

# Professional Master's Degree

## Digital Sculpture



## Professional Master's Degree Digital Sculpture

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/in/information-technology/professional-master-degree/master-digital-sculpture](http://www.techtute.com/in/information-technology/professional-master-degree/master-digital-sculpture)

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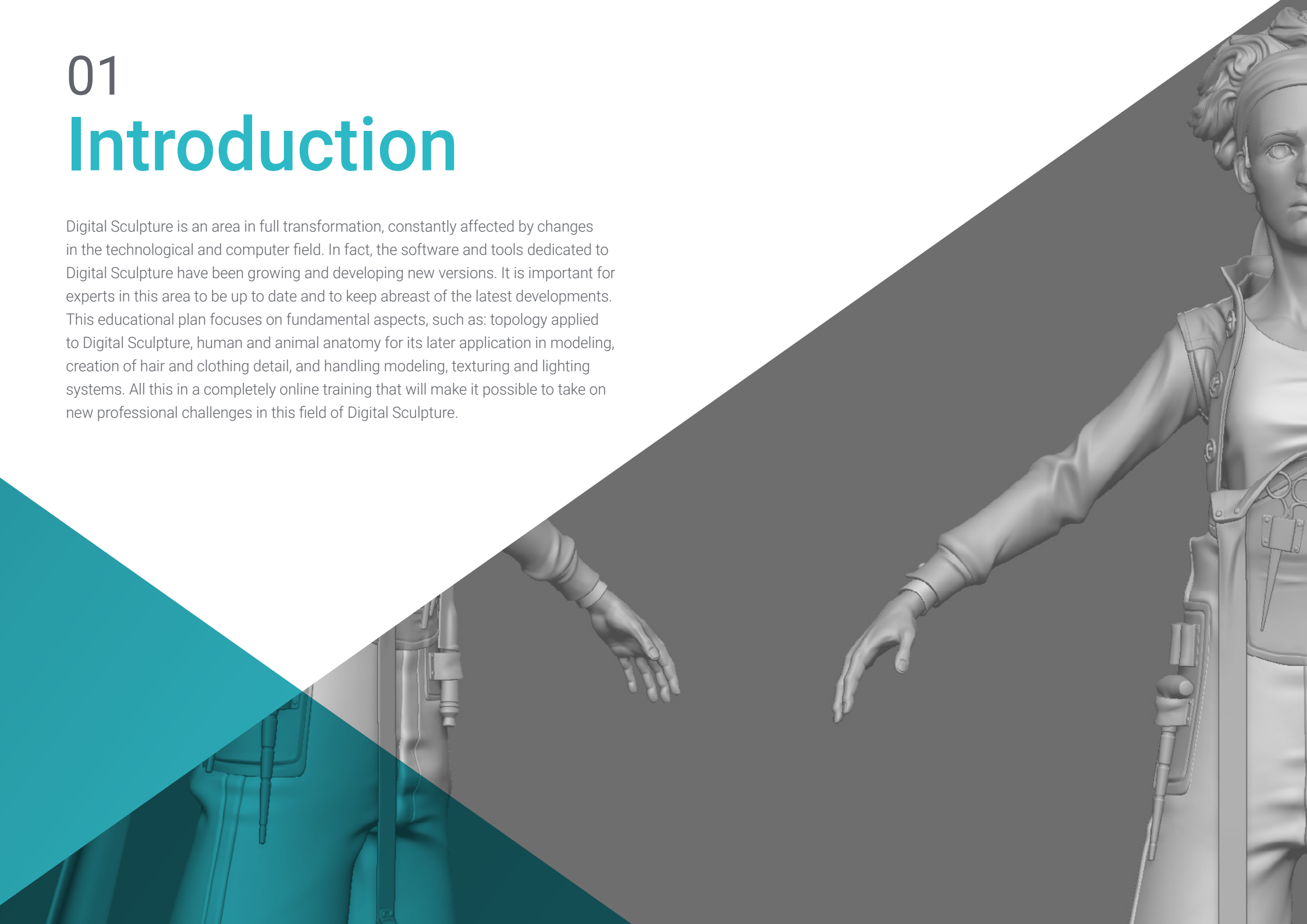
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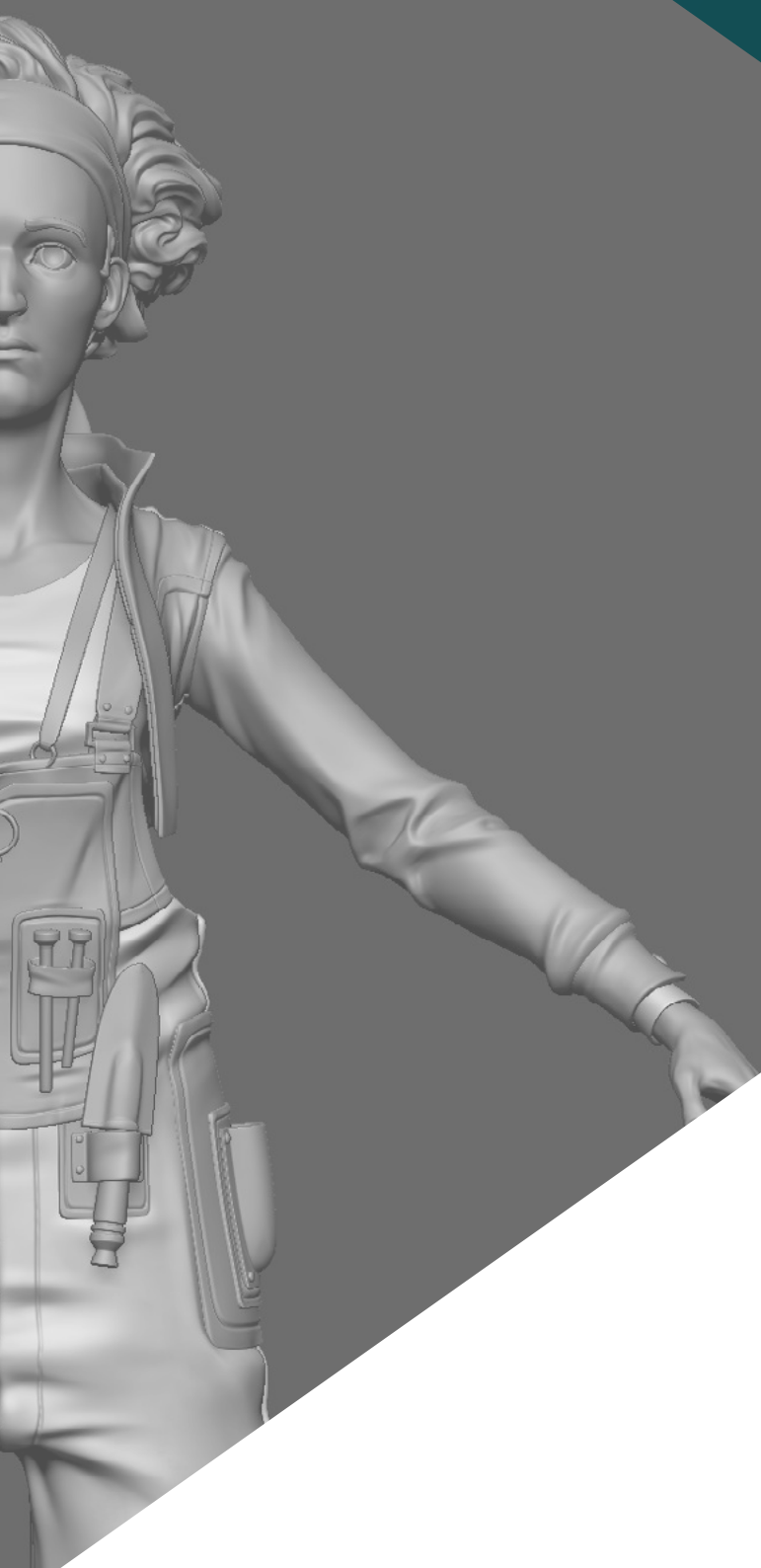
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# 01

