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

**tech** technological university

# 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**

Website: **www.techtitute.com/in/information-technology/postgraduate-diploma/postgraduate-diploma-digital-sculpture-rigid-surfaces-machines-texturing**

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# 01
# Introduction

Digital sculpture is an activity that, due to its efficiency, economy and great capabilities, is increasingly used in different fields. For example, it has applications in fields such as architecture, design, 3D printing or industrial production. This concept has revolutionized the concept of industrial and artistic creation. This online program has been developed to master modeling, texturing and lighting systems in virtual reality system focused on the construction of digital sculptures. In an online format, with *Relearning* and *Learning by Doing* pedagogical methodology, students will be able to progressively advance through the content, adapting their skills to their other professional and personal projects.
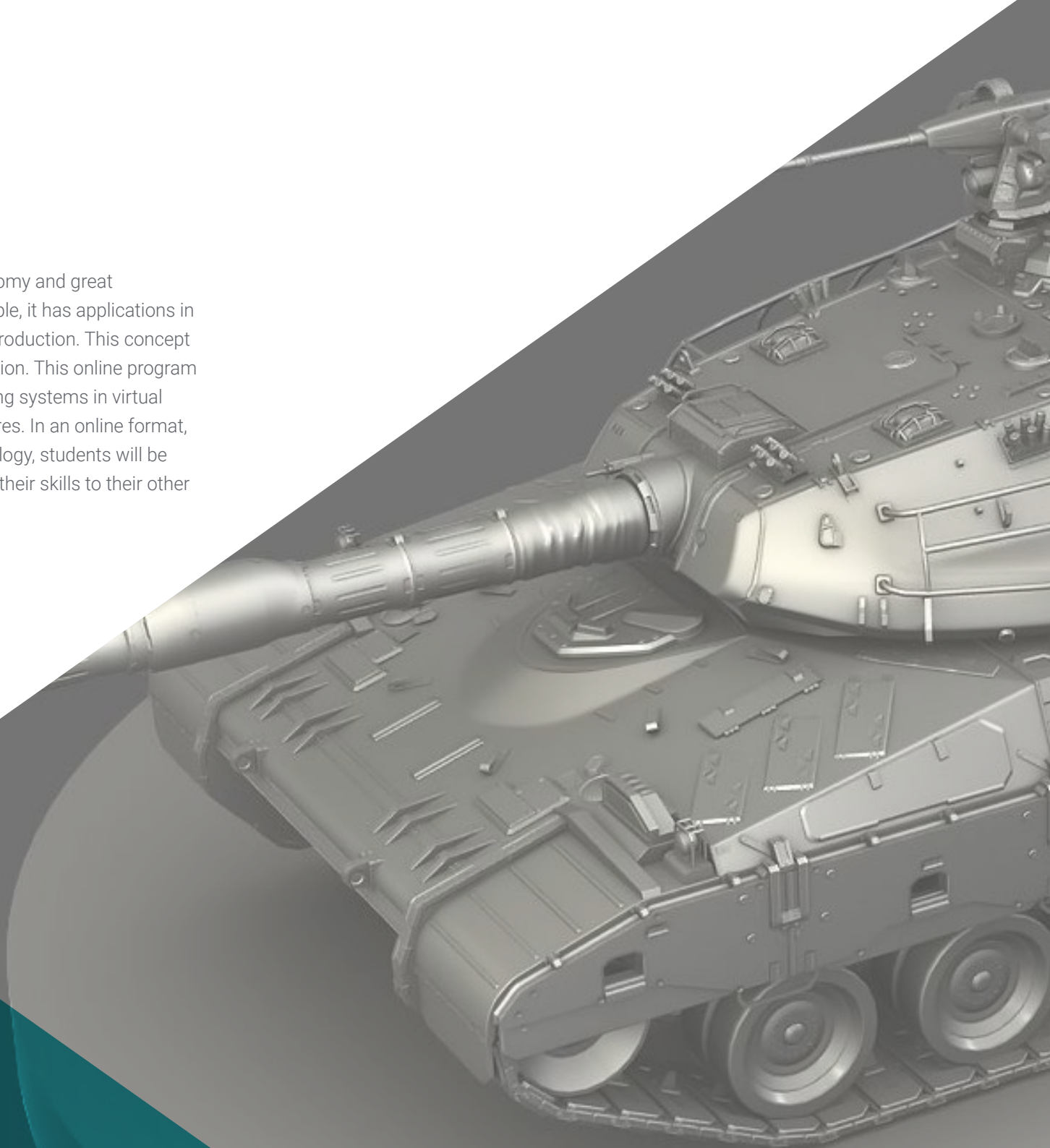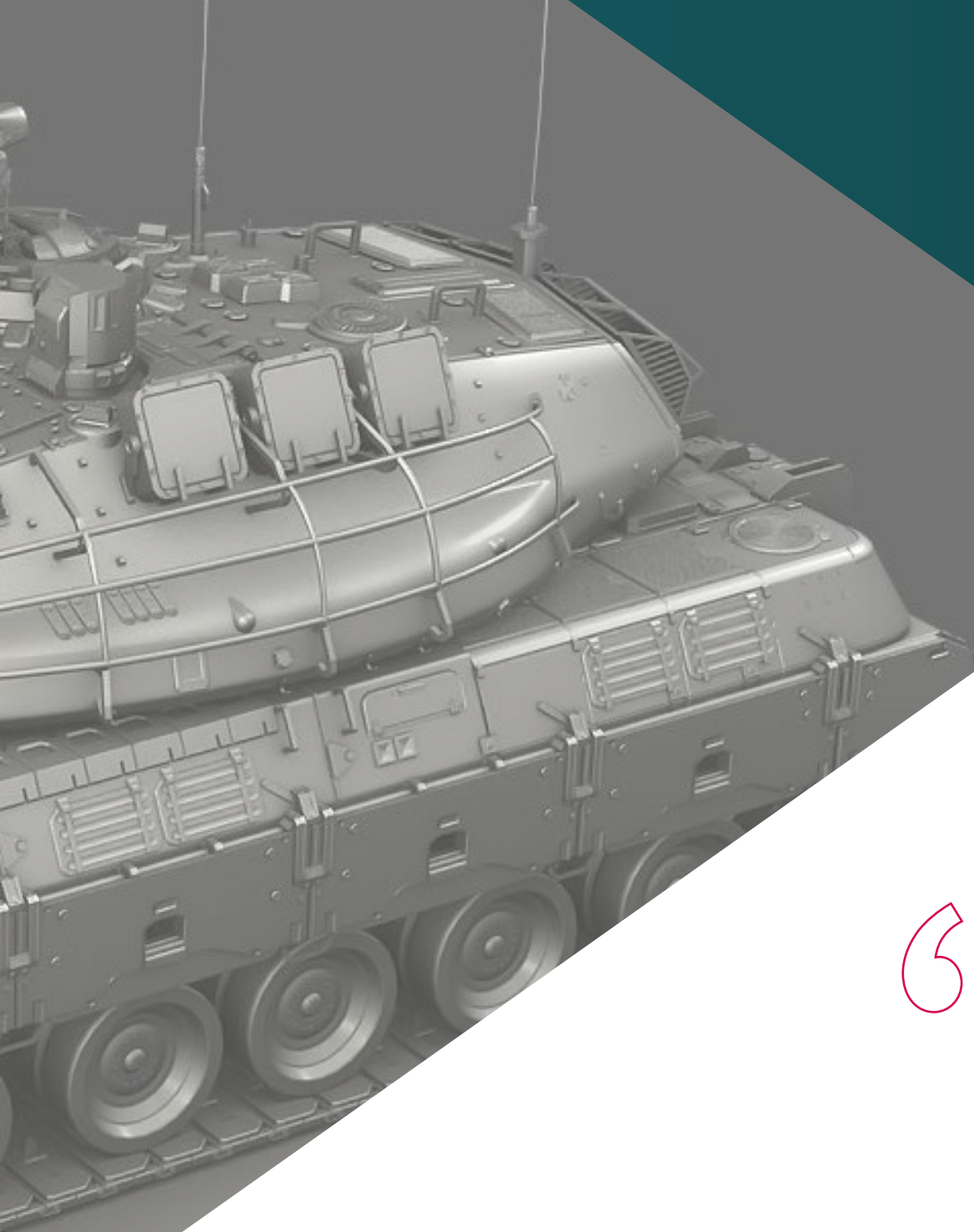
*Learn everything related to digital sculpture with this fully online Postgraduate Diploma, at your own time and pace"*

Thanks to the economic savings of being able to make models or plans in digital format, or to propose a specific design, techniques such as digital sculpture for rigid surfaces, machines and texturing have become more and more important in different industries. This Postgraduate Diploma focuses on the different software, as well as on the different techniques that allow the creation of machines, surface textures and rendering of projects.

