
 - 6.3.3. *Metallic*
 - 6.3.4. Material
- 6.4. Masks and Generators
 - 6.4.1. Layers and UVs
 - 6.4.2. Masks
 - 6.4.3. Procedural Generators
- 6.5. Base Material
 - 6.5.1. Types of Material
 - 6.5.2. Custom Generators
 - 6.5.3. Creating a Base Material from Scratch
- 6.6. Brushes
 - 6.6.1. Predefined Parameters and Brushes
 - 6.6.2. Alphas, Lazy Mouse and Symmetry
 - 6.6.3. Creating Custom Brushes and Saving Them
- 6.7. Particles
 - 6.7.1. Particle Brushes
 - 6.7.2. Particle Properties
 - 6.7.3. Particles Using Masks

- 6.8. Projections
 - 6.8.1. Preparing Textures
 - 6.8.2. Stencil
 - 6.8.3. Cloning
- 6.9. *Substance Share/Source*
 - 6.9.1. *Substance Share*
 - 6.9.2. *Substance Source*
 - 6.9.3. Textures.com
- 6.10. Terminology
 - 6.10.1. *Normal Map*
 - 6.10.2. Padding or Bleed
 - 6.10.3. *Mipmapping*

Module 7. Rendering

- 7.1. *Marmoset Toolbag*
 - 7.1.1. Geometry Preparation and FBX Formatting
 - 7.1.2. Basic Concepts. Importance of Geometry
 - 7.1.3. Links and Materials
- 7.2. *Marmoset Toolbag. Sky*
 - 7.2.1. Environmental Setting
 - 7.2.2. Lighting Points
 - 7.2.3. Lights Outside of the Sky
- 7.3. Marmoset Toolbag Details
 - 7.3.1. Shadows and Pose
 - 7.3.2. Procedural Materials
 - 7.3.3. Channels and Reflection
- 7.4. Real-Time Rendering with Marmoset Toolbag
 - 7.4.1. Image Export with Transparency
 - 7.4.2. Interactive Export. *Marmoset Viewer*
 - 7.4.3. Film Export
- 7.5. Marmoset Toolbag. Animated Cameras
 - 7.5.1. Model Preparation
 - 7.5.2. Cameras
 - 7.5.3. Main Camera. Interactive Animation

- 7.6. Marmoset Toolbag. Advanced Animated Cameras
 - 7.6.1. Adding New Cameras
 - 7.6.2. Parametric Animation
 - 7.6.3. Final Details
- 7.7. Marmoset Toolbag 4. Ray Trace
 - 7.7.1. *Subsurface*
 - 7.7.2. *Ray Tracing*
 - 7.7.3. Adding Cameras and Map Rendering
- 7.8. Rendering with Substance Painter. IRay
 - 7.8.1. IRay Setup
 - 7.8.2. *Viewer Settings*
 - 7.8.3. *Display Settings*
- 7.9. Rendering with ZBRush
 - 7.9.1. Material Setup
 - 7.9.2. BPR Render and Lights
 - 7.9.3. BPR Masks and Final Rendering in Photoshop
- 7.10. Rendering with Keyshot
 - 7.10.1. From Zbrush to Keyshot
 - 7.10.2. Materials and Lighting
 - 7.10.3. Photoshop Compositing and Final Image

Module 8. Rendering with V-Ray Engine in 3ds Max

- 8.1. V-Ray Render Engine Assignment
 - 8.1.1. Preparation of the Rendering Space
 - 8.1.2. Render Setup Options and Assign Render
 - 8.1.3. Optimize Rendering Time
- 8.2. Lighting and Light Creation
 - 8.2.1. 3-Point Lighting
 - 8.2.2. Light Setup
 - 8.2.3. *Render Region*
- 8.3. Creation and Application of Materials
 - 8.3.1. V-Ray Materials
 - 8.3.2. V-Ray Materials Settings
 - 8.3.3. *Self-Illumination*