# Introduction

Digital Sculpture is an area in full transformation, constantly affected by changes in the technological and computer field. In fact, the software and tools dedicated to Digital Sculpture have been growing and developing new versions. It is important for experts in this area to be up to date and to keep abreast of the latest developments. This educational plan focuses on fundamental aspects, such as: topology applied to Digital Sculpture, human and animal anatomy for its later application in modeling, creation of hair and clothing detail, and handling modeling, texturing and lighting systems. All this in a completely online training that will make it possible to take on new professional challenges in this field of Digital Sculpture.





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*If you want to understand the intrinsic keys to Digital Sculpture, this fully online training will take you on a tour of the fundamentals”*

Digital design is a discipline that extends and has the capacity to influence other multiple areas such as industrial production, three-dimensional design and printing, animation or video game development, etc. Digital Sculpture is part of each of these areas, allowing the recreation of large spaces, infrastructures, objects and characters for virtual or physical use. The popularization of this area has also produced the need for specialized experts and professionals.

This Professional Master's Degree in Digital Sculpture delves into issues such as the improvement and painting of meshes, the creation of three-dimensional machines according to their motility, character rigging, human and animal anatomy, software such as Blender, Arnold, Photoshop or ZBrush, and modeling with light, among many others.

It emphasizes the notions of topology at all levels of development and production of a model, as well as human and animal anatomy, in order to apply it later to modeling, texturing, lighting and rendering processes accurately. It also seeks to meet the demand for the creation of hair and clothing for video games, animation or 3D printing. Handling of modeling systems and knowledge of current industry systems.

Thanks to a totally online format, the deepening of knowledge in Digital Sculpture is combined with other personal and professional projects. The virtual platform, where teachers will post all the multimedia material and pedagogical resources so that students can progress at their own speed and pace, can be accessed at any time. All this will be taught with Relearning methodology, which promotes autonomous and practical learning for the student.

This **Professional Master's Degree in Digital Sculpture** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of case studies presented by experts in 3D Modeling and Digital Sculpture
- ◆ The graphic, schematic, and eminently practical contents with which they are created, provide scientific and 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
- ◆ Access to content from any fixed or portable device with an Internet connection



*Learn independently all the keys in the process of creating Digital Sculpture and apply it to the design field you need"*

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*Accept new professional challenges, become skilled in Digital Sculpting and use it in any field of application be it 3D printing, design or production”*

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

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

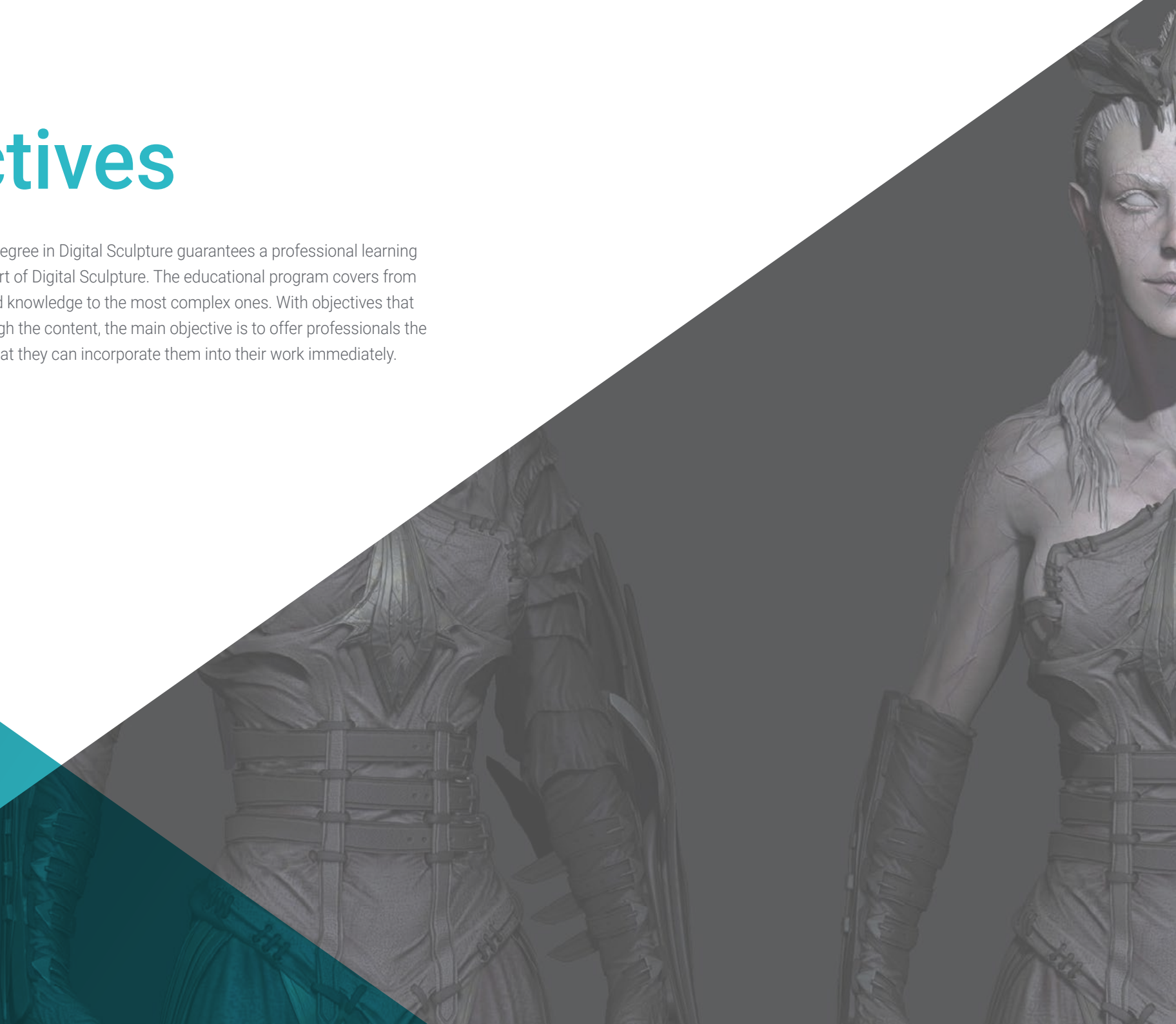
*With this online degree you will be able to highlight your CV and make it more attractive than others in the same sector, give a twist to your career.*

