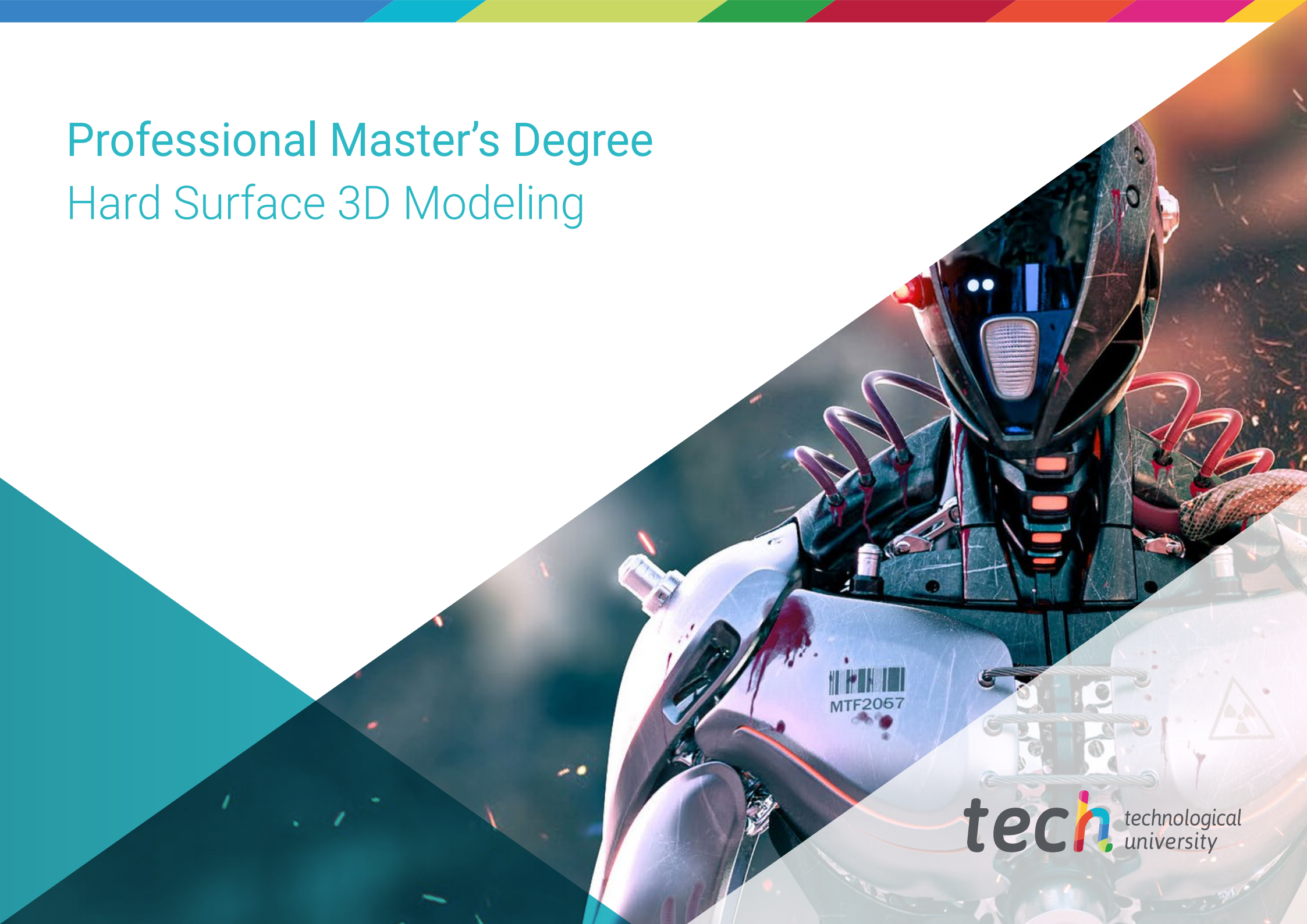
Professional Master's Degree
Hard Surface 3D Modeling



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Professional Master's Degree
Hard Surface
3D Modeling

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

Website: www.techtitute.com/pk/videogames-design/professional-master-degree/master-hard-surface-3d-modeling