- 8.4. From Substance Painter to V-Ray
 - 8.4.1. Connect Nodes and Material Settings
 - 8.4.2. Export Presets
 - 8.4.3. Set Up Smart Material in V-Ray
- 8.5. Details and Positioning in the Scene
 - 8.5.1. Application of Shades According to the Position of the Model
 - 8.5.2. Adjust Model and Silhouette
 - 8.5.3. Metallic Base
- 8.6. Surface Rounding
 - 8.6.1. V-RayEdgeTex
 - 8.6.2. Functionality and Setup
 - 8.6.3. Rendering With and Without Rounding
- 8.7. Field of View
 - 8.7.1. Camera and Shot
 - 8.7.2. Camera Aperture
 - 8.7.3. Field of View
- 8.8. Ambient Occlusion and Global Illumination
 - 8.8.1. GI and Render Elements
 - 8.8.2. V-RayExtraTex and V-RayDirt
 - 8.8.3. Global Illumination Multiplier
- 8.9. Rendering of a Static Frame
 - 8.9.1. Adjust Render Values
 - 8.9.2. Save Final Render
 - 8.9.3. Composition of Ambient Occlusion
- 8.10. Rendering of a Sequence
 - 8.10.1. Camera Animation
 - 8.10.2. Rendering Options for Sequence
 - 8.10.3. Frame Assembly for the Sequence

Module 9. Characters

- 9.1. Types of Characters
 - 9.1.1. Realistic and cartoon/stylized
 - 9.1.2. Humanoids and Creatures
 - 9.1.3. Anatomy and Proportions
- 9.2. Tips for working with ZBrush
 - 9.2.1. Working with References and Transparencies. Fitting and Transformation from 2D to 3D
 - 9.2.2. Joining Parts with Dynamesh. Working in Pieces or in Conjunction with Polygroups and ZRemesher
 - 9.2.3. Lazy Mouse and GoZ
- 9.3. Sculpting a Head in ZBrush
 - 9.3.1. Primary Shapes and Proportions
 - 9.3.2. Eyelids and Eyes
 - 9.3.3. Nose, Ears, and Lips
 - 9.3.4. ZRemesher for a Head
 - 9.3.5. Eyebrows and Eyelashes
 - 9.3.6. Details and Refinement
- 9.4. Clothing
 - 9.4.1. Clothes
 - 9.4.2. Armor
 - 9.4.3. Modeled Details and with Noise Maker
- 9.5. Modeling Tips
 - 9.5.1. Hands
 - 9.5.2. Styled Hair
 - 9.5.3. Extra Details with Alphas
- 9.6. Modeling Tips for Material Types
 - 9.6.1. Feathers
 - 9.6.2. Rocks or Minerals
 - 9.6.3. Scales
- 9.7. Hair with ZBrush
 - 9.7.1. Curve Brushes
 - 9.7.2. Long Hair with Curve Brush
 - 9.7.3. Short or Animal Hair

- 9.8. Hair with XGen
 - 9.8.1. References and Tool Preparation
 - 9.8.2. Application of Modifiers and Advanced Tools
 - 9.8.3. Lighting and Rendering
- 9.9. Posing with Transpose Master
 - 9.9.1. TPoseMesh. Working with Smoothed Masks, Move and Rotate
 - 9.9.2. The Importance of Silhouette
 - 9.9.3. TPose SubTool. Correcting and Refining Details
- 9.10. Character Props and Environment
 - 9.10.1. Accessories and Weapons. Elements that Tell the Character's Story
 - 9.10.2. Environment and Background Elements. Enhancing the Character
 - 9.10.3. Custom Lighting for the Character

Module 10. Exports to Unreal

- 10.1. Unreal Engine
 - 10.1.1. *Game Exporter*
 - 10.1.2. Create New Project and Controls
 - 10.1.3. Importing Models into Unreal
- 10.2. Basic Properties of Materials
 - 10.2.1. Create Materials and Nodes
 - 10.2.2. Constant and Its Values
 - 10.2.3. *Texture Sample*
- 10.3. Common Material Nodes
 - 10.3.1. *Multiply*
 - 10.3.2. *Texture Coordinate*
 - 10.3.3. *Add*
 - 10.3.4. *Fresnel*
 - 10.3.5. *Panner*
- 10.4. Materials and Bloom
 - 10.4.1. Linear Interpolate
 - 10.4.2. *Power*
 - 10.4.3. *Clamp*