*A Professional Master's Degree in Digital Sculpture, fully online and guided by a faculty made up of experts of the highest prestige in the field.*



# 02 Objectives

This Professional Master's Degree in Digital Sculpture guarantees a professional learning of all the aspects that are part of Digital Sculpture. The educational program covers from the most basic concepts and knowledge to the most complex ones. With objectives that progressively advance through the content, the main objective is to offer professionals the latest tools in this area, so that they can incorporate them into their work immediately.







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*With objectives that progressively advance through content, the main purpose is to offer the professional the latest tools in this area”*



## General objectives

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- ◆ Understand the need for a good topology at all levels of development and production
- ◆ Knowledge of human and animal anatomy to apply it to modeling, texturing, lighting and rendering processes in an accurate way
- ◆ Meet the demands in hair and clothing creation for video games, film, 3D printing, augmented and virtual reality
- ◆ Handle modeling, texturing and lighting systems in virtual reality systems
- ◆ Know the current systems of the film and video game industry to deliver great results





## Specific objectives

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### Module 1. Creation of Hard Surfaces and Rigid Surfaces

- ◆ Use modeling by means of edit poly and splines
- ◆ Advanced handling of organic sculpture
- ◆ Creating infoarchitectures and integrating them into Lumion
- ◆ Model scenographies using 3ds Max and integrating them with ZBrush

### Module 2. Texturing for Digital Sculpture

- ◆ Using PBR texture and material maps
- ◆ Use texturing modifiers
- ◆ Apply map generating software
- ◆ Create texture baked
- ◆ Manage texturing to generate improvements in our modeling
- ◆ Complex use of the import and export systems between programs
- ◆ Advanced operation of Substance Painter

### Module 3. Machine Creation

- ◆ Create, characterize and model robots, vehicles and cyborgs
- ◆ Handling internal modeling masks
- ◆ Evolve robots, vehicles and cyborgs, through the passage of time and their decay by sculpting shapes and using Substance Painter
- ◆ Adapt to biomimicry, science fiction or cartoon aesthetics
- ◆ Create a lighting studio in Arnold
- ◆ Handle rendering in photorealistic and non-photorealistic aesthetics
- ◆ Launch wireframe rendering

#### **Module 4. Humanoid**

- ◆ Handle and apply anatomy to human sculpture
- ◆ Know the correct topology of models to be used in 3D animation, video games and 3D printing
- ◆ Characterize and stylize humanized characters
- ◆ Making manual retopologies with 3ds Max, Blender and ZBrush
- ◆ Create groups of people and multiple objects
- ◆ Use predefined and human base grids

#### **Module 5. Hair, Clothes and Accessories**

- ◆ Create modeled hair, low poly, high poly, , Fibermesh and Xgen in 3ds Max, ZBrush and Maya, for 3D printing, film and video games
- ◆ Modeling and simulating cloth physics in 3ds Max and ZBrush
- ◆ Deepening the Workflow between ZBrush and Marvelous
- ◆ Using clothes and creating patterns in Marvelous Designer
- ◆ Handle physical simulations and exports and imports in Marvelous Designer
- ◆ Modeling, texturing, lighting and rendering of clothes, hair and accessories in Arnold

#### **Module 6. Animals and Creatures**

- ◆ Handle and apply anatomy to animal sculpture
- ◆ Apply the correct animal topology of models to be used in 3D animation, video games and 3D printing
- ◆ Sculpting and texturing animal surfaces such as: feathers, scales, skins, fur and refinement of animal hair
- ◆ Perform the evolution of animals and humans to fantastic animals, hybridizations and mechanical beings, shape sculpting and the use of Substance Painter
- ◆ Handling photorealistic and non-photorealistic rendering of animals in Arnold

#### **Module 7. Blender**

- ◆ Advanced Blender software development
- ◆ Render in your Eevee and Cycles render engines
- ◆ Delve into work processes within CGI
- ◆ Transferring ZBrush and 3ds Max knowledge to Blender
- ◆ Transferring creation processes from Blender to Maya and Cinema 4D

#### **Module 8. Light Modeling**

- ◆ Develop advanced lighting and photography concepts in offline engines such as Arnold and Vray, as well as post-production of renders to have professional finishes
- ◆ Deepen in advanced visualizations in realtime in Unity and Unreal
- ◆ Modeling in videogame engines to create interactive scenographies
- ◆ Integrate projects in real spaces

#### **Module 9. Creation of Organic Soils and Environments**

- ◆ Learn the different techniques of organic modeling and fractal systems for the generation of elements of nature and terrain, as well as the implementation of our own models and 3D scans
- ◆ Deepen in the vegetation creation system and how to control it professionally in Unity and Unreal Engine
- ◆ Create scenes with immersive VR experiences



### Module 10. Applications of Modeling to 3D Printing, VR, AR and Photogrammetry

- ◆ Using organic modeling for the preparation of models for 3D printing and milling
- ◆ Generate 3D models through photography and its treatment to integrate it in 3D printing, video games, cinema, etc.
- ◆ Sculpting in virtual reality in a free, creative and interactive way using Quill and its import into Arnold, Unreal and Unity
- ◆ Visualization of work in real environments through augmented reality



*10 sections perfectly organized in ideas and concepts that will facilitate the learning of the syllabus”*

# 03 Skills

This training focuses on providing the student with a more professional dimension, including advanced texturing of realistic PBR systems, using and integrating 3D scans in a Digital Sculpture project, managing professional systems of workflow between different softwares such as Blender, Substance Painter, Lumion or ZBrush, or to perfectly control posing systems and facial expressions by using rig with ZSpheres, motion capture and morpher.