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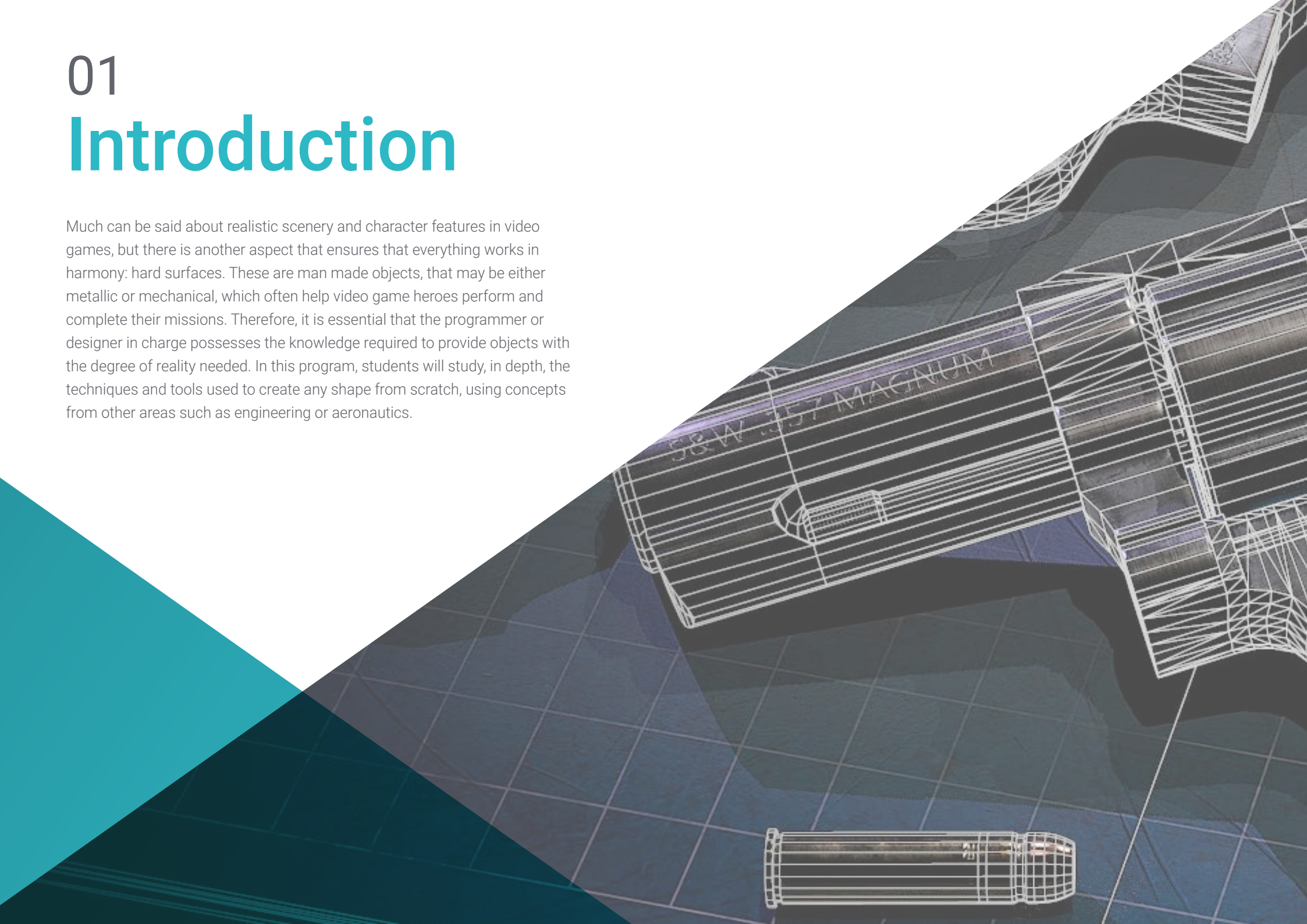
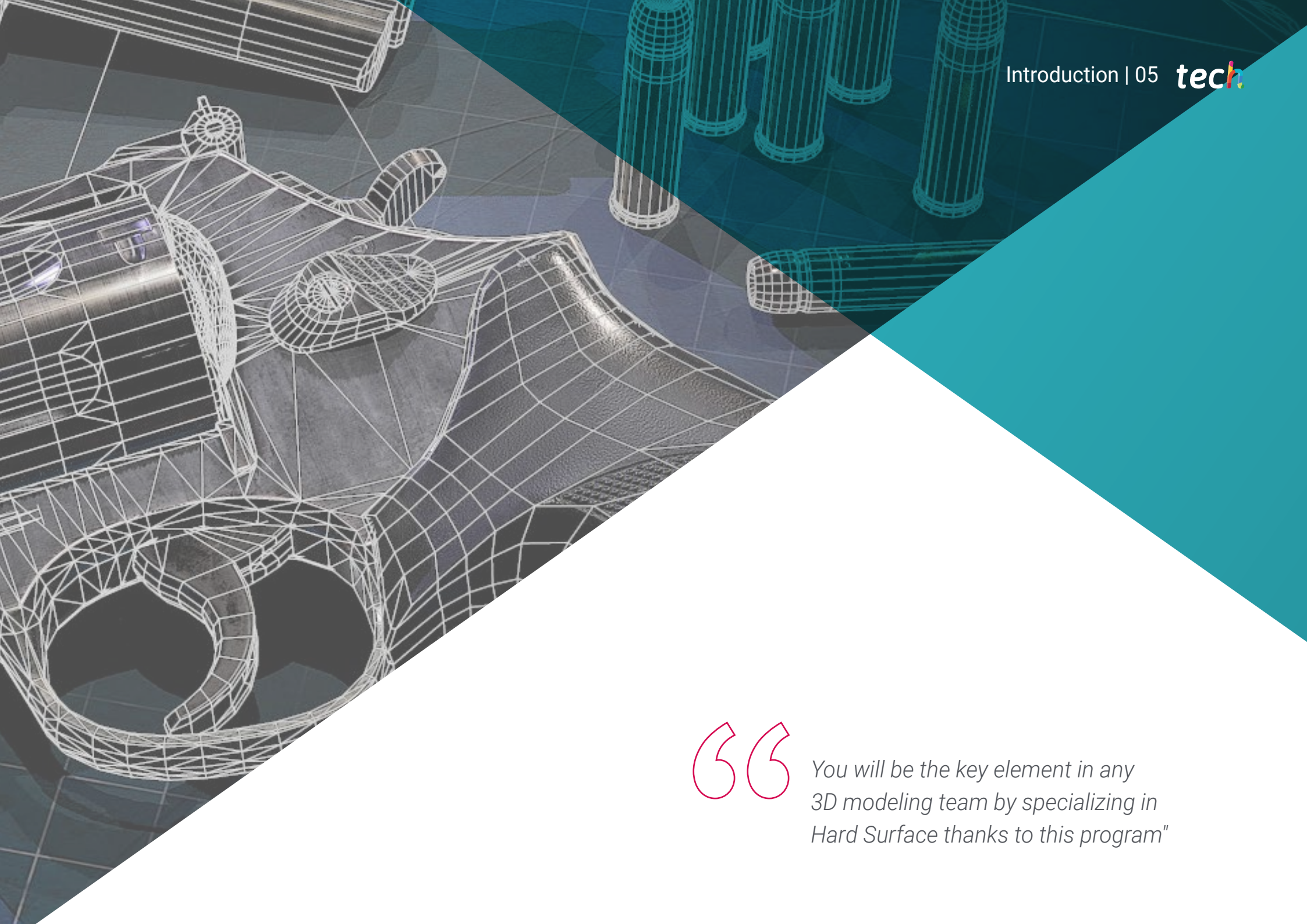
01

Introduction

Much can be said about realistic scenery and character features in video games, but there is another aspect that ensures that everything works in harmony: hard surfaces. These are man made objects, that may be either metallic or mechanical, which often help video game heroes perform and complete their missions. Therefore, it is essential that the programmer or designer in charge possesses the knowledge required to provide objects with the degree of reality needed. In this program, students will study, in depth, the techniques and tools used to create any shape from scratch, using concepts from other areas such as engineering or aeronautics.





You will be the key element in any 3D modeling team by specializing in Hard Surface thanks to this program"

What would heroes be without their armor? What would characters do without their weaponry and transport vehicles? These elements are key to the story of any video game. Molding hard surfaces in 3D is hard work that requires knowledge of engineering, aeronautics, artistic skills, and even automotive mechanics.

That is why this Professional Master's Degree guides students through a program that brings together all the elements they need to study shapes and generate a realistic model of any essential video game object. You will learn all the technical and artistic tools used in different areas so that you can apply this knowledge to the video game sector.

Firstly, you will obtain a comprehensive overview of the study of figure and of form, since it is from there that geometric bodies can be created. That way, you can start becoming familiar with the criteria of technical drawing and its applicability to three dimensional modeling. You will then be able to perform advanced modeling in Rhino, one of the most popular softwares in the design world that allows you to create unimaginable shapes with great precision and detail. Finally, special emphasis will be placed on the production of characters using *Hard Surface* and on understanding the parameters used for sculpting.

All this content will be provided by an exceptional teaching staff made up of renowned professionals within the sector. They will also provide all the educational material that the student needs to move smoothly through the contents of the syllabus, such as practical guides, educational videos and complementary reading material. This can be accessed online, which allows you to organize your time and pace of learning according to your schedule and responsibilities.

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

- Case studies presented by experts in *Hard Surface* 3D Modeling
- The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- Practical exercises where 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

This 100% online TECH program will help you analyze the different techniques of Hard Surface modeling and its principles in both a convenient and practical way"

Develop your skills to analyze and decompose objects into their basic morphology and create new equipment for video game characters"

You will be able to develop your technique for editing volumetric geometries through practical examples and educational videos.

Sign up for this program now and gain access to the exclusive content that TECH and its faculty have designed for you.

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersion 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 throughout the program. This will be done with the help of an innovative system of interactive videos made by renowned experts.

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Objectives

Storylines and character development would be meaningless without realistic surfaces. That is why this Professional Master's Degree has a clear objective: to provide students with the knowledge they need to master pioneering modeling programs in the world of video games. You will be able to make any element you need: cameras, kitchens, cars, shoes, etc., as realistically as possible. For this purpose. You will learn how to edit and transform geometry, organize scenes, model with Rhino and much more.