- 10.5. Textures to Modify the Material
 - 10.5.1. Masks
 - 10.5.2. Transparent Textures
 - 10.5.3. *Match Color*
- 10.6. Basic Lighting
 - 10.6.1. *Light Source*
 - 10.6.2. *Skylight*
 - 10.6.3. Fog
- 10.7. Fill and Creative Lighting
 - 10.7.1. *Point Light*
 - 10.7.2. Spot Light y Rect Light
 - 10.7.3. Objects as Light Sources
- 10.8. Night Lighting
 - 10.8.1. Light Source Properties
 - 10.8.2. Fog Properties
 - 10.8.3. Skylight Properties
- 10.9. *Lightmaps*
 - 10.9.1. Viewer Modes. *Lightmap Density*
 - 10.9.2. Improve Lightmaps Resolution
 - 10.9.3. Lightmass Importance Volume
- 10.10. Rendering
 - 10.10.1. Cameras and Their Parameters
 - 10.10.2. Basic Post-Processing
 - 10.10.3. *High-Resolution Screenshot*

“ You will adjust textures and materials to optimize performance in graphic engines”

04

Teaching Objectives

This Master's Degree in 3D Modeling and Texturing is designed to provide modelers with the most innovative techniques in the creation of high-level visual content. In this regard, graduates will master the use of modifiers and mirrors, optimizing symmetry and efficiency in the construction of complex geometries.

Additionally, they will acquire specialized skills for rendering a sequence, ensuring smooth and coherent transitions in full animations. Moreover, they will have precise control over the rendering of a static frame, focused on capturing high-quality professional images.





“

You will design anatomically correct and expressive poses using Transpose Master”



General Objectives

- Delve into all the steps required to create professional-level 3D Modeling
- Understand in detail how textures work and how they influence modeling
- Master various programs focused on modeling, texturing, and real-time applications used today
- Apply the knowledge acquired to solve modeling-related problems
- Know how to organize and manage time spent on a complete 3D modeling project, learning to value your work
- Expertly use the acquired knowledge to create your own projects and intelligently add them to your portfolio
- Develop the resources of each program to achieve the best effect for your modeling
- Solve complex problems ethically and make responsible decisions



You will apply realistic textures to 3D models, including the proper application of diffuse maps”





Specific Objectives

Module 1. 3D Modeling with 3ds Max

- ♦ Transform the geometry to achieve new shapes in the quickest and most efficient way
- ♦ Use 2D elements to combine them with our 3D to create shapes more efficiently

Module 2. Advanced 3D Modeling with 3ds Max

- ♦ Master all types of editing in the software to create any type of model proposed by the user
- ♦ Customize the program to use it in the fastest and most efficient way for each professional

Module 3. 3D Modeling with Blender

- ♦ Distinguish in detail the Blender tool
- ♦ Compare each tool with its counterpart in polygonal mode and learn about their benefits

Module 4. 3D Modeling with ZBrush

- ♦ Gain an in-depth understanding of ZBrush, the most widely used program for organic modeling in the market
- ♦ Optimize the model as you work on it, avoiding potential problems after refinement

Module 5. Texturing

- ♦ Understand the different types of materials available today and how they work, enabling you to create a new one from scratch or modify an existing one
- ♦ Assign Object IDs to work more efficiently with textures

Module 6. Substance Painter Texturing

- ♦ Understand the baking process from a high-resolution model to a low-resolution one
- ♦ Identify about brushes, how to use them, and how to create custom ones

Module 7. Rendering

- ♦ Understand how to position lights to create the appropriate environmental setup
- ♦ Create and position cameras to achieve a perspective that makes 3D modeling more interesting.

Module 8. Rendering with V-Ray Engine in 3ds Max

- ♦ In-depth knowledge of the V-Ray engine assigned to the 3ds Max program
- ♦ Migrate textures created in Substance Painter to V-Ray engine

Module 9. Characters

- ♦ Learn tricks to work faster and more efficiently with ZBrush
- ♦ Gain the skills to know when to use one method over another depending on the situation

Module 10. Exports to Unreal

- ♦ Manage the Unreal Engine real-time engine in a way that allows smooth work with a 3D model and its textures
- ♦ Configure Unreal Lightmaps, achieving better resolution and optimizing engine performance

05

Career Opportunities

This university program in 3D Modeling and Texturing from TECH represents a unique opportunity for modelers who wish to refine their skills in creating realistic and detailed textures. Upon completing the curriculum, graduates will master the use of Freeform Deformation Modifiers, enabling them to design complex and detailed models with ease. They will also be trained to use predefined Parameters and Brushes, optimizing the texturing process to achieve a more professional and efficient finish.



