

# Postgraduate Diploma

## Digital Sculpture for Rigid Surfaces, Machines and Texturing





## Postgraduate Diploma

### Digital Sculpture for Rigid Surfaces, Machines and Texturing

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/videogames/postgraduate-diploma/postgraduate-diploma-digital-sculpting-rigid-surfaces-machines-texturing](http://www.techtitute.com/us/videogames/postgraduate-diploma/postgraduate-diploma-digital-sculpting-rigid-surfaces-machines-texturing)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

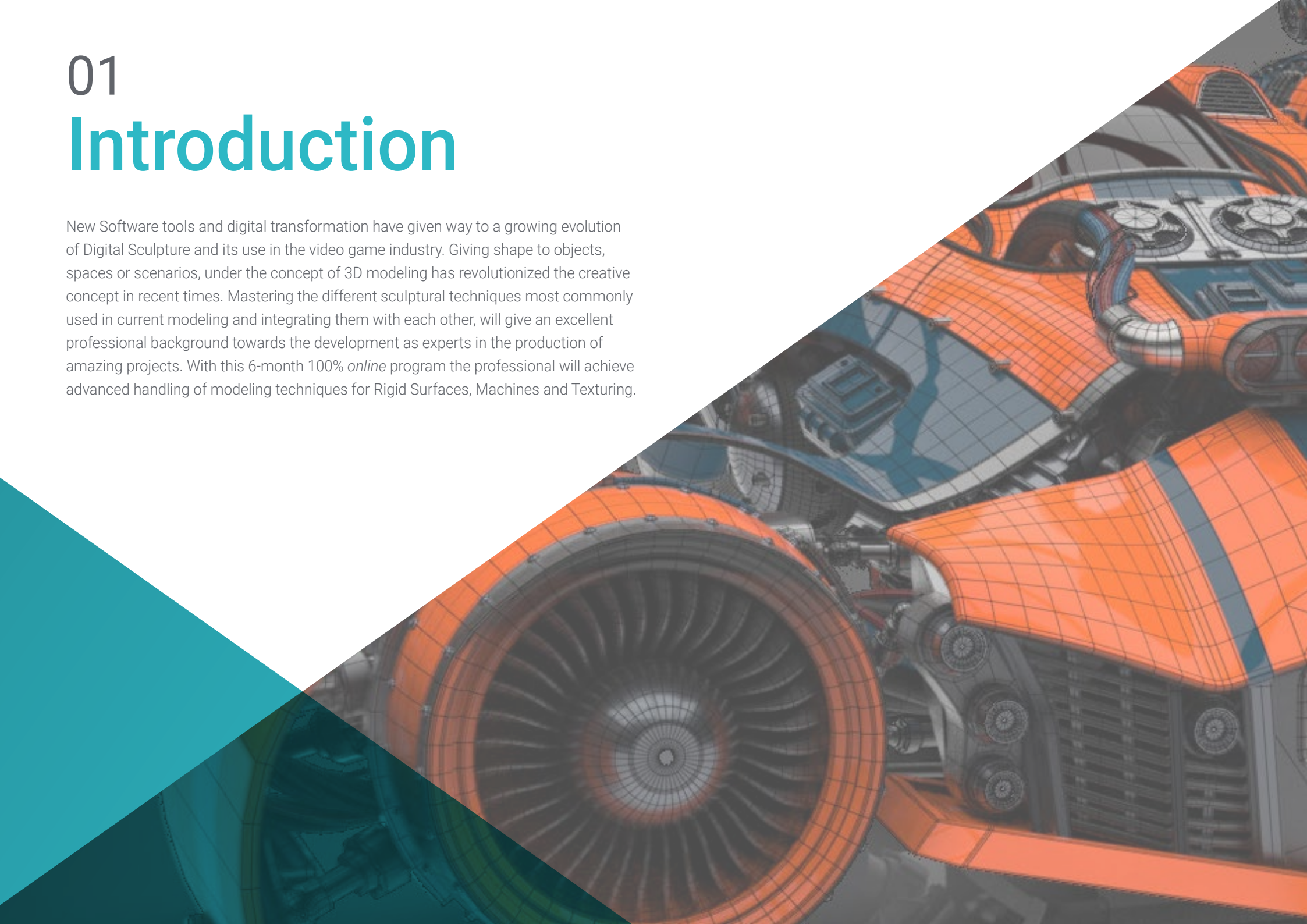
---

*p. 28*

# 01

# Introduction

New Software tools and digital transformation have given way to a growing evolution of Digital Sculpture and its use in the video game industry. Giving shape to objects, spaces or scenarios, under the concept of 3D modeling has revolutionized the creative concept in recent times. Mastering the different sculptural techniques most commonly used in current modeling and integrating them with each other, will give an excellent professional background towards the development as experts in the production of amazing projects. With this 6-month 100% *online* program the professional will achieve advanced handling of modeling techniques for Rigid Surfaces, Machines and Texturing.