Learn how to model all the surfaces you can imagine thanks to the innovative content of this program"

General Objectives

- Gain an in depth understanding of different types of *Hard Surface*modeling, as well as the concepts and characteristics that are used to apply them in the 3D modeling industry
- Explore the theory of the creation of forms to develop form masters
- Learn in detail the fundamentals of 3D modeling in its various forms
- Generate designs to suit different industries
- Be a technical expert and/or artist in 3D modeling for *Hard Surface*
- Know all the tools related to the 3D modeling profession
- Acquire skills to develop textures and FX from 3D models

All mesh smoothing techniques are condensed in this program"

Specific Objectives

Module 1. Study of Figure and Form

- Create and apply geometrical figure constructs
- Understand the basics of three-dimensional geometry
- Learn in detail how it is represented in technical drawing
- Identify different mechanical components
- Apply transformations by means of symmetries
- Improve your understanding of how shapes are developed
- Work using the analysis of form

Module 2. *Hard Surface* Modeling

- In-depth understanding of how to control a topology
- Develop communication of functions
- Have knowledge on the emergence of *Hard Surface*
- Detailed knowledge of the different industries where it is applied
- Gain a broad understanding of the different types of modeling
- Have valid information on the areas that make up modeling

Module 3. Technical Modeling in Rhino

- Have a broad understanding of how NURBS modeling software works
- Work with precision modeling systems
- Learn in detail how to execute commands
- Create foundations for geometries
- Edit and transform geometries
- Work with an organization in the scenes

Module 4. Modeling Techniques and their Application in Rhino

- Develop techniques to solve specific cases
- Apply solutions to different requirements
- Know the main software tools
- Incorporate mechanical knowledge into modeling
- Working with analysis tools
- Develop strategies to address a model

Module 5. Advanced Modeling in Rhino

- Study further the application of techniques in advanced models
- Understand in detail how the components of an advanced model work
- Learn to work with different parts of a complex model
- Acquire skills to order a complex model
- Identify how details fit

Module 6. Introduction to Polygonal Modeling in 3D Studio Max

- Possess extensive knowledge in the use of 3D Studio Max
- Learn to work with customized configurations
- Gain an in-depth understanding of how smoothing works on meshes
- Conceive geometries through different methods
- Develop an understanding of how meshes behave
- Apply object transformation techniques
- Knowledge of UV mapping

Module 7. Advanced Polygonal Modeling in 3D Studio Max

- Apply techniques for specific product development
- In-depth understanding of component development
- Gain a broad understanding of aircraft topology in modeling
- Apply knowledge of technical components
- Create complex shapes through the development of simple shapes
- Understand the physiognomy of a bot shape

Module 8. *Low Poly* 3D Studio Max Modeling

- Work according to basic shapes for mechanical models
- Develop skills to break down elements
- In-depth understanding of how detail makes for realism
- Work out different techniques to develop details
- Understand how mechanical parts are connected

Module 9. *Hard Surface* Modeling for Characters

- Integrate Functionality of *Sculpt* Modeling
- Gain a broad knowledge of the tools that increase performance
- Develop the type of *Sculpt* to be implemented in the model
- Understand how character props play a role in the concept
- Learn in detail how to clean screens for export
- Learn to present a *Hard Surface*character model

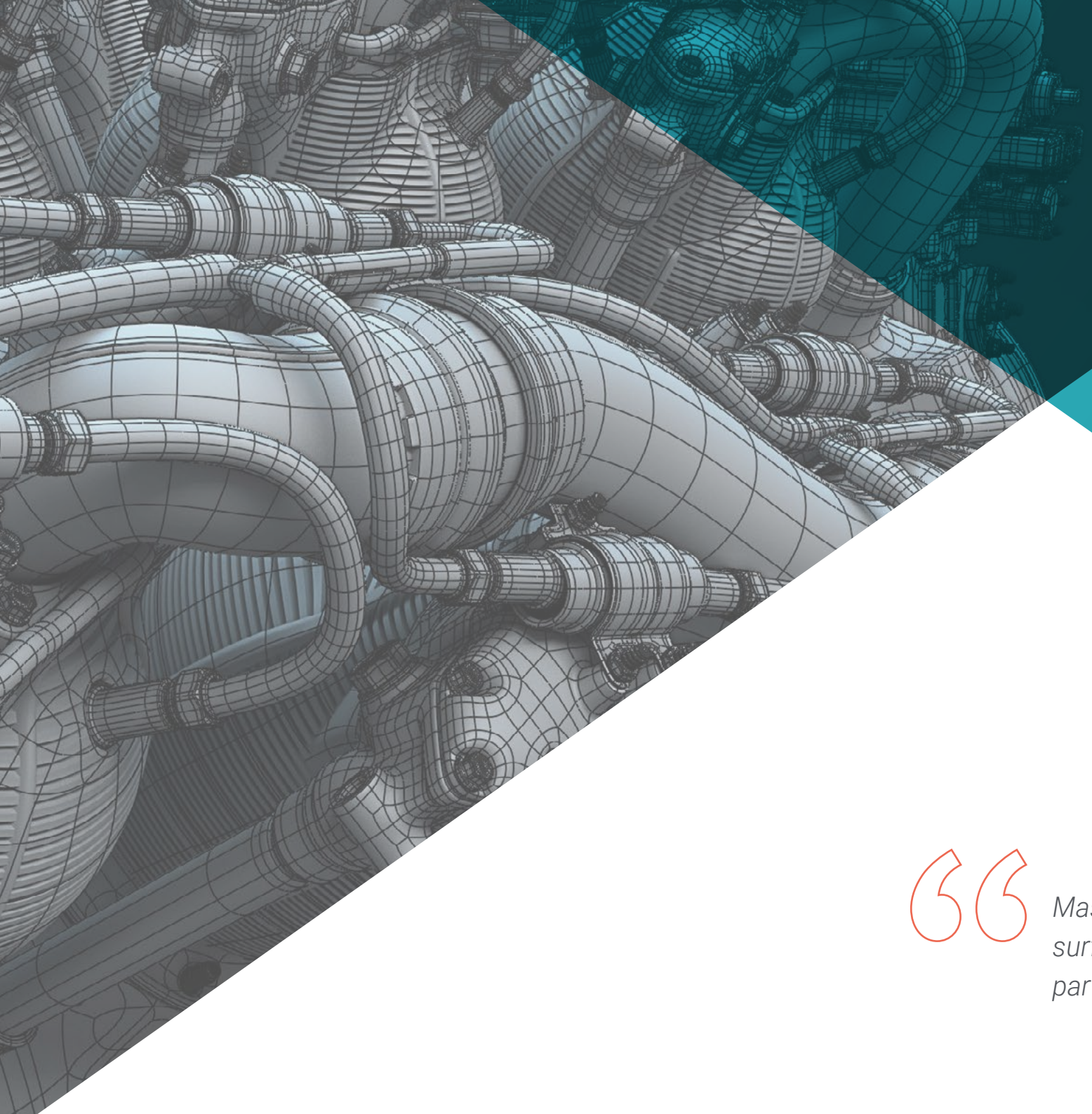
Module 10. Creation of *Hard Surface*textures

- Apply all texturing techniques for *Hard Surface*models
- Work on real cases in the application of details with textures
- Identify variations in PBR materials
- Have a broad knowledge of the differences in metallic materials
- Solve technical details using maps
- Learn how to export materials and maps for different platforms

03

Skills

This Professional Master's Degree will help students become true specialists in the world of hard surface texturing. By improving your skills and abilities, you will be able to emulate every detail of any object or environment required by the projects in which you participate. This way, you will be able to take on new professional challenges with the greatest responsibility and expertise in the area. With all this, you will be able to generate and develop any project requested by a large company in the sector or start working on your own.