This syllabus takes a progressive look at the different areas essential for sculpting surfaces, machines and textures. The first area is the creation of *hardsurface* and rigid surfaces. For this purpose, 3DS software will be used with other tools such as ZBrush, modeling will be performed by means of *Edit Poly* and *Splines*. In addition, the course will go into advanced organic sculpture and how to create infoarchitectures and integrate them into Lumion.

In a second aspect we will delve into PBR texture maps and materials, the use of texturing modifiers and the application of map generating software. We will also create *baked* textures, we will delve into the texturing to generate improvements in modeling, we will use in a complex way the import and export systems between programs. The tool that will be mastered in this section is *Substance Painter*.

Finally, this Postgraduate Diploma guides students in the creation of machines. To this end, a section will be devoted to creating, characterizing and modeling robots, vehicles and *cyborgs*, as well as evolving these same creations. In the same way, it will be possible to handle internal modeling masks, adapt biomimicry, science fiction or cartoon aesthetics. In addition, a lighting studio will be created in Arnold, rendering will be handled in photorealistic and non-photorealistic aesthetics and how to launch *wireframe* rendering will be learned.

This qualification, offered by TECH Technological University, is taught in online format, through an innovative study methodology that allows professionals to advance at their own pace in the content, only needing a device with an internet connection. With the option of downloading the contents for consultation and meeting the preparation objectives in only 6 months.

This **Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing** contains the most complete and up-to-date program on the market. The most important features include:

- Practical cases presented by experts in 3D modeling and digital sculpture.
- 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 the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

*Have you ever wanted to learn all about digital sculpture? This is the easiest, simplest, most convenient opportunity you're ever going to have"*

"*Learn how to digitally sculpt rigid surfaces, machines and give them textures with the leading programs on the market: 3DS Max, ZBrush o Substance Painter*"

*Learn how to create, characterize and model robots, vehicles and cyborgs, as well as how to evolve these these same creations.*

*This qualification is direct, so no final project is required to obtain it.*

The program's teaching staff includes professionals from sector who contribute their work experience to this 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 education programmed to learn in real situations.

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

# 02

# Objectives

The main objective of this program in Digital Sculpture for Rigid Surfaces, Machines and Texturing is to offer professionals the latest tools in the design field. In this way, students will be able to incorporate the knowledge into their projects simultaneously as they pursue their qualifications. In this way, they will be able to experience a fast and efficient professional progress thanks to the solutions and techniques that TECH Technological University puts at their disposal.

"*It brings value to projects, as well as new work strategies not only to your clients, but also to your employees. Become the professional designer you want*"

## General Objectives

- Understand the need for good topology at all levels of development and production
- Have knowledge of the handling and advanced use of various organic modeling systems, *Edit Poly* and *Splines*
- Obtain specialized *hard surface* and infoarchitecture finishes.
- Master the modeling, texturing and lighting systems in virtual reality systems
- Understand the current systems of the film and video game industry to deliver great results

*Set yourself new professional goals with this Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing"*

## Specific Objectives

### Module 1. Hard Surface Creation

- Use modeling by means of *Edit Poly* and *Splines*
- Manage organic sculpting in an advanced way
- Create infoarchitectures and integrate them in Lumion
- Model scenographies using 3Ds Max and integrate them with ZBrush

### Module 2. Texturing for Digital Sculpture

- Use 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 import and export systems between programs
- Advanced handling of *Substance Painter*

### Module 3. Machine Creation

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

# 03
# Course Management

In order to guarantee that the students' learning process is carried out in an adequate manner, TECH Technological University selects a teaching staff with high-level profiles. Through its teaching, students will be able to understand in depth the different techniques of working on rigid surfaces, machines and texturing, and how it greatly improves their projects, making them more realistic, thereby becoming experts in digital sculpture.