“

Specialize in retopology in 3ds Max, learning to create high-quality meshes for your 3D models”

Graduate Profile

The graduate of this program will be a highly skilled professional capable of creating 3D models with a high level of detail and realism. Moreover, they will master advanced Lighting techniques, such as Three-Point Lighting, applying them with precision to enhance the visual quality of their work. Additionally, they will skillfully handle Dropdown Menus and Interface Modes, optimizing their workflow during the texturing process. They will also incorporate valuable modeling tips, enabling them to tackle complex projects and improve the quality of 3D models in video games.

You will create professional 3D texturing projects that can be used as portfolio pieces in the video game, film, simulation, and other industries.

- ◆ **Adaptation of 3D Tools in Texturing Creation:** Ability to incorporate the latest tools and techniques in 3D modeling and texturing, improving the visual quality and realism of models in video games.
- ◆ **Optimization of the 3D Modeling Workflow:** Ability to apply optimization strategies in modeling and texturing, ensuring efficiency in creating 3D assets for large-scale video game projects.
- ◆ **Advanced Digital Texturing Techniques:** Competence in using specialized programs like ZBrush, Substance Painter, and Photoshop to create detailed and realistic textures that enrich the visual experience of the game.
- ◆ **Professional Ethics and Responsibility in Video Game Design:** Commitment to applying ethical practices in video game design, focusing on the responsible and positive representation of characters and virtual worlds.





After completing the university program, you will be able to apply your knowledge and skills in the following positions:

1. **3D Modeling Artist:** This professional ensures that the models are both functional and visually appealing, working closely with the game design team.
2. **3D Texturing Artist:** Responsible for applying detailed and realistic textures to 3D models, using programs such as Substance Painter or ZBrush.
3. **Lighting and Rendering Specialist:** Responsible for configuring and adjusting lighting in 3D scenes, as well as rendering images and sequences.
4. **3D Character Artist:** Responsible for modeling and texturing characters in video games, from creating the base model to applying advanced details such as hair, clothing, and accessories.
5. **3D Environment Modeler:** Responsible for creating the virtual environments in which characters interact.
6. **3D Props Artist:** In charge of creating 3D objects that are used within video games.



You will coordinate the use of mesh selections to segment, organize, and manipulate specific areas of your 3D models with precision”

06

Software Licenses Included

TECH is a leading reference in the academic world for combining the latest technology with teaching methodologies to enhance the teaching-learning process. To achieve this, it has established a network of alliances that allows it to access the most advanced software tools used in the professional world.



“

Upon enrolling, you will receive, completely free of charge, academic credentials for the following professional software applications”

TECH has established a network of professional alliances with the leading providers of software applied to various professional fields. These alliances allow TECH to access hundreds of software applications and licenses, making them available to its students.

The academic software licenses will allow students to use the most advanced applications in their professional field, so they can become familiar with them and master their use without incurring additional costs. TECH will handle the licensing process so that students can use them unlimitedly during the time they are enrolled in the Master's Degree in 3D Modeling and Texturing, and they will be able to do so completely free of charge.

TECH will provide free access to the following software applications:



Google Career Launchpad

Google Career Launchpad is a solution for developing digital skills in technology and data analysis. With an estimated value of **5,000 dollars**, it is included **for free** in TECH's university program, providing access to interactive labs and certifications recognized in the industry.

This platform combines technical training with practical cases, using technologies such as BigQuery and Google AI. It offers simulated environments to work with real data, along with a network of experts for personalized guidance.

Arnold

Arnold is a world-class rendering engine, valued at **480 euros**, which will be available **at no cost** to graduates for the entire duration of the program. Renowned for its precision and realism, it is used in leading studios such as Sony Pictures Imageworks to produce photorealistic imagery for film and video games.

This platform stands out for its efficiency in handling heavy scenes, maintaining quality without sacrificing speed. It offers full integration with leading software such as Maya and Houdini, and its node-based system facilitates an intuitive workflow. **Arnold** is the preferred tool of visual effects professionals worldwide.