Master all aspects of 3D hard surface texturing and be a vital part of any game design team"

General Skills

- Master the tools to design hard surfaces
- Apply knowledge in an appropriate way to carry out 3D modeling
- Employ theoretical aspects to create realistic shapes
- Generate new designs for any industry
- Master all the tools and programs of the profession

Achieve excellence thanks to this program and begin to chart a new career path today"

Specific Skills

- Develop to the maximum the skills you need to employ different modeling techniques
- Produce realistic surfaces using different polygonal modeling software
- Seamlessly use two or more forms of editing depending on the modeling objective
- Master the *Low Poly* 3D Studio Max interface to simplify the mechanical components of any object
- Master the use of *Hard Surface* parameters to create characters with *Sculpt*
- Carry out a texturing project using different variations of PBR materials
- Extrapolate basic shapes to create realistic mechanical models

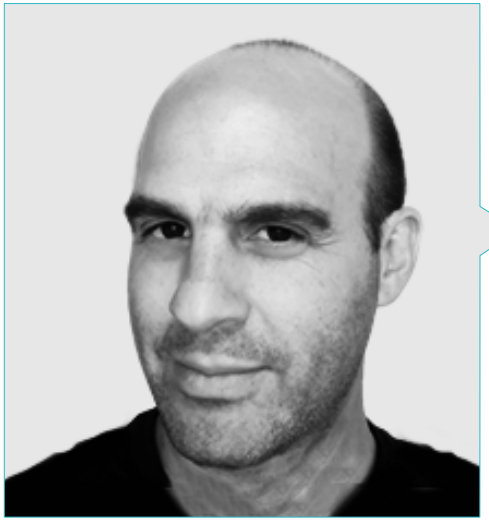
04

Course Management

Offering a first-class education, this program has a team of teachers made up of the best professionals in the world of video game design and programming. All of them are highly trained to provide all the knowledge, tips and tricks the student needs when using any 3D hard surface texturing program. Thanks to their many years of experience, they are able to provide examples and practical exercises to sharpen the skills in each class.

This outstanding team of instructors will guide you to achieve the best result: to specialize in hard surface modeling"

Management



Mr. Salvo Bustos, Gabriel Agustín

- 9 years of experience in Aeronautical 3D Modeling
- 3D Artist in 3D Visualization Service Inc
- 3D Production for Boston Whaler
- 3D Modeler for Shay Bonder Multimedia TV Production Company
- Audiovisual Producer in Digital Film
- Product Designer for Escencia de los Artesanos by Eliana M
- Industrial Designer Specializing in Products National University of Cuyo
- Mendoza Late Contest - Honorable Mention
- Exhibitor in Vendimia Regional Visual Arts Salon
- Seminar on Digital Composition National University of Cuyo
- National Congress of Design and Production CPRODI


340
310
280
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09

05

Structure and Content

The syllabus of this program has been specifically designed to enhance the skills of students who wish to enter the world of video games. They will be trained to model any hard texture in 3D by means of programs such as Rhino, 3D Studio Max and *Low Poly*. Thanks to the *Relearning* Methodology designed by TECH, you will have access to this information from the first day, in addition to complementary materials such as practical guides, individual reflection papers and interactive summaries. That is why this program becomes the best option to achieve excellence without giving up personal activities.

A modern syllabus designed by leading experts in the field will allow you to attain a stronger position in the video game industry"

Module 1. Study of Figure and Form

1.1. Geometrical Figures
- 1.1.1. Types of Geometrical Figures
- 1.1.2. Basic Geometrical Constructions
- 1.1.3. Geometric Transformations on the Plane

1.2. Polygons
- 1.2.1. Triangles
- 1.2.2. Quadrilaterals
- 1.2.3. Regular Polygons

1.3. Axonometric System
- 1.3.1. System Fundamentals
- 1.3.2. Types of Orthogonal Axonometry
- 1.3.3. Sketches

1.4. Three-Dimensional Drawing
- 1.4.1. Perspective and Third Dimension
- 1.4.2. Essential Elements in Drawing
- 1.4.3. Perspectives

1.5. Technical Drawing
- 1.5.1. Basic Notions
- 1.5.2. Disposition of Views
- 1.5.3. Cuts

1.6. Fundamentals of Mechanical Elements I
- 1.6.1. Axis
- 1.6.2. Joints and Bolts
- 1.6.3. Springs

1.7. Fundamentals of Mechanical Elements II
- 1.7.1. Bearings
- 1.7.2. Gears
- 1.7.3. Flexible Mechanical Components

1.8. Laws of Symmetry
- 1.8.1. Translation-Rotation-Reflection-Extension
- 1.8.2. Touch-Overlay-Subtract-Intersect-Join
- 1.8.3. Combined Laws

1.9. Form Analysis
- 1.9.1. Form and Function
- 1.9.2. Mechanical Form
- 1.9.3. Types of Shapes

1.10. Topological Analysis
- 1.10.1. Morphogenesis
- 1.10.2. Composition
- 1.10.3. Morphology and Topology

Module 2. Hard *Surface Modeling*

2.1. *Hard Surface* Modeling
- 2.1.1. Topology Control
- 2.1.2. Function Communication
- 2.1.3. Speed and Efficiency

2.2. *Hard Surface* I
- 2.2.1. *Hard Surface*
- 2.2.2. Development
- 2.2.3. Structure

2.3. *Hard Surface* II
- 2.3.1. Applications
- 2.3.2. Physical Industry
- 2.3.3. Virtual Industry

2.4. Types of Modeling
- 2.4.1. Technical Modeling / NURBS
- 2.4.2. Polygonal Modeling
- 2.4.3. *Sculpt* Modeling

2.5. Deep *Hard Surface* Modeling
- 2.5.1. Profiles
- 2.5.2. Topology and Edge Flow
- 2.5.3. Mesh Resolution

2.6. NURBS Model
- 2.6.1. Dots-Lines-Polylines-Curves
- 2.6.2. Surfaces
- 2.6.3. 3D Geometry

2.7. Fundamentals of Polygonal Modeling
- 2.7.1. *Edit Poly*
- 2.7.2. Vertices-Edges-Polygons
- 2.7.3. Surgery

2.8. Fundamentals of *Sculpt* Modeling
- 2.8.1. Basic Geometry
- 2.8.2. Subdivisions
- 2.8.3. Deformities

2.9. Topology and Retopology
- 2.9.1. *High Poly* and *Low Poly*
- 2.9.2. Polygonal Count
- 2.9.3. *Bake Maps*

2.10. UV *Maps*
- 2.10.1. UV Coordinates
- 2.10.2. Techniques and Strategies
- 2.10.3. *Unwrapping*

Module 3. Technical Modeling in Rhino

3.1. Rhino Modeling
- 3.1.1. Rhino Interface
- 3.1.2. Types of Objects
- 3.1.3. Navigating the Model

3.2. Fundamental Notions
- 3.2.1. Editing with *Gumball*
- 3.2.2. *Viewports*
- 3.2.3. Modeling Support

3.3. Precision Modeling
- 3.3.1. Input by Coordinates
- 3.3.2. Distance and Angle Restriction Input
- 3.3.3. Object Restriction