"

*Having professional teachers in the field is the key to learning in depth in any subject"*

## Management

**Mr. Sequeros Rodríguez, Salvador**

- Specialist in Digital Sculpture
- *Concept Art* and 3D Models for Slicecore (Chicago)
- *Videomapping* and modeling for Rodrigo Tamariz (Valladolid)
- Restorer at Geocisa
- Professor of Higher-Level Training Cycle in 3D Animation. Higher Education School of Image and Sound ESISV. Valladolid
- Professor of Higher-Level Training Cycle GFGS in 3D Animation. European Institute of Design IED Madrid
- Degree in Fine Arts from the University of Salamanca, specializing in Design and Sculpture
- Master's Degree in Computer Graphics, Games and Virtual Reality from the URJC University of Madrid

# Structure and Content

Throughout the program, students will acquire the knowledge and skills necessary to become specialists in Digital Sculpture for Rigid Surfaces Machines and Texturing. Thanks to the complete contents of the program, students will be able to learn in depth the mastery of the technique and the most used tools and procedures in the market to achieve quality finishes. All this will enable them to act correctly in the different scenarios that may arise in their professional practice.

"
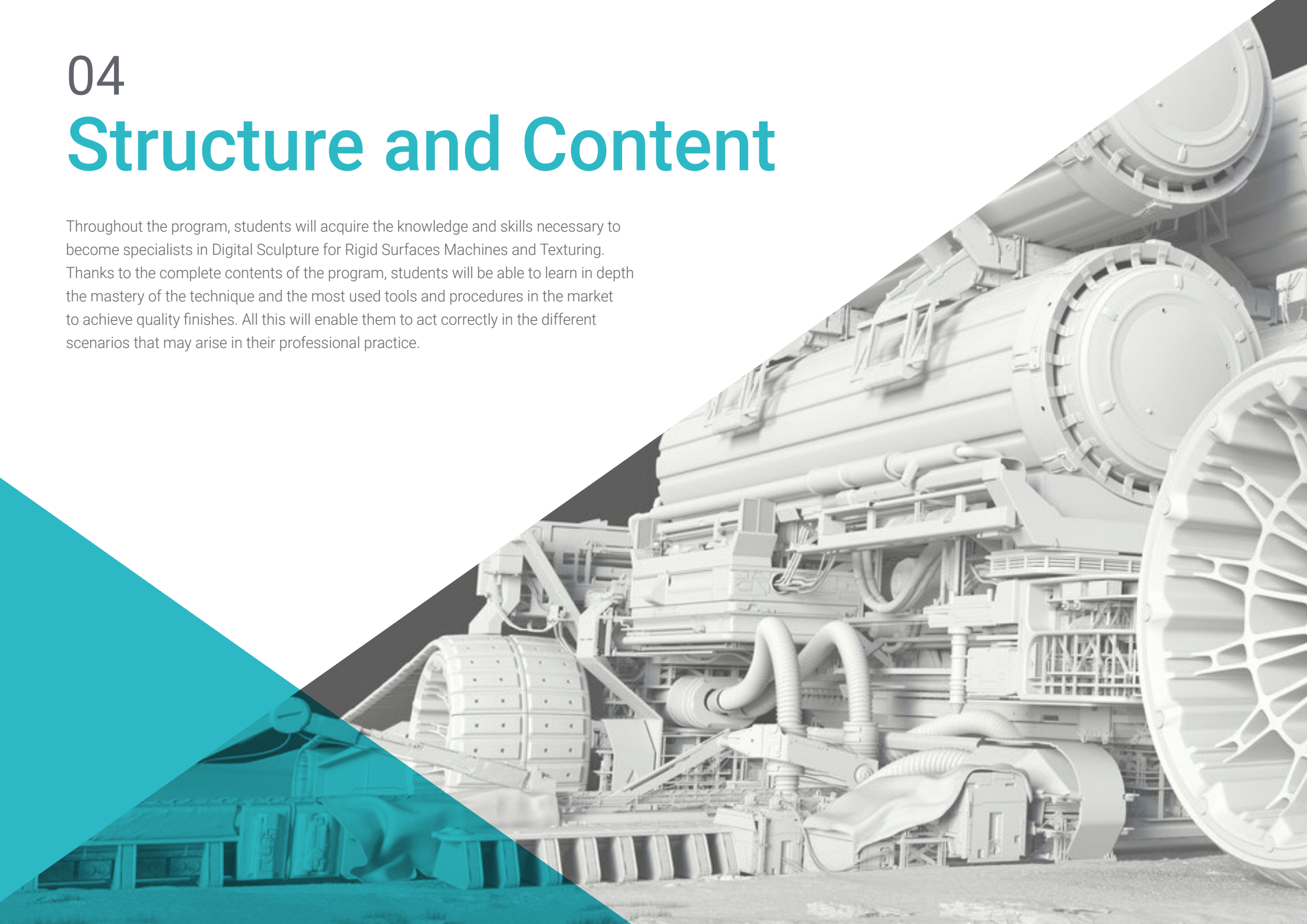
*Transform your career: enjoy up-to-date, quality content that will enhance your skills as a digital sculptor"*