Unreal Engine

Arnold is a world-class rendering engine, valued at **480 euros**, which will be available **at no cost** to graduates for the entire duration of the program. Renowned for its precision and realism, it is used in leading studios such as Sony Pictures Imageworks to produce photorealistic imagery for film and video games.

This platform stands out for its efficiency in handling heavy scenes, maintaining quality without sacrificing speed. It offers full integration with leading software such as Maya and Houdini, and its node-based system facilitates an intuitive workflow. **Arnold** is the preferred tool of visual effects professionals worldwide.

Flame

Flame is available **free of charge** during the academic program, providing professional access to an advanced post-production platform with a commercial value of **4,800 euros**. Widely used in film and advertising environments, this tool offers integrated solutions for editing, VFX, and complex visual design.

This platform enhances technical skills through professional real-time workflows. Its nodal composition capabilities, combined with Artificial Intelligence-based tools, enable users to tackle highly complex projects with efficiency. The graphic environment facilitates the precise design of high-impact visual content, optimizing every stage of the creative process.

07

Study Methodology

TECH is the first university in the world to combine case study methodology with Relearning, a 100% online learning system based on guided repetition.

This innovative pedagogical strategy has been conceived to offer professionals the opportunity to update knowledge and develop skills in an intensive and rigorous way. A learning model that places the student at the center of the academic process and gives them the leading role, adapting to their needs and leaving aside the more conventional methodologies.



“

TECH prepares you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH programs

In TECH's study methodology, the student is the absolute protagonist. The pedagogical tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is the student who chooses the time they spend studying, how they decide to establish their routines and all this from the comfort of the electronic device of their choice. The student will not have to attend live classes, which many times they cannot attend. The learning activities will be done when it is convenient for them. You will always be able to decide when and from where to study.

“

*At TECH you will NOT have in person classes
(which you might not be able to attend)”*



The most comprehensive academic programs worldwide

TECH is distinguished by offering the most complete academic pathways within the higher education landscape. This level of comprehensiveness is achieved through the development of curricula that not only encompass essential knowledge but also integrate the latest innovations in each area of study.

By being constantly updated, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive preparation that provides them with a notable competitive advantage to advance in their careers.

And what's more, they will be able to do so from any device, PC, tablet or smartphone.

“

TECH's model is asynchronous, so it allows you to study with your PC, tablet or smartphone wherever you want, whenever you want and for as long as you want”

Case Studies or Case Method

The case method has been the learning system most used by the best business schools in the world. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to solve them. In 1924 it was established as a standard teaching method at Harvard.

With this teaching model, it is the student who builds their professional competence through strategies such as Learning by Doing or Design Thinking, which are used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, argue and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Method

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, they are able to review and reiterate the key concepts of each subject and learn to apply them in a real environment.

Along the same lines, and according to multiple scientific researches, repetition is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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



A 100% online Virtual Campus with the best teaching resources

To apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on reiteration, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neurosciences points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus for long-term retention. This is a model called Neurocognitive Context-Dependent E-Learning that is consciously applied in this university program.

Furthermore, in order to maximize tutor-student contact, a wide range of communication possibilities are provided, both in real time and deferred (internal messaging, discussion forums, telephone answering service, e-mail contact with the technical secretary, chat and videoconferencing).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, in accordance with their accelerated professional updating.



The online mode of study of this program will allow you to organize your time and your learning pace, adapting it to your schedule”

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology best rated by its students

The results of this innovative academic model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution has become the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is up to date with the technological and pedagogical vanguard.

You will be able to learn with the advantages of access to simulated learning environments and the learning by observation approach, that is, the "Learning from an Expert" approach.



Therefore, the best educational materials, thoroughly prepared, will be available in this program:



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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Practicing Skills and Abilities