3.4. Command Analysis
- 3.4.1. Additional Modeling Support
- 3.4.2. *Smart Track*
- 3.4.3. Construction Planes

3.5. Lines and Polylines
- 3.5.1. Circles
- 3.5.2. Free-Form Lines
- 3.5.3. Helix and Spiral

3.6. Geometry Editing
- 3.6.1. *Fillet* and *Chamfer*
- 3.6.2. Mixture of Curves
- 3.6.3. *Loft*

3.7. Transformations I
- 3.7.1. Move - Rotate - Scale
- 3.7.2. Join - Prune - Extend
- 3.7.3. Separate-*Offset*-Formations

3.8. Creating Shapes
- 3.8.1. Deformable Shapes
- 3.8.2. Modeling With Solids
- 3.8.3. Transformation of Solids

3.9. Creating Surfaces
- 3.9.1. Simple Surfaces
- 3.9.2. Extrusion, *Lofting* and Surface Finishing
- 3.9.3. Surface Sweeping

3.10. Organisation
- 3.10.1. Layers
- 3.10.2. Groups
- 3.10.3. Blocks

Module 4. Modeling Techniques and their Application in Rhino

4.1. Techniques
- 4.1.1. Support Intersection
- 4.1.2. Creation of a Space Helmet
- 4.1.3. Pipelines

4.2. Application I
- 4.2.1. Creating a Car Tire
- 4.2.2. Creating a Tire
- 4.2.3. Modeling a Watch

4.3. Basic Techniques II
- 4.3.1. Use of Isocurves and Edges for Modeling
- 4.3.2. Making Apertures in the Geometry
- 4.3.3. Working with Hinges

4.4. Application II
- 4.4.1. Creation of a Turbine
- 4.4.2. Building Air Inlets
- 4.4.3. Tips for Imitating Edge Thickness

4.5. Tools
- 4.5.1. Tips for Using Mirror Symmetry
- 4.5.2. Use of Fillets
- 4.5.3. Uso *Trims*

4.6. Mechanical Applications
- 4.6.1. Creating Gears
- 4.6.2. Pulley Construction
- 4.6.3. Construction of a Shock Absorber

4.7. File Import and Export
- 4.7.1. Send Rhino files
- 4.7.2. Export Rhino files
- 4.7.3. Import to Rhino from Illustrator

4.8. Analysis Tools I
- 4.8.1. Graphical Curvature Analysis Tool
- 4.8.2. Curve Continuity Analysis
- 4.8.3. Curve Analysis Problems and Solutions

4.9. Analysis Tools II
- 4.9.1. Surface Directional Analysis Tool
- 4.9.2. Environment Surface Mapping Analysis Tool
- 4.9.3. Edge Display Analysis Tool

4.10. Strategies
- 4.10.1. Construction Strategies
- 4.10.2. Surface per Curve Grid
- 4.10.3. Working with *Blueprints*

Module 5. Advanced Modeling in Rhino

5.1. Motorcycle Modeling
- 5.1.1. Importing Reference Images
- 5.1.2. Modeling of Rear Tire
- 5.1.3. Modeling of Rear Rim

5.2. Mechanical Components of Rear Axle
- 5.2.1. Creating the Braking System
- 5.2.2. Building the Transmission Chain
- 5.2.3. Modeling the Chain Cover

5.3. Engine Modeling
- 5.3.1. Creation of the Body
- 5.3.2. Adding Mechanical Elements
- 5.3.3. Incorporating Technical Details

5.4. Modeling the Main Deck
- 5.4.1. Modeling Curves and Surfaces
- 5.4.2. Modeling the Deck
- 5.4.3. Cutting the Frame

5.5. Modeling the Upper Area
- 5.5.1. Building the Seat
- 5.5.2. Creating Front End Details
- 5.5.3. Creating Back End Details

5.6. Functional Parts
- 5.6.1. Gasoline Tank
- 5.6.2. Rear Lights
- 5.6.3. Front Lights

5.7. Building the Front Axle I
- 5.7.1. Brake System and Wheel Rim
- 5.7.2. Fork
- 5.7.3. Handlebar

5.8. Building the Front Axle II
- 5.8.1. Grips
- 5.8.2. Brake Cables
- 5.8.3. Instruments

5.9. Adding Details
- 5.9.1. Refining the Main Body
- 5.9.2. Adding the Muffler
- 5.9.3. Adding the Pedals

5.10. Final Components
- 5.10.1. Modeling the Windshield
- 5.10.2. Modeling the Support
- 5.10.3. Final Details

Module 6. Polygonal Modeling in 3D Studio Max

6.1. 3D Studio Max
- 6.1.1. 3D Studio Max Interface
- 6.1.2. Custom Configurations
- 6.1.3. Modeling with Primitives and Deformers

6.2. Reference Modeling
- 6.2.1. Creating Reference Images
- 6.2.2. Smoothing Hard Surfaces
- 6.2.3. Organization of Scenes

6.3. High-Resolution Mesh
- 6.3.1. Basic Smoothed Modeling and Smoothing Groups
- 6.3.2. Extrusion and Bevel Modeling
- 6.3.3. Using *Turbosmooth*Modifier

6.4. Modeling with *Splines*
- 6.4.1. Modifying Curvatures
- 6.4.2. Configuring Polygon Faces
- 6.4.3. Extruding and Spherizing

6.5. Creating Complex Shapes
- 6.5.1. Configuring Components and Work Grid
- 6.5.2. Duplicating and Soldering Components
- 6.5.3. Cleaning Polygons and Smoothing

6.6. Modeling with Edge Trimming
- 6.6.1. Creation and Positioning of Templates
- 6.6.2. Making Cuts and Cleaning Topology
- 6.6.3. Extruding Shapes and Creating Folds

6.7. Modeling from *Low Poly*Model
- 6.7.1. Starting with the Basic Shape and Adding Chamfers
- 6.7.2. Adding Subdivisions and Generating Borders
- 6.7.3. Cuts, Welds and Details

6.8. Edit Poly I Modifier
- 6.8.1. Workflows
- 6.8.2. Interfaces
- 6.8.3. *Sub Objects*

6.9. Creation of Object Compounds
- 6.9.1. *Morph*, *Scatter*, *Conform* and *Connect Compound objects*
- 6.9.2. *BlobMesh*, *Shape Merge* and *Boolean Compound objects*
- 6.9.3. *Loft*, *Mesher* and *Proboolean Compound objects*

6.10. Techniques and Strategies to Create UVs
- 6.10.1. Simple and Arc-Type Geometries
- 6.10.2. Hard Surfaces
- 6.10.3. Examples and Applications

Module 7. Advanced Polygonal Modeling in 3D Studio Max

7.1. Modeling a Sci-Fi Spacecraft
- 7.1.1. Creating our Workspace
- 7.1.2. Beginning with the Main Body
- 7.1.3. Wing Configuration

7.2. Cabin
- 7.2.1. Development of Cockpit
- 7.2.2. Modeling the Control Panel
- 7.2.3. Adding Details

7.3. Fuselage
- 7.3.1. Defining Components
- 7.3.2. Adjusting Minor Components
- 7.3.3. Development of Panel Under the Body

7.4. Wings
- 7.4.1. Creating the Main Wings
- 7.4.2. Incorporating the Tail
- 7.4.3. Adding Aileron Inserts

7.5. Main Body
- 7.5.1. Separating Parts into Components
- 7.5.2. Creating Additional Panels
- 7.5.3. Incorporating Dock Doors