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*Be the most up-to-date digital sculptor in the field, able to tackle different professional challenges through different tools”*



## General skills

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- ◆ Advanced handling and use of various organic modeling systems, edit poly and splines
- ◆ Specialized hard surface finishing and infoarchitecture
- ◆ Create realistic and cartoon-like characters of high quality
- ◆ Perform advanced texturing of realistic PBR and non-photorealistic systems to enhance Digital Sculpture projects
- ◆ Apply professional lighting on offline engines and realtime systems to obtain a high-quality final finish of the models
- ◆ Employ and integrate 3D scans
- ◆ Advanced use of IMM and Chisel brushes
- ◆ Generate turntable of projects, through ZBrush using fast visualization engines such as Marmoset or Keyshot to create showreel



*Do not hesitate any longer and enroll in this Professional Master's Degree that will give you the skills you are looking for to become an expert in Digital Sculpture"*







## Specific skills

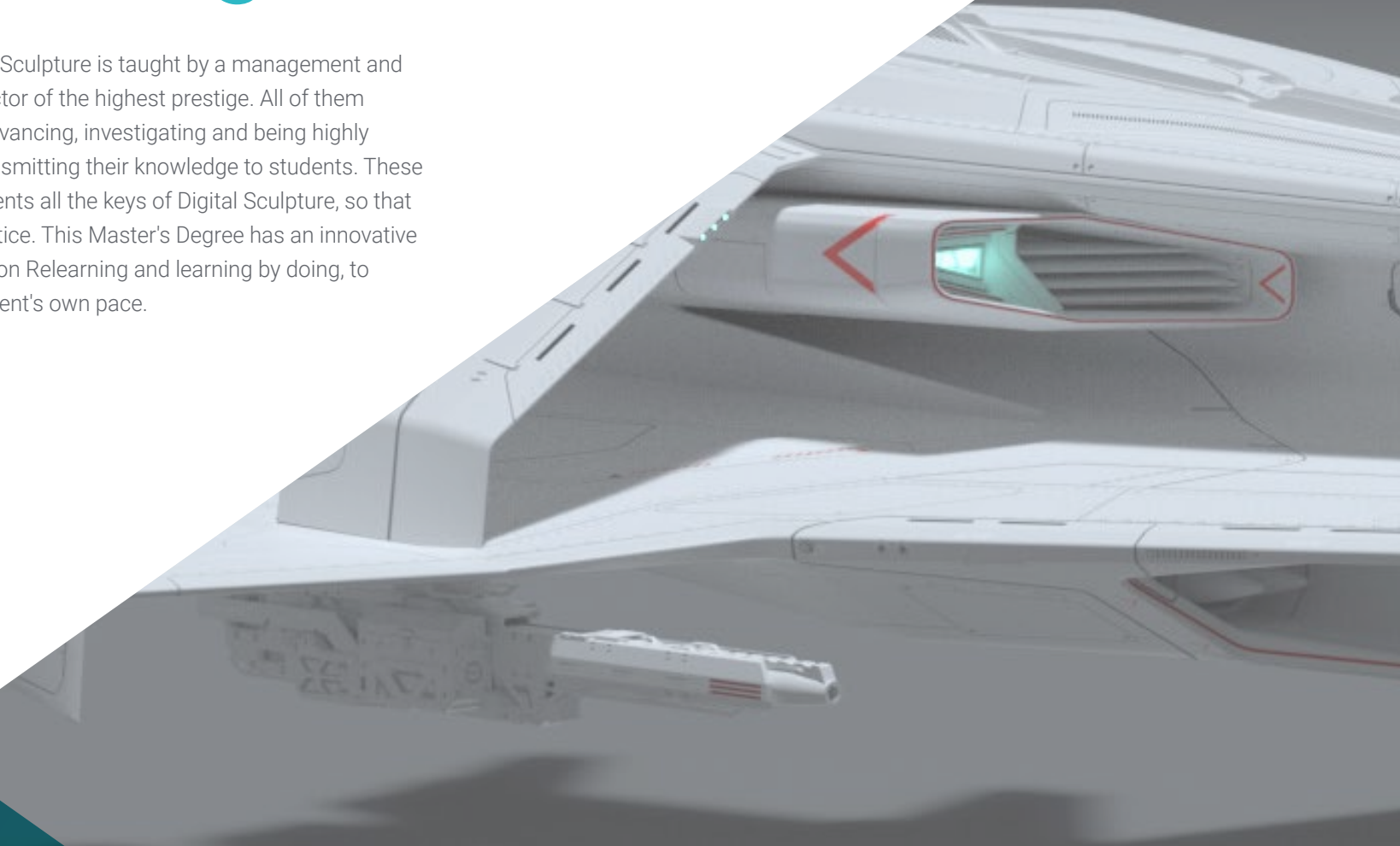
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- ◆ Manage professional workflow systems between software 3ds Max, Blender, ZBrush, Substance Painter, Marvelous Designer, Lumion, Unity and Unreal
- ◆ Advanced mastering software 3ds Max, Blender, ZBrush, Substance Painter, Marvelous Designer, Lumion, Unity and Unreal
- ◆ Model machines using software 3ds Max, Blender, ZBrush, Substance Painter, Marvelous Designer, Lumion, Unity and Unreal
- ◆ Seamlessly control posing systems and facial expressions using rigs with ZSpheres, motion capture and morpher
- ◆ Mastering 3D design and lettering using Shadowbox
- ◆ Painting meshes in 3ds max, ZBrush and Substance Painter
- ◆ Using mesh cuts, booleans and slice in ZBrush
- ◆ Advanced development and recording with different types of cameras of interactive scenes with the characters themselves

# 04

# Course Management

This Professional Master's Degree in Digital Sculpture is taught by a management and teaching staff made up of experts in the sector of the highest prestige. All of them have dedicated their professional lives to advancing, investigating and being highly qualified professionals for teaching and transmitting their knowledge to students. These teachers will be able to transmit to the students all the keys of Digital Sculpture, so that they can integrate them into their work practice. This Master's Degree has an innovative and effective teaching methodology, based on Relearning and learning by doing, to encourage autonomous learning at the student's own pace.