## Module 1. *Hard Surface* Creation

1.1. Sculpture Techniques and Applications
    1.1.1. *Edit Poly*
    1.1.2. *Splines*
    1.1.3. Organic Model

1.2. *Edit Poly* Monitoring
    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. *Splines* Modifiers
    1.4.2. Working Plots and Vectors
    1.4.3. *Splines* as Helpers in Scenes

1.5. Organic Structure
    1.5.1. Zbrush Interface
    1.5.2. Modeling Techniques in ZBrush
    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. Façade 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 Cuts

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. Non-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. Normal Map
    2.4.2. Displacement Map
    2.4.3. *Vector Maps*

2.5. Normal Mapping
    2.5.1. Photoshop
    2.5.2. *Materialize* and Online Systems
    2.5.3. Texture Scanning

2.6. UVW and *banking*
    2.6.1. *Baked Hard Surface* Textures
    2.6.2. Baked Organic Textures
    2.6.3. *Baking* Joints

**Module 3.** Machine Creation

# 05
# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

> *Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## Case Study to contextualize all content

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

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



*You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.*

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

## A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

"

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

The case method 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

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

*In 2019, we obtained the best learning results of all online universities in the world.*

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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.
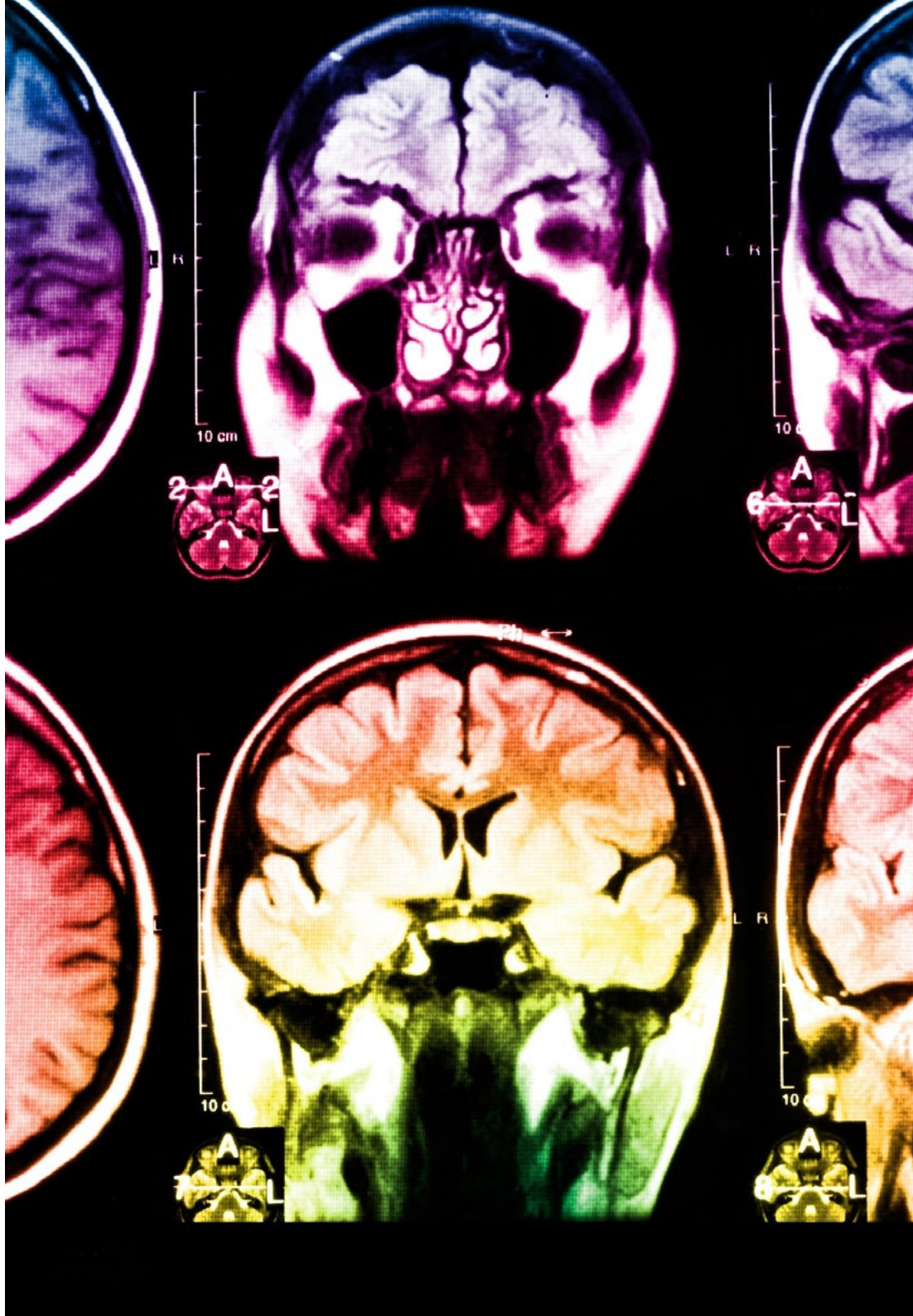
**This program offers the best educational material, prepared with professionals in mind:**