“

*With this program you will master 3ds Max, Blender, ZBrush, Substance Painter, Marvelous Designer and Quills"*

For the professional in the video game industry, it is necessary to keep up to date. Incorporate new IT tools and market trends to generate more attractive and unique experiences for users. The mastery of structural techniques such as *Edit Poly* or *Splines* modeling by means of 3ds Max, stand out for their reliability and economy. In this sense, to integrate the most creative and free part of the modeling through organic modeling, three great programs of the sector will be handled: *ZBrush*, *Lumion* and 3ds Max; and a high quality of detail possible through the use of Lumion.

Thus, achieving a great mastery of the texturing stage and being able to model rigid surfaces and machines that resemble reality within a digital entertainment project is possible with the techniques, tools and procedures detailed in this program. The student will be able to master the different softwares, as well as the techniques to create machines: robots, *cyborg*, ships and airplanes, terrestrial vehicles and to stage accidents.

This Postgraduate Diploma is important for those who work or wish to enter the video game industry to achieve quality standards in terms of Digital Sculpture. It has been designed under an innovative methodology of totally *online* study, which allows the professional a continuous and efficient training through the use of a device of their choice with internet connection, to graduate in only 6 months.

The **Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing** contains the scientific most complete and up-to-date educational 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.



*It is one of the most sought-after profiles in today's labor market. Enroll now and graduate in a few months with the convenience of online study"*

“

*Become an expert in Digital Sculpture and master the techniques for the creation of rigid surfaces, machines and textures in the development of Video Games”*

The programs 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.

*Open doors in the video game industry with this Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing.*

*It masters the three major programs in the sector: ZBrush, Lumion and 3ds Max. And create through organic modeling a high quality of detail in your works.*



# 02 Objectives

The Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing, aims to open the doors of professionalization to all those who wish to specialize in the field of digital art for video games, especially the modeling of 3D works. To create advanced works with quality finishes.







“

*If you are looking to specialize your career in the video game development industry by applying new Digital Sculpture techniques, this program is for you. Enroll Now"*



## General Objectives

---

- ◆ Understand the need for a good topology at all levels of development and production
- ◆ Advanced handling and use of various organic modeling systems, *Edit Poly* and Splines
- ◆ Specialized *hard surface* finishing and infoarchitecture
- ◆ Master the modeling, texturing and lighting systems in virtual reality systems
- ◆ Understand current systems in the film and video game industry to deliver great results





## Specific Objectives

---

### 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
- ◆ Modeling 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