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*The best professionals in a sector in full expansion will accompany you in the development of skills for Digital Sculpture”*

## Management



### Mr. Sequeros Rodríguez, Salvador

- Freelance 2D/3D modeler and generalist
- Concept art and 3D modeling for Slicecore Chicago
- Videomapping and modeling Rodrigo Tamariz Valladolid
- Professor of Higher-Level Training Cycle 3D Animation Superior School of Image and Sound ESISV Valladolid
- Professor of Higher-Level Training Cycle GFSG 3D Animation European Institute of Design IED Madrid
- 3D Modeling for the Falleros Vicente Martinez and Loren Fandos Castellón
- Master's Degree in Computer Graphics, Games and Virtual Reality URJC University. Madrid
- Bachelor of Fine Arts at the University of Salamanca (specializing in Design and Sculpture)



# 05

# Structure and Content

TECH degrees are always perfectly organized to provide the necessary content in 10 sections. In this way, the educational program covers, first, the creation of textures and finishing professions of the creations. It then delves into the creation of machinery, humanoids, hair, clothing and accessories, animals and miniatures. It also delves into blender, luminosity and the creation of terrains and organic landscapes, ending with the applications of modeling to 3D printing, VR, AR and photogrammetry.





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*A complete educational program to develop the best skills as a digital sculptor”*

## Module 1. Creation of Hard Surfaces and Rigid Surfaces

- 1.1. Sculpting Techniques and Applications
  - 1.1.1. Edit Poly
  - 1.1.2. Splines
  - 1.1.3. Organic Modeling
- 1.2. Edit Poly Modeling
  - 1.2.1. Loops and Extrusions
  - 1.2.2. Containment Geometry for Smoothing
  - 1.2.3. Modifiers and Ribbon
- 1.3. Mesh Optimizations
  - 1.3.1. Quads, Tris and Ngons. When to Use Them?
  - 1.3.2. Booleans
  - 1.3.3. Low Poly vs. High Poly
- 1.4. Splines
  - 1.4.1. Spline Modifiers
  - 1.4.2. Working Plots and Vectors
  - 1.4.3. Splines as Scene Assistants
- 1.5. Organic Sculpture
  - 1.5.1. ZBrush Interface
  - 1.5.2. Zbrush Modeling Techniques
  - 1.5.3. Alphas and Brushes
- 1.6. Model Sheet
  - 1.6.1. Reference Systems
  - 1.6.2. Configuration of Modeling Templates
  - 1.6.3. Measurements
- 1.7. Modeling for Infoarchitecture
  - 1.7.1. Facade Modeling
  - 1.7.2. Follow-up of Plans
  - 1.7.3. Interior Modeling
- 1.8. Scenography
  - 1.8.1. Creation of Props
  - 1.8.2. Furniture
  - 1.8.3. Detailing in ZBrush Organic Modeling

- 1.9. Masks
  - 1.9.1. Masking for Modeling and Painting
  - 1.9.2. Geometry Masks and Modeling IDs
  - 1.9.3. Mesh Occultations, Polygroups and Cuttings
- 1.10. 3D Design and Lettering
  - 1.10.1. Use of Shadow Box
  - 1.10.2. Model Topology
  - 1.10.3. ZRemesher Automatic Retopology

## Module 2. Texturing for Digital Sculpture

- 2.1. Texturing
  - 2.1.1. Texture Modifiers
  - 2.1.2. Compact Systems
  - 2.1.3. Slate Node Hierarchy
- 2.2. Materials
  - 2.2.1. ID
  - 2.2.2. Photorealistic PBR
  - 2.2.3. No Photorealistic Cartoon
- 2.3. PBR Textures
  - 2.3.1. Procedural Textures
  - 2.3.2. Color, Albedo and DiffuseMaps
  - 2.3.3. Opacity and Specular
- 2.4. Mesh Improvements
  - 2.4.1. Map of Normal
  - 2.4.2. Displacement Map
  - 2.4.3. Vector Maps
- 2.5. Texture Managers
  - 2.5.1. Photoshop
  - 2.5.2. Materialize and Online Systems
  - 2.5.3. Texture Scanning



- 2.6. UVW and Baking
  - 2.6.1. Hard SurfaceTextureBaking
  - 2.6.2. Baking Organic Textures
  - 2.6.3. Banking Unions
- 2.7. Exports and Imports
  - 2.7.1. Texture Formats
  - 2.7.2. FBX, OBJ and STL
  - 2.7.3. Subdivision vs. Dynamesh
- 2.8. Mesh Painting
  - 2.8.1. Viewport Canvas
  - 2.8.2. Polypaint
  - 2.8.3. Spotlight
- 2.9. Substance Painter
  - 2.9.1. Zbrush with Substance Painter
  - 2.9.2. Low Poly with High Poly Texture Maps
  - 2.9.3. Material Treatments
- 2.10. Advanced Substance Painter
  - 2.10.1. Realistic Effects
  - 2.10.2. Improve the Baked
  - 2.10.3. SSS Materials, Human Skin

### Module 3. Machine Creation

- 3.1. Robots
  - 3.1.1. Functionality
  - 3.1.2. Character
  - 3.1.3. Motor Skills in its Structure
- 3.2. Robot Despiece
  - 3.2.1. IMM and Chisel Brushes
  - 3.2.2. Insert Mesh and Nanomesh
  - 3.2.3. Zmodeler in ZBrush