7.6. Engines
- 7.6.1. Creating Space for Engines
- 7.6.2. Building the Turbines
- 7.6.3. Adding Exhausts

7.7. Adding Details
- 7.7.1. Lateral Components
- 7.7.2. Typical Components
- 7.7.3. Refining Overall Components

7.8. Bonus I-Creation of Pilot Helmet
- 7.8.1. Head Block
- 7.8.2. Detail Refinement
- 7.8.3. Modeling Helmet Collar

7.9. Bonus II-Creation of Pilot Helmet
- 7.9.1. Refining the Helmet Collar
- 7.9.2. Steps for Finishing Touches
- 7.9.3. Completion of the Mesh

7.10. Bonus III-Creation of a Co-Pilot Robot
- 7.10.1. Developing Shapes
- 7.10.2. Adding Details
- 7.10.3. Supporting Edges for Subdivision

Module 8. Low Poly *3D Studio Max* Modeling

8.1. Heavy Duty Vehicle Modeling
- 8.1.1. Creation of Volumetric Model
- 8.1.2. Volumetric Modeling of Tracks
- 8.1.3. Volumetric Construction of Shovel

8.2. Incorporating Different Components
- 8.2.1. Cabin Volumetrics
- 8.2.2. Mechanical Arm Volumetrics
- 8.2.3. Mechanical Shovel Blade Volumetrics

8.3. Adding Sub-Components
- 8.3.1. Creating Shovel Teeth
- 8.3.2. Adding Hydraulic Piston
- 8.3.3. Connecting Sub-Components

8.4. Incorporating Details to Volumetrics I
- 8.4.1. Creating Track *Caterpillars*
- 8.4.2. Incorporating Track Roller Bearings
- 8.4.3. Defining Track Casing

8.5. Incorporating Details to Volumetrics II
- 8.5.1. Chassis Sub-Components
- 8.5.2. Bearing Shells
- 8.5.3. Adding Part Cuts

8.6. Incorporating Details to Volumetrics III
- 8.6.1. Creating Radiators
- 8.6.2. Adding Hydraulic Arm Base
- 8.6.3. Creating Tailpipes

8.7. Incorporating Details to Volumetrics IV
- 8.7.1. Creating Protective Grill for Cockpit
- 8.7.2. Adding Pipelines
- 8.7.3. Adding Nuts, Bolts and Rivets

8.8. Developing Hydraulic Arm
- 8.8.1. Creating Supports
- 8.8.2. Retainers, Washers, Screws and Connections
- 8.8.3. Creation of Head

8.9. Developing the Cabin
- 8.9.1. Defining the Casing
- 8.9.2. Adding Windscreen
- 8.9.3. Latch and Headlight Details

8.10. Mechanical Development of the Excavator
- 8.10.1. Creating Body and Teeth
- 8.10.2. Creation of Tooth Roller
- 8.10.3. Spline Wiring, Connectors and Fasteners

Module 9. Modeling of *Hard Surface* for Characters

9.1. *ZBrush*
- 9.1.1. *ZBrush*
- 9.1.2. Understanding the Interface
- 9.1.3. Creating Some Meshes

9.2. Brushes and Sculpting
- 9.2.1. Brush Settings
- 9.2.2. Working with Alphas
- 9.2.3. Standard Brushes

9.3. Tools
- 9.3.1. Subdivision Levels
- 9.3.2. Masks and *Polygroups*
- 9.3.3. Tools and techniques

9.4. Design
- 9.4.1. Dressing a Character
- 9.4.2. Analysis of Concepts
- 9.4.3. Rhythm

9.5. Initial Modeling of a Character
- 9.5.1. The Torso
- 9.5.2. The Arms
- 9.5.3. Legs

9.6. Accessories
- 9.6.1. Adding a Belt
- 9.6.2. Helmet
- 9.6.3. Wings

9.7. Accessory Details
- 9.7.1. Helmet Details
- 9.7.2. Wing Details
- 9.7.3. Shoulder Detailing

9.8. Body Details
- 9.8.1. Torso Details
- 9.8.2. Arm Detailing
- 9.8.3. Leg Detailing

9.9. Cleaning
- 9.9.1. Cleaning the Body
- 9.9.2. Creating Sub-Tools
- 9.9.3. Rebuilding Sub-Tools

9.10. Completion
- 9.10.1. Posing the Model
- 9.10.2. Materials
- 9.10.3. *Rendering*

Module 10. Texture Creation for *Hard Surface*

10.1. *Substance Painter*
- 10.1.1. *Substance Painter*
- 10.1.2. Burn Mapping
- 10.1.3. Materials in ID Color

10.2. Materials and Masks
- 10.2.1. Filters and Generators
- 10.2.2. Brushes and Paints
- 10.2.3. Flat Projections and Tracing

10.3. Texturing a Combat Knife
- 10.3.1. Allocating Materials
- 10.3.2. Adding Textures
- 10.3.3. Coloring Parts

10.4. Rough Edges
- 10.4.1. Variations
- 10.4.2. Details
- 10.4.3. Alphas

10.5. Metallicity
- 10.5.1. Polishing
- 10.5.2. Oxidants
- 10.5.3. Scratches

10.6. Normal and Height Mapping
- 10.6.1. *Bump*Maps
- 10.6.2. Normal Mapping Burn
- 10.6.3. Displacement Mapping

10.7. Other Map Types
- 10.7.1. *Ambient Occlusion*Map
- 10.7.2. Map of Specularity
- 10.7.3. Map of Opacity

10.8. Texturizing a Motorcycle
- 10.8.1. Tires and Basket Materials
- 10.8.2. Luminous Materials
- 10.8.3. Editing Burned Materials

10.9. Details
- 10.9.1. Stickers
- 10.9.2. Smart Masks
- 10.9.3. Paint Generators and Masks

10.10. Final Texturization
- 10.10.1. Manual Editing
- 10.10.2. Exporting Maps
- 10.10.3. *Dilation* Vs. *No Padding*

06

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 business schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Over the course of 4 years, you will be presented with multiple practical case studies. You will have to combine all your knowledge, and research, argue, and defend your ideas and decisions.