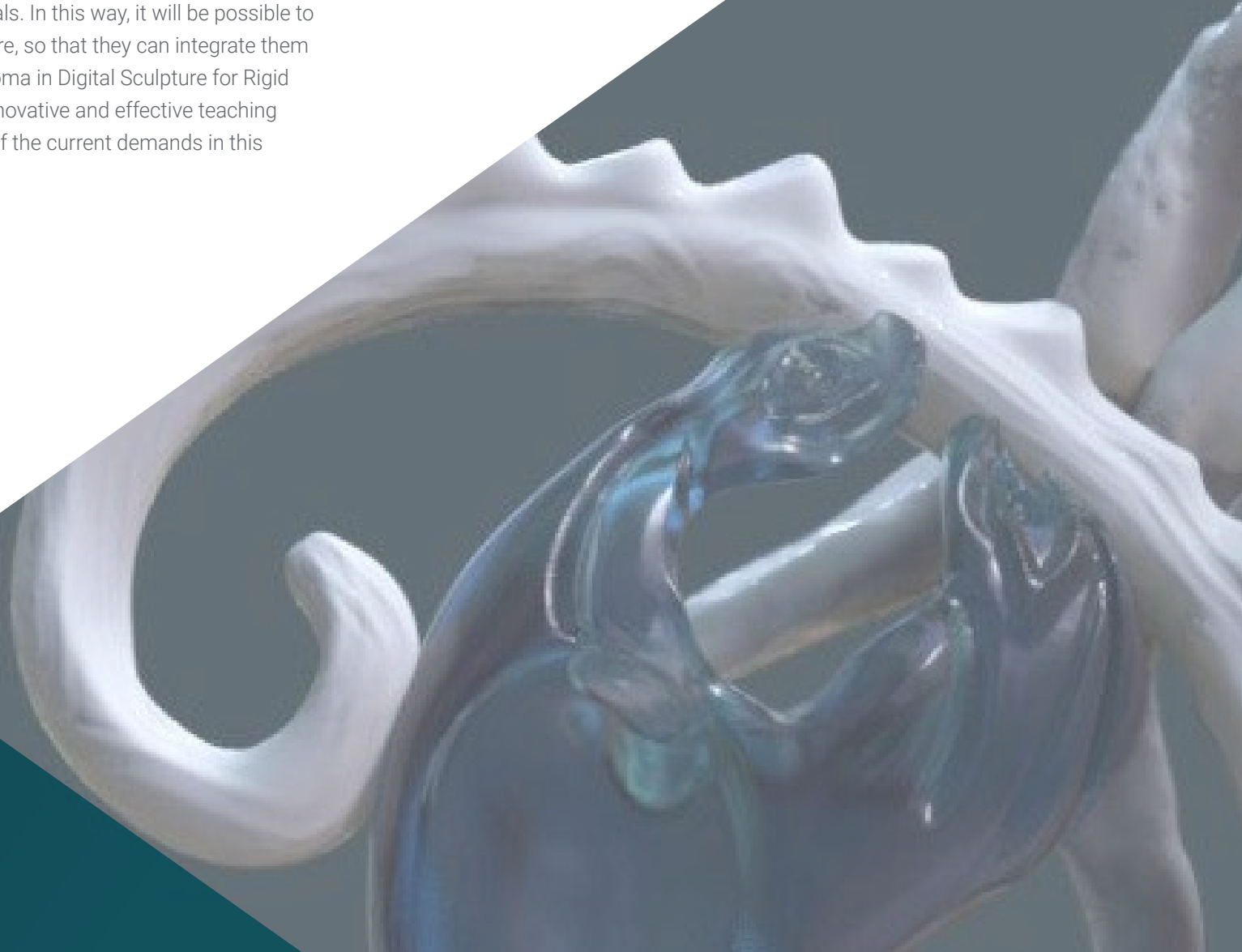


*Be prepared to overcome the challenges that come your way and open the door to new opportunities"*

# 03

## Course Management

To ensure that the learning process is properly developed, TECH has selected a high-level teaching staff composed of working professionals. In this way, it will be possible to transmit to the students all the keys of digital sculpture, so that they can integrate them into their work practice. Thus, this Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing, not only has an innovative and effective teaching methodology, but also a teaching staff at the height of the current demands in this complex and exciting discipline.





“

*Training in the hands of professionals who master the most updated content on digital sculpture, within the video game industry, is possible in TECH, the largest digital university in the world"*

## 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 GFGS 3D Animation European Institute of Design IED Madrid
- ◆ 3D modeling for the falleros Vicente Martinez and Loren Fandos Castellón
- ◆ Master in Computer Graphics, Games and Virtual Reality URJC University. Madrid
- ◆ Bachelor of Fine Arts at the University of Salamanca (specializing in Design and Sculpture)



# 04

## Structure and Content

The contents of this Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing have been structured in 3 modules, through which the professional will be able to acquire the most advanced and updated knowledge in the field. You will not only achieve mastery of the technique but also of the tools and procedures most commonly used in the video game industry to achieve amazing and realistic finishes. Thanks to the study of the topics presented in different formats that will make the learning experience much more dynamic.





“

*You will learn techniques, programs, processes and tools to use for 3D modeling in video game design. Providing you with opportunities for professional growth"*

## 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. *ZbrushBrush* 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 *Attrezzo*
  - 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 *Diffuse* Maps
  - 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. *Baking Unions*
  - 2.7. Exports and Imports
    - 2.7.1. Texture Formats
    - 2.7.2. FBX, OBJ and STL
    - 2.7.3. Subdivision Vs. Dinamesh
  - 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

# 05

# Methodology

This training program provides you with 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 program in Video Games at TECH Technological University prepares you to face all the challenges in this area, 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 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. Throughout 4 years, you will be presented with multiple real cases. You will have to combine all your knowledge, and research, argue, and defend your ideas and decisions.



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

## 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 Spanish-language 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 Spanish-speaking university qualified 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 Spanish 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 Latin America.



#### 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 & Re-testing

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.



# 06

# Certificate

The Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Diploma qualification issued by TECH Technological University.





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

The **Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing** contains the scientific most complete and up-to-date program on the market

After you have passed the evaluations, you will receive your corresponding Postgraduate Diploma issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional from career evaluation committees.

Title: **Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing**

Official N°of Hours: **450 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma 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  
online training  
development language  
classroom

**tech** technological  
university

**Postgraduate Diploma  
Digital Sculpture  
for Rigid Surfaces,  
Machines and Texturing**

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

# Postgraduate Diploma

## Digital Sculpture for Rigid Surfaces, Machines and Texturing