- 3.3. Cyborg
  - 3.3.1. Sectioned by Masks
  - 3.3.2. Trim Adaptive and Dynamic
  - 3.3.3. Mechanization
- 3.4. Ships and Aircraft
  - 3.4.1. Aerodynamics and Smoothing
  - 3.4.2. Surface Texture
  - 3.4.3. Cleaning of Polygonal Mesh and Details
- 3.5. Land Vehicles
  - 3.5.1. Vehicle Topology
  - 3.5.2. Modeling for Animation
  - 3.5.3. Caterpillars
- 3.6. Passage of Time
  - 3.6.1. Credible Models
  - 3.6.2. Materials Over Time
  - 3.6.3. Oxidations
- 3.7. Accidents
  - 3.7.1. Crashes
  - 3.7.2. Object Fragmentations
  - 3.7.3. Destruction Brushes
- 3.8. Adaptations and Evolution
  - 3.8.1. Biomimicry
  - 3.8.2. Sci-fi Dystopia, Uchronias and Utopias
  - 3.8.3. Cartoon
- 3.9. Realistic Render Hardsurface
  - 3.9.1. Studio Scene
  - 3.9.2. Lights
  - 3.9.3. Physical Camera
- 3.10. NPR Render Hardsurface
  - 3.10.1. Wireframe
  - 3.10.2. Cartoon Shader
  - 3.10.3. Illustration

## Module 4. Humanoid

- 4.1. Human Anatomy for Modeling
  - 4.1.1. Canon of Proportions
  - 4.1.2. Evolution and Functionality
  - 4.1.3. Superficial Muscles and Mobility
- 4.2. Lower Body Topology
  - 4.2.1. Torso
  - 4.2.2. Legs
  - 4.2.3. Feet
- 4.3. Upper Body Topology
  - 4.3.1. Arms and Hands
  - 4.3.2. Neck
  - 4.3.3. Head and Face and Inside Mouth
- 4.4. Characterized and Stylized Characters
  - 4.4.1. Details with Organic Modeling
  - 4.4.2. Anatomy Characterization
  - 4.4.3. Styling
- 4.5. Expressions
  - 4.5.1. Facial Animations and Layer
  - 4.5.2. Morpher
  - 4.5.3. Texture Animation
- 4.6. Pose
  - 4.6.1. Character Psychology and Relaxation
  - 4.6.2. Rig with Zspheres
  - 4.6.3. Posed with Motion Capture
- 4.7. Characterizations
  - 4.7.1. Tattoos
  - 4.7.2. Scars
  - 4.7.3. Wrinkles, Freckles and Marks
- 4.8. Manual Retopology
  - 4.8.1. In 3DS Max
  - 4.8.2. Blender
  - 4.8.3. Zbrush and Projections





- 4.9. Predefined
  - 4.9.1. Fuse
  - 4.9.2. Vroid
  - 4.9.3. MetaHuman
- 4.10. Crowds and Repetitive Spaces
  - 4.10.1. Scatter
  - 4.10.2. Proxies
  - 4.10.3. Object Groups

## Module 5. Hair, Clothes and Accessories

- 5.1. Creating Hair
  - 5.1.1. Modeled Hair
  - 5.1.2. Low PolyHair and Cards
  - 5.1.3. High Poly Hair, Fibermesh Hair and Fur and Xgen
- 5.2. Cartoon Clothes
  - 5.2.1. Mesh Extractions
  - 5.2.2. False Geometry
  - 5.2.3. Shell
- 5.3. Sculpting Fabrics
  - 5.3.1. Physical Simulations
  - 5.3.2. Strength Calculations
  - 5.3.3. Curving Brushes on Clothing
- 5.4. Realistic Clothes
  - 5.4.1. Importing to Marvelous Designer
  - 5.4.2. Software Philosophy
  - 5.4.3. Pattern Creation
- 5.5. Standard Patterns
  - 5.5.1. T-shirts
  - 5.5.2. Trousers
  - 5.5.3. Coats and Footwear

- 5.6. Unions and Physics
  - 5.6.1. Realistic Simulations
  - 5.6.2. Zips
  - 5.6.3. Seams
- 5.7. Clothes
  - 5.7.1. Complex Patterns
  - 5.7.2. Fabric Complexity
  - 5.7.3. Shading
- 5.8. Advanced Clothes
  - 5.8.1. Baked from Clothes
  - 5.8.2. Adaptation
  - 5.8.3. Exporting
- 5.9. Accessories
  - 5.9.1. Jewellery
  - 5.9.2. Backpacks and Bags
  - 5.9.3. Tools
- 5.10. Rendering on Fabrics and Hair
  - 5.10.1. Illumination and Shading
  - 5.10.2. Hair Shader
  - 5.10.3. Realistic Rendering in Arnold

## Module 6. Animals and Creatures

- 6.1. Animal Anatomy for Modelers
  - 6.1.1. Proportion Research
  - 6.1.2. Anatomic Differences.
  - 6.1.3. Musculature of the Different Families
- 6.2. Main Masses
  - 6.2.1. Main Structures
  - 6.2.2. Balance Axis Postures
  - 6.2.3. Base Mesh with Zspheres

- 6.3. Head
  - 6.3.1. Craniums
  - 6.3.2. Jaws
  - 6.3.3. Teeth and Antlers
  - 6.3.4. Rib Cage, Spine and Hips
- 6.4. Central Zone
  - 6.4.1. Rib Cage
  - 6.4.2. Spinal Column
  - 6.4.3. Hips
- 6.5. Extremities
  - 6.5.1. Legs and Hooves
  - 6.5.2. Fins
  - 6.5.3. Wings and Claws
- 6.6. Animal Texture and Adaptation to Shapes
  - 6.6.1. Skin and Hair
  - 6.6.2. Scales
  - 6.6.3. Feathers
- 6.7. The Animal Imaginary: Anatomy and Geometry
  - 6.7.1. Anatomy of Fantastic Beings
  - 6.7.2. Geometry and SliceCuts
  - 6.7.3. Mesh Booleans
- 6.8. The Animal Imaginary: Fantastic Animals
  - 6.8.1. Fantastic Animals
  - 6.8.2. Hybridizations
  - 6.8.3. Mechanical Beings
- 6.9. NPR Species
  - 6.9.1. Cartoon Style
  - 6.9.2. Anime
  - 6.9.3. Fan Art
- 6.10. Animal and Human Rendering
  - 6.10.1. Sub Surface Scattering Materials
  - 6.10.2. Mixing Texturing Techniques
  - 6.10.3. Final Compositions