### 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 adapted in 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.

**30%**

### 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.

**10%**

### Practising Skills and Abilities

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

**8%**

### 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.

**20%**

**25%**

**4%**

**3%**
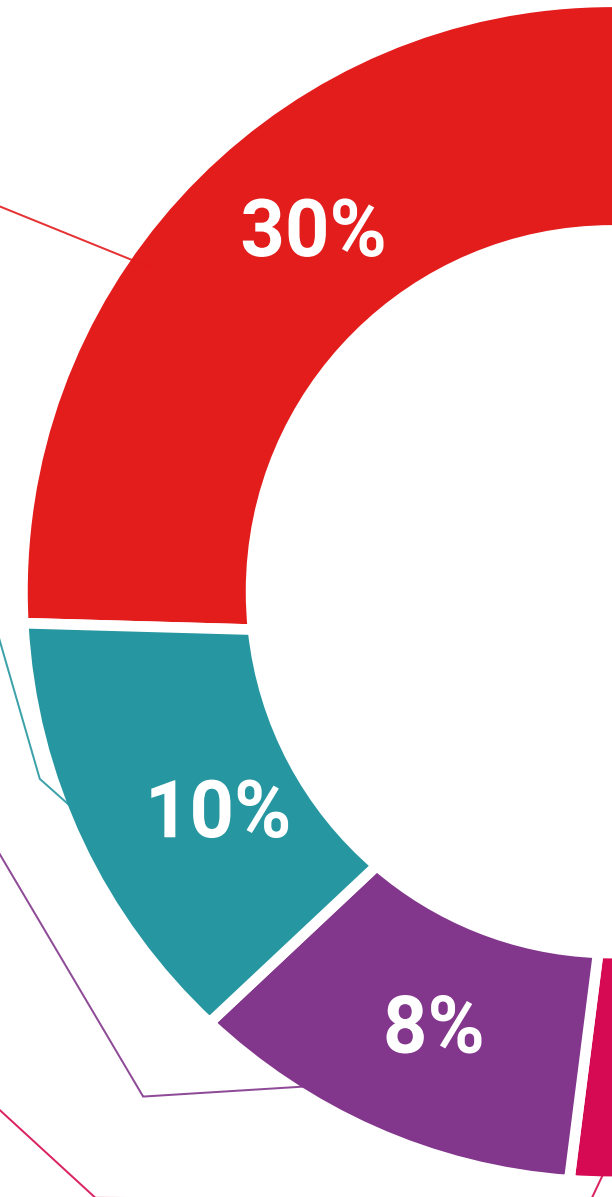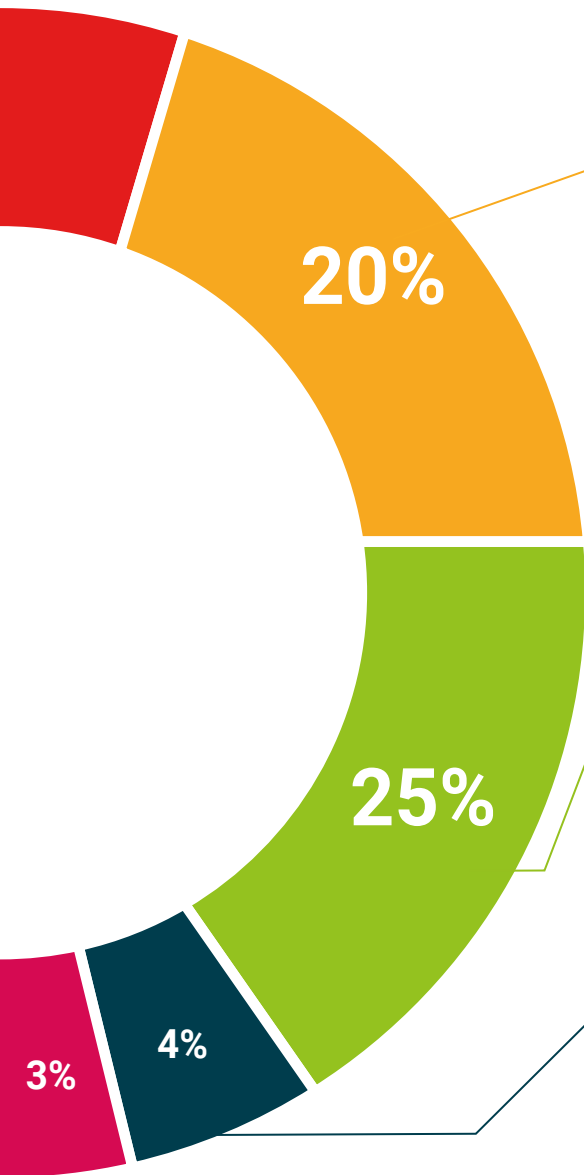
### Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

### Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

# Certificate

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

*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"*
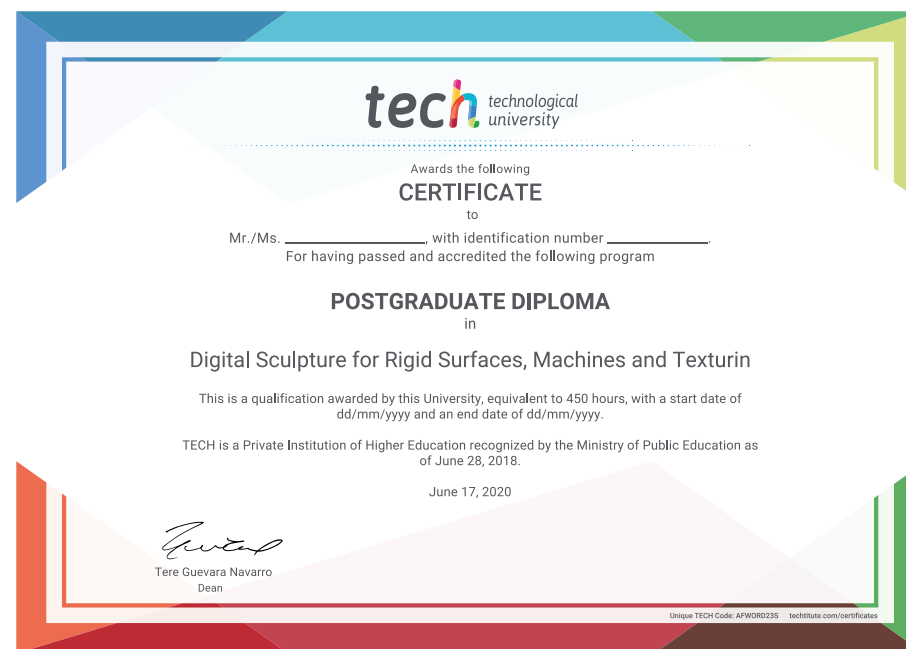
This **Postgraduate Diploma in Digital Sculpture for Rigid Surfaces, Machines and Texturing** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding Postgraduate Diploma issued by **TECH Technological University** via tracked delivery*.

The certificate 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 career evaluation committees.

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

Official Nº of Hours: **450 h.**

**tech** technological university

Awards the following
**CERTIFICATE**
to

Mr./Ms. _____, with identification number _____.
For having passed and accredited the following program

**POSTGRADUATE DIPLOMA**
in

Digital Sculpture for Rigid Surfaces, Machines and Texturin

This is a qualification awarded by this University, equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S    techtitute.com/certificates

*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.

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

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