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



Interactive Summaries

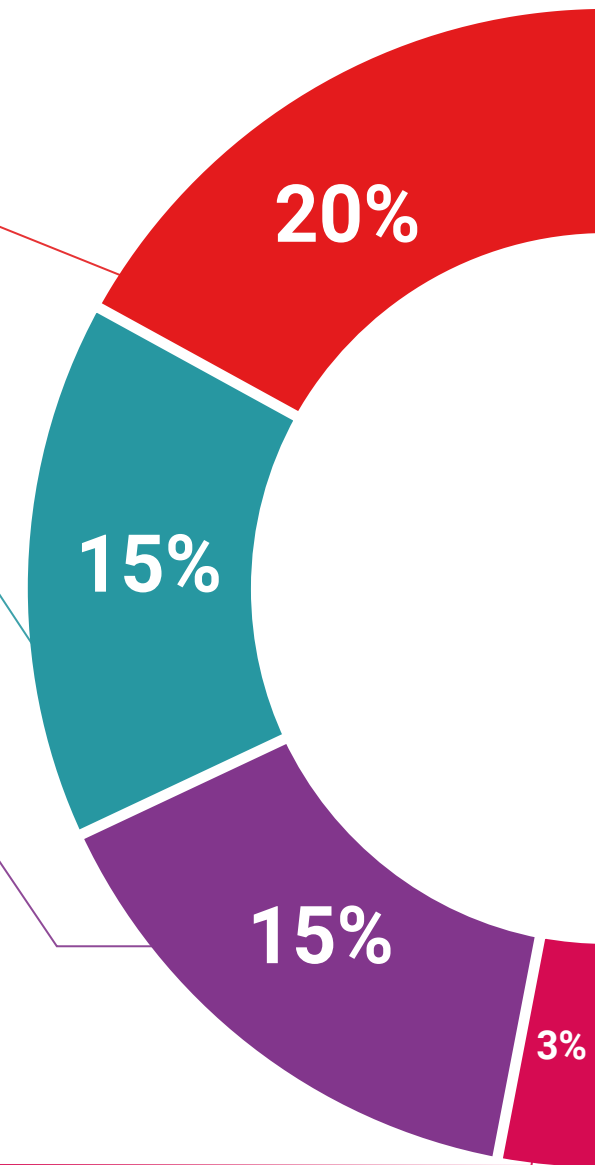
We present the contents in an attractive and dynamic way in multimedia pills that include audio, videos, images, diagrams and concept maps in order to reinforce knowledge.

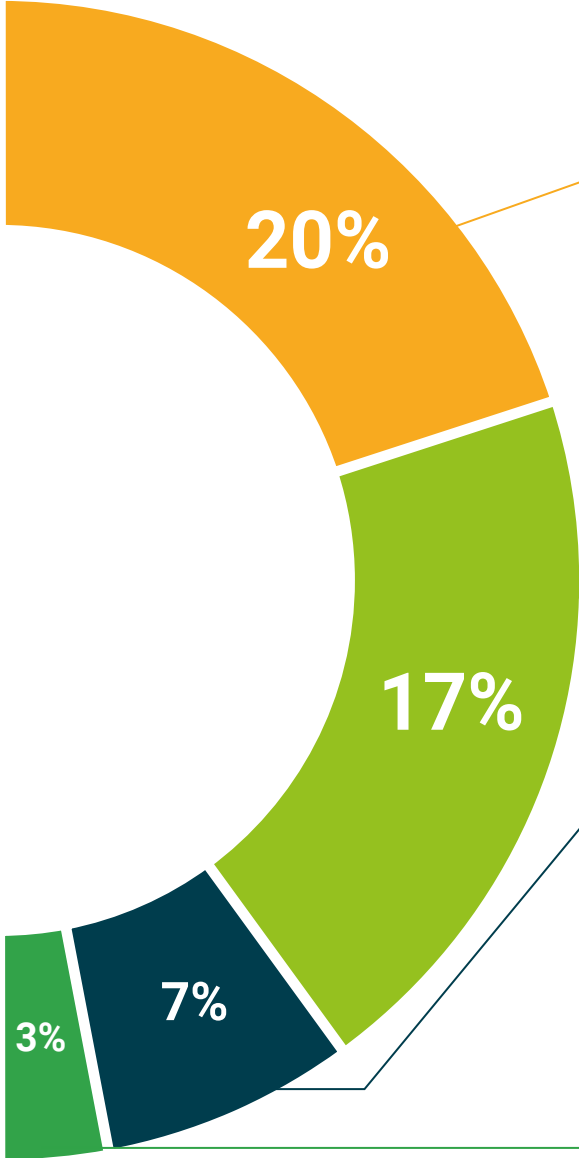
This unique educational system for the presentation of multimedia content was awarded by Microsoft as "Successful Case in Europe."



Additional Reading

Recent articles, consensus documents, international guidelines... In our virtual library you will have access to everything you need to complete your course.