Relearning Methodology

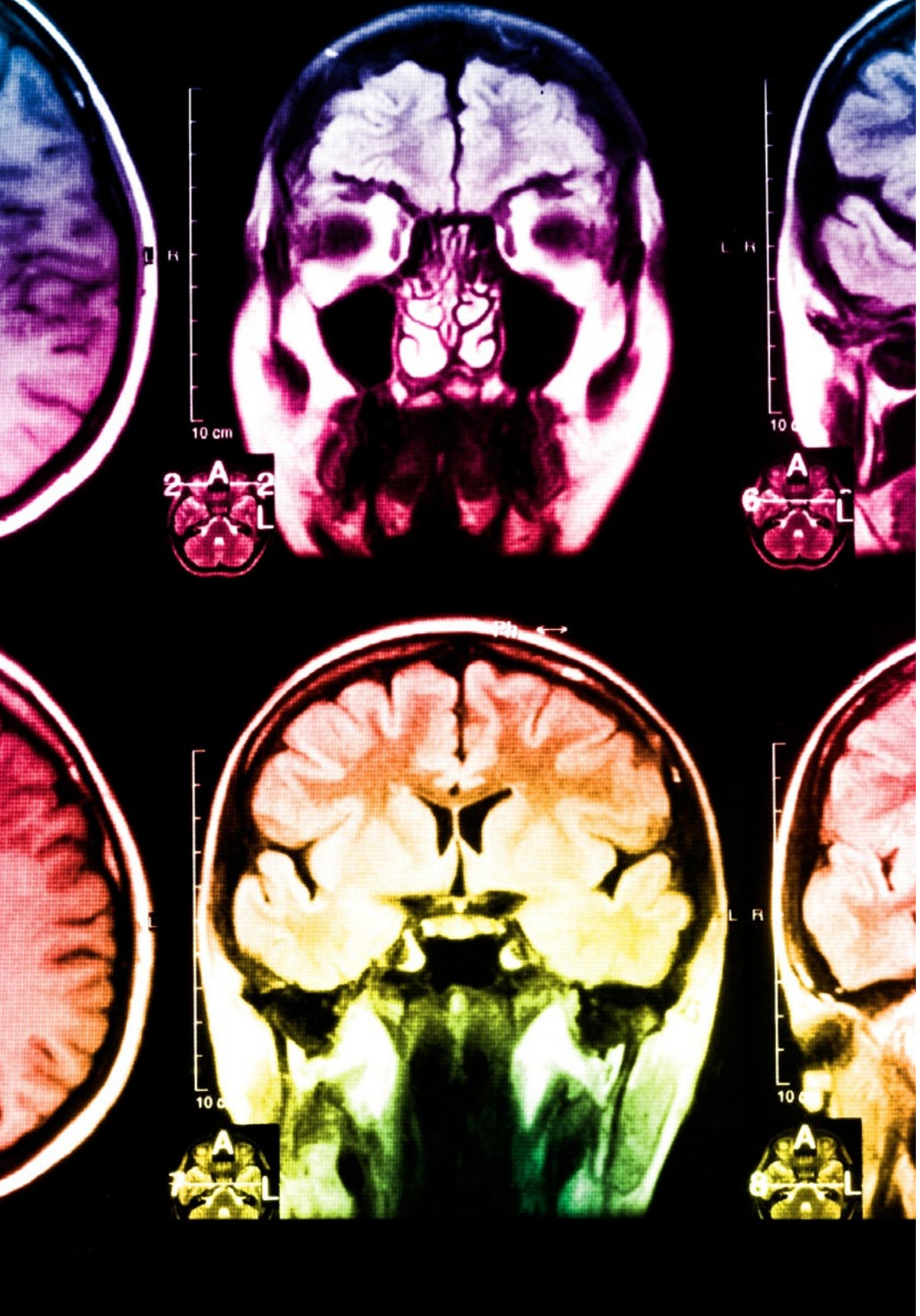
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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

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

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

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



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

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

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

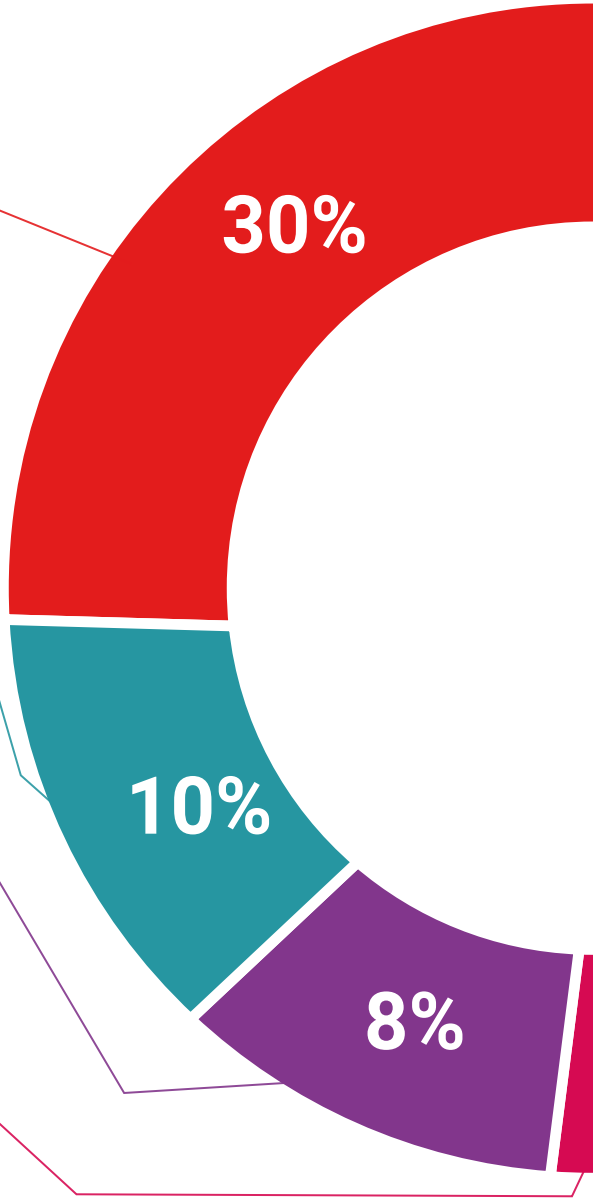
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

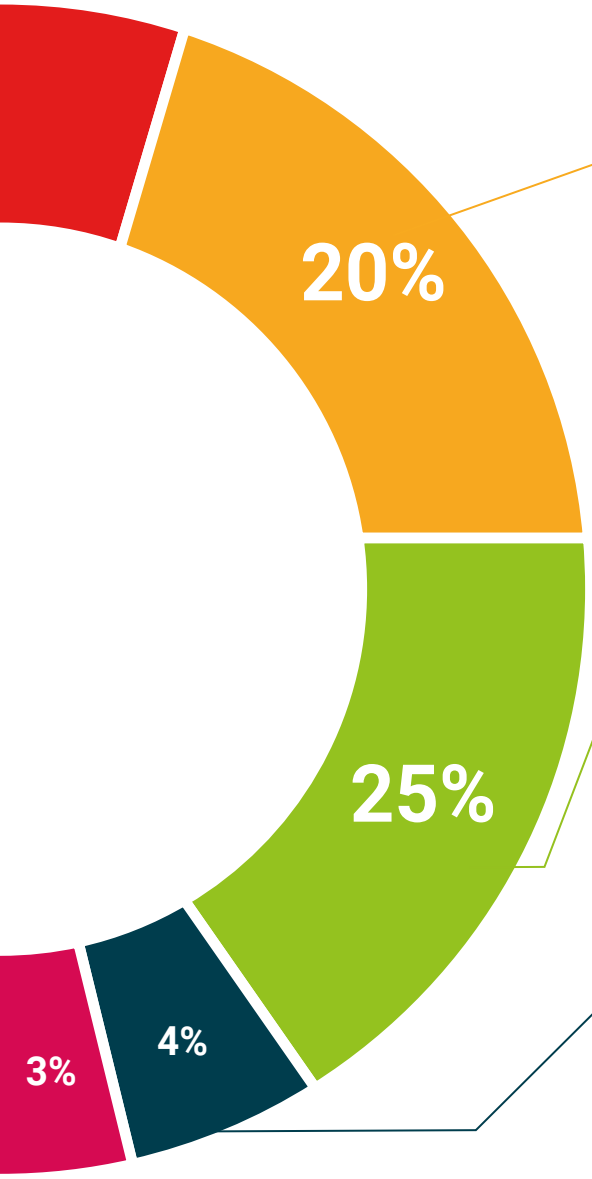
Practising Skills and Abilities

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

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

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

Interactive Summaries

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

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

Testing & Retesting

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

07

Certificate

The Professional Master's Degree in Hard Surface 3D Modeling guarantees students, in addition to the most rigorous and up to date education, access to a Professional Master's Degree issued by TECH Technological University.