## Module 7. Blender

- 7.1. Free Software
  - 7.1.1. LTS Version and Community
  - 7.1.2. Pros and Differences
  - 7.1.3. Interface and Philosophy
- 7.2. 2D Integration
  - 7.2.1. Program Adaptation
  - 7.2.2. Crease Pencil
  - 7.2.3. Combination 2D in 3D
- 7.3. Modeling Techniques
  - 7.3.1. Program Adaptation
  - 7.3.2. Modeling Methodologies
  - 7.3.3. Geometry Nodes
- 7.4. Texturing Techniques
  - 7.4.1. Nodes Shading
  - 7.4.2. Textures and Materials
  - 7.4.3. Usage Tips
- 7.5. Lighting
  - 7.5.1. Tips for Light Spaces
  - 7.5.2. Cycles
  - 7.5.3. Eevee
- 7.6. Workflow in CGI
  - 7.6.1. Necessary Uses
  - 7.6.2. Exports and Imports
  - 7.6.3. Final Art
- 7.7. Sds Max Adaptations to Blender
  - 7.7.1. Modeling
  - 7.7.2. Texturing and Shading
  - 7.7.3. Lighting
- 7.8. Knowledge of ZBrush to Blender
  - 7.8.1. 3D Sculpting
  - 7.8.2. Brushes and Advanced Techniques
  - 7.8.3. Organic Work

- 7.9. From Blender to Maya
  - 7.9.1. Important Stages
  - 7.9.2. Adjustments and Integrations
  - 7.9.3. Exploitation of Functionalities
- 7.10. From Blender to Cinema 4D
  - 7.10.1. Tips for 3D Design
  - 7.10.2. Use of Modeling Towards Video Mapping
  - 7.10.3. Modeling with Particles and Effects

## Module 8. Light Modeling

- 8.1. Offline Arnold Motors
  - 8.1.1. Interior and Exterior Lighting
  - 8.1.2. Application of Displacement and Normal Maps
  - 8.1.3. Render Modifiers
- 8.2. Vray
  - 8.2.1. Lighting Bases
  - 8.2.2. Shading
  - 8.2.3. Maps
- 8.3. Advanced Global Illumination Techniques
  - 8.3.1. ActiveShade GPU Management
  - 8.3.2. Optimization of Photorealistic Rendering Denoiser
  - 8.3.3. Non-photorealistic Rendering (Cartoon and Hand Painted)
- 8.4. Quick Display of Models
  - 8.4.1. ZBrush
  - 8.4.2. Keyshot
  - 8.4.3. Marmoset
- 8.5. Rendering Postproduction
  - 8.5.1. Multipass
  - 8.5.2. 3D Illustration in ZBrush
  - 8.5.3. Multipass in Zbrush

- 8.6. Integration in Real Spaces
  - 8.6.1. Shadow Materials
  - 8.6.2. HDRI and Global Illumination
  - 8.6.3. Image Tracing
- 8.7. Unity
  - 8.7.1. Interface and Organization
  - 8.7.2. Import to Game Engines
  - 8.7.3. Materials
- 8.8. Unreal
  - 8.8.1. Interface and Organization
  - 8.8.2. Sculpture in Unreal
  - 8.8.3. Shaders
- 8.9. Modeling in Video Game Engines
  - 8.9.1. Probuilder
  - 8.9.2. Modeling Tools
  - 8.9.3. Prefabs and Memory Storages
- 8.10. Advanced Lighting Techniques in Videogames
  - 8.10.1. Realtime, Pre-calculation of Lights and HDRP
  - 8.10.2. Raytracing
  - 8.10.3. Postprocessing

## Module 9. Creation of Organic Soils and Environments

- 9.1. Organic Modeling in Nature
  - 9.1.1. Brush Adaptation
  - 9.1.2. Creation of Rocks and Cliffs
  - 9.1.3. Integration with Substance Painter 3D
- 9.2. Terrain
  - 9.2.1. Terrain Displacement Maps
  - 9.2.2. Creation of Rocks and Cliffs
  - 9.2.3. Scanning Libraries

- 9.3. Vegetation
  - 9.3.1. SpeedTree
  - 9.3.2. Low Poly Vegetation
  - 9.3.3. Fractals
- 9.4. Unity Terrain
  - 9.4.1. Organic Terrain Modeling
  - 9.4.2. Ground Painting
  - 9.4.3. Creation of Vegetation
- 9.5. Unreal Terrain
  - 9.5.1. Heightmap
  - 9.5.2. Texturing
  - 9.5.3. Unreal's Foliage System
- 9.6. Physics and Realism
  - 9.6.1. Physical
  - 9.6.2. Wind
  - 9.6.3. Fluids
- 9.7. Virtual Walks
  - 9.7.1. Virtual Cameras
  - 9.7.2. Third Person
  - 9.7.3. First Person FPS
- 9.8. Cinematography
  - 9.8.1. Cinemachine
  - 9.8.2. Sequencer
  - 9.8.3. Recording and Executables
- 9.9. Visualization of Modeling in Virtual Reality
  - 9.9.1. Modeling and Texturing Tips
  - 9.9.2. Exploitation of Interaxial Space
  - 9.9.3. Project Preparation
- 9.10. VR Scene Creation
  - 9.10.1. Location of Cameras
  - 9.10.2. Land and Infoarchitecture
  - 9.10.3. Platforms of Use

## Module 10. Applications of Modeling to 3D Printing, VR, AR and Photogrammetry

- 10.1. Preparation for 3D Printing
  - 10.1.1. Types of Printing
  - 10.1.2. Polygon Reduction
  - 10.1.3. Mesh Projections
- 10.2. Ready for 3D Printing
  - 10.2.1. Emptying
  - 10.2.2. Inserts
  - 10.2.3. Advice and Imports
- 10.3. Photogrammetry
  - 10.3.1. Megascan Library
  - 10.3.2. Agisoft Metashape Software
  - 10.3.3. Model Preparation
- 10.4. Preparing the Photogrammetry
  - 10.4.1. Obtaining Points
  - 10.4.2. Retopology
  - 10.4.3. Model Optimization
- 10.5. Working in Virtual Reality
  - 10.5.1. Software Quill
  - 10.5.2. Interface
  - 10.5.3. Brushes and Clone Tool
  - 10.5.4. VR Character Creation
- 10.6. Character and Scenario with Quill
  - 10.6.1. VR Character Creation
  - 10.6.2. Immersive Scenario
  - 10.6.3. Character Development
- 10.7. Scene Preparation in Quill
  - 10.7.1. Character Painting in VR
  - 10.7.2. Pose
  - 10.7.3. Spawn Area Adjusting Cameras
- 10.8. From Quill to Arnold and Unreal
  - 10.8.1. Exporting and Format
  - 10.8.2. Rendering in Arnold
  - 10.8.3. Unreal Integration
- 10.9. Augmented Reality Unity and Vuforia
  - 10.9.1. Import to Unity
  - 10.9.2. Vuforia
  - 10.9.3. Lighting and Materials
- 10.10. Augmented Reality: Scene Preparation
  - 10.10.1. Preparing the Scene
  - 10.10.2. Visualization on Real Environment
  - 10.10.3. Creation of Multiple Displays in AR



*Enroll, don't lose your ambition. Learn how to create and give the best finishes in Digital Sculpture with this Professional Master's Degree"*

# 06 Methodology

This training program offers 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"*

### At TECH we use the Case Method

Our program offers a revolutionary method of skills and knowledge development. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

“

*At TECH, you will experience a way of learning that is shaking the foundations of traditional universities around the world"*



*We are the first online university to combine Harvard Business School case studies with a 100% online learning system based on repetition.*



### A learning method that is different and innovative.

This intensive Information Technology program at TECH Technological University prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH Technological University you will use Harvard case studies, with which we have a strategic agreement that allows us, to offer you material from the best university in the world.