Case Studies

You will complete a selection of the best case studies in the field. Cases presented, analyzed and tutored by the best specialists in the world.



Testing & Retesting

We periodically evaluate and re-evaluate your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.



Masterclasses

There is scientific evidence suggesting that observing third-party experts can be useful. Learning from an expert strengthens knowledge and recall, and generates confidence in our future difficult decisions.



Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.



08

Teaching Staff

The instructors selected by TECH for this university program have impressive professional experience in the field of 3D Modeling and Texturing. As such, they have designed educational content that not only stands out for its high technical quality but also for its practical approach, tailored to current trends in the video game industry. Thanks to this, graduates will undergo a comprehensive experience that will allow them to refine their creative skills and enhance the visual aesthetics of their characters in digital environments.



“

The teaching team for this university program consists of renowned professionals in 3D Modeling and Texturing”

Management



Dr. Vidal Peig, Teresa

- ♦ Specialist in Arts and Technology (digital art, 2D, 3D, VR and AR)
- ♦ Designer and creator of 2D character sketches for mobile video games
- ♦ Designers at Sara Lee, Motos Bordy, Hebo and Full Gass
- ♦ Teacher and director of Master's Degree in Video Game Programming
- ♦ Professor at the University of Girona
- ♦ PhD in Architecture from the Polytechnic University of Catalonia
- ♦ Degree in Fine Arts from the University of Barcelona

Faculty

Ms. Jiménez Vaquero, Laura

- ♦ Organic and props modeler, grooming, texturing and shading artist
- ♦ Organic and Inorganic 3D modeler at Utopia Avatars at EGO W3RLD
- ♦ Development of 3D hard surface modeling for advertising campaigns at Kutuko Studio
- ♦ Development of organic modeling for advertising campaign at Nein Club
- ♦ Development of 3D modeling for interior design at Miltidesign
- ♦ Realization and coordination of the women collective exhibition "Femenino plural"
- ♦ Image work for 2D animation "Naturaleza Encendida" at the Royal Botanical Garden of Madrid
- ♦ Degree in Fine Arts from the Complutense University of Madrid
- ♦ Master's Degree in Organic Modeling by Lightbox Academy

Mr. Alcalde Perelló, Dimas

- ♦ Specialist in artistic creation for video games and applied games
- ♦ Lead artist at BluetechWorlds
- ♦ Teacher in the Artistic creation for videogames and applied games degree, ENTI UB
- ♦ Degree in Artistic creation for video games and applied games from the University of Barcelona
- ♦ Master's Degree in Secondary Education Teaching, including Obligatory Secondary Education, High School Education, Vocational Training, and Language Teaching, from the University of La Rioja (UNIR)
- ♦ Technician in 3D Animation, Games and Interactive Environments by the Center for Photographic Studies.



Ms. Cedrán Rojo, Alba

- ◆ Expert in 3D Animation and 3D Modeling
- ◆ Designer in the area of Audiovisual Social Responsibility "Web Documentaries"
- ◆ Graduate in Artistic Creation for Video Games and Applied Games by the University of Barcelona, ENTI-UB
- ◆ Master's Degree in 3D Character Animation with Maya by Animum Creativity Advanced School.
- ◆ Higher Technician in Art Direction and Audiovisuals by ITES Image y Sound School in Barcelona

Mr. Llorens Aguilar, Víctor

- ◆ Expert in 3D Modeling
- ◆ Teacher in courses related to 3D Modeling
- ◆ Scratch teacher in private schools
- ◆ Degree in 3D Animations, Games and Interactive Environments

“

Make the most of this opportunity to learn about the latest advances in this field in order to apply it to your daily practice"

09

Certificate

The Master's Degree in 3D Modeling and Texturing guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the Master's Degree issued by TECH Global University.



“

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”

This private qualification will allow you to obtain a diploma for the **Master's Degree in 3D Modeling and Texturing** 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 private qualification from **TECH Global University** is a European continuing education and professional development program that guarantees the acquisition of competencies in its area of expertise, providing significant curricular value to the student who successfully completes the program.

Title: **Master's Degree in 3D Modeling and Texturing**

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.



Master's Degree 3D Modeling and Texturing

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

Master's Degree

3D Modeling and Texturing