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

This **Professional Master's Degree in Hard Surface 3D Modeling** contains the most complete and up to date program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** certificate 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 labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Professional Master's Degree in Hard Surface 3D Modeling**
Official Nº of hours: **1,500 h.**


tech technological university

Awards the following

CERTIFICATE

to

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

PROFESSIONAL MASTER'S DEGREE
in

Hard Surface 3D Modeling

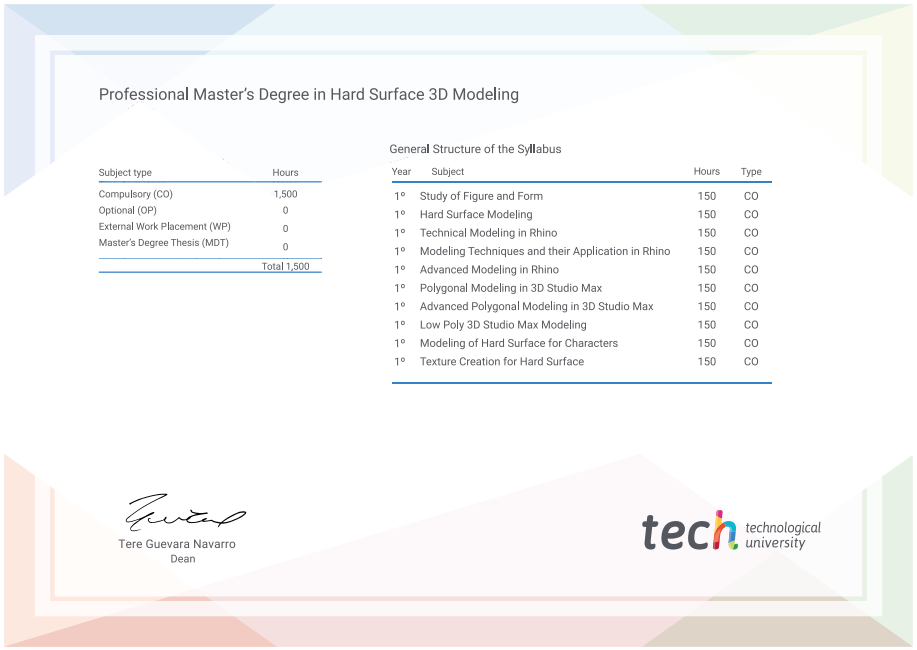
This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Hard Surface 3D Modeling

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 1,500

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Study of Figure and Form	150	CO
1º	Hard Surface Modeling	150	CO
1º	Technical Modeling in Rhino	150	CO
1º	Modeling Techniques and their Application in Rhino	150	CO
1º	Advanced Modeling in Rhino	150	CO
1º	Polygonal Modeling in 3D Studio Max	150	CO
1º	Advanced Polygonal Modeling in 3D Studio Max	150	CO
1º	Low Poly 3D Studio Max Modeling	150	CO
1º	Modeling of Hard Surface for Characters	150	CO
1º	Texture Creation for Hard Surface	150	CO

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Dean

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*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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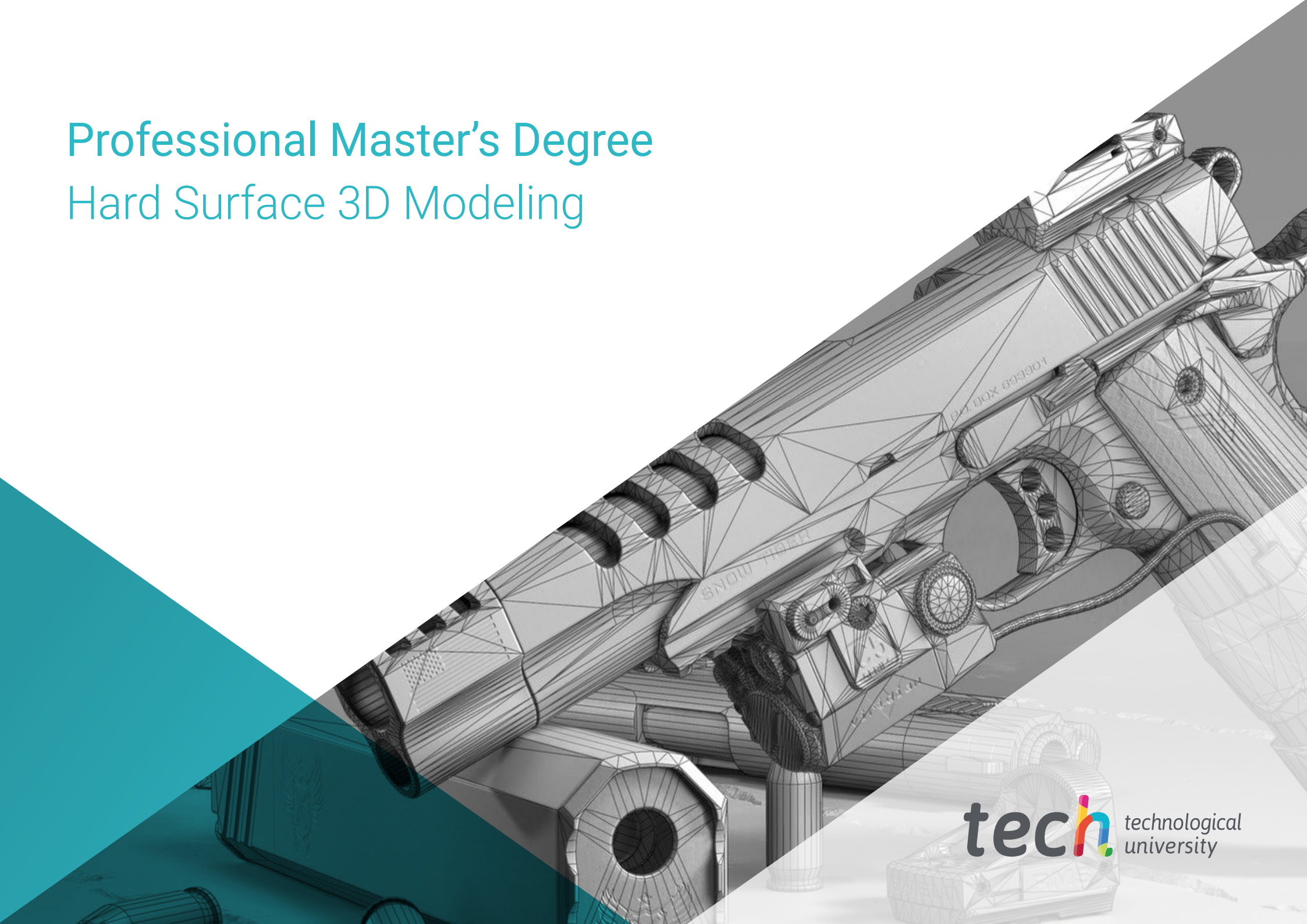
Professional Master's Degree
Hard Surface 3D Modeling

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

Professional Master's Degree
Hard Surface 3D Modeling



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