“*Our program prepares you to face new challenges in uncertain environments and achieve success in your career”*

*The student will learn, through collaborative activities and real cases, how to solve complex situations in real business environments.*

The case method has been the most widely used learning system among the world's leading Information Technology 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. Throughout the course, students will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

## Relearning Methodology

Our university is the first in the world to combine Harvard University case studies with a 100%-online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance Harvard case studies 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 university 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.



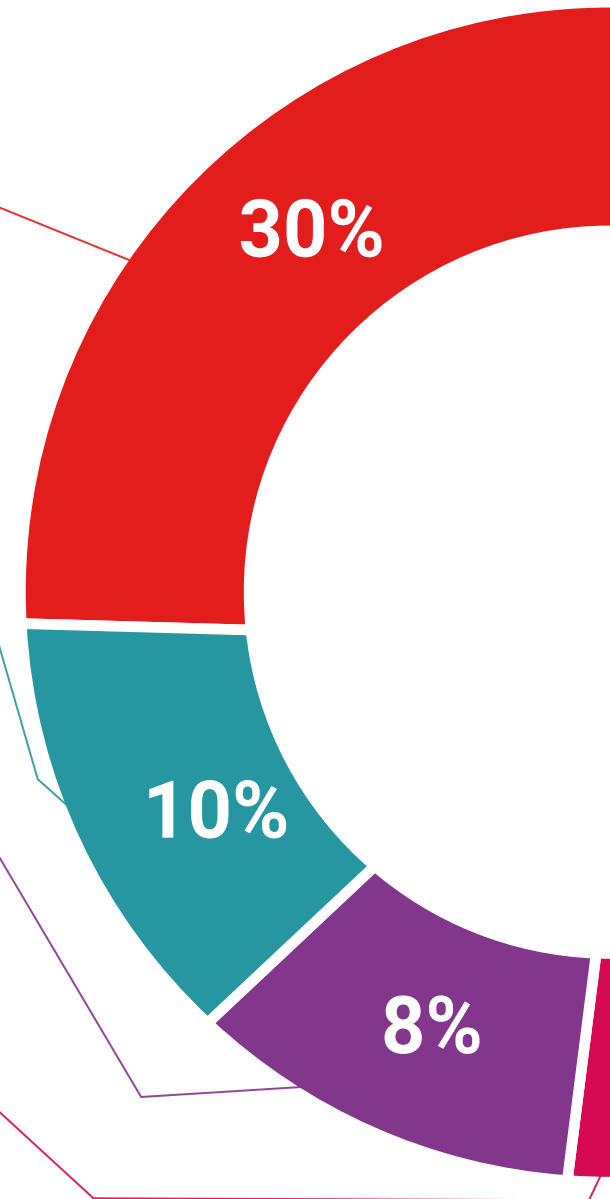
### Practising Skills and Abilities

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

They will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management 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 multimedia content presentation training Exclusive system 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 your goals.



# 07 Certificate

The Professional Master's Degree in Digital Sculpture guarantees, in addition to the most rigorous and up-to-date training, access to a Professional Master's Degree certificate issued by TECH Technological University.





“

*Successfully complete this training program  
and receive your certificate without travel or  
laborious paperwork"*

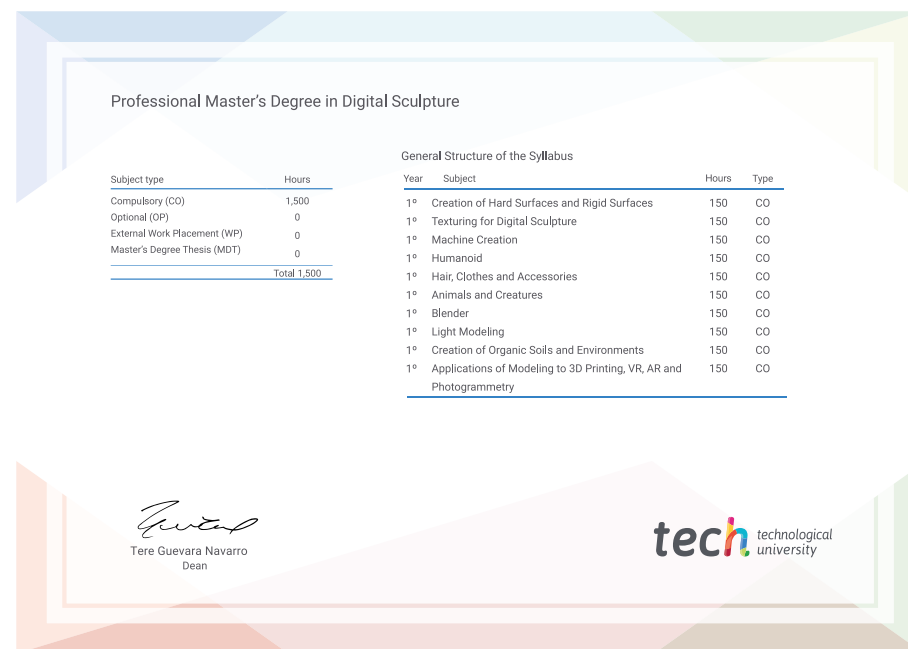
This **Professional Master's Degree in Digital Sculpture** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and will meet the requirements commonly demanded by job exchanges, competitive examinations and professional career evaluation committees.

Title: **Professional Master's Degree in Digital Sculpture**

Official N° of Hours: **1,500 h.**



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

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



## Professional Master's Degree Digital Sculpture

- » Modality: **online**
- » Duration: **12 months**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

# Professional Master's Degree

## Digital Sculpture

