# Hybrid Professional Master's Degree

## Video Game Design

tech technological university

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# Hybrid Professional Master's Degree

## Video Game Design

- Modality: **Hybrid (Online + Clinical Internship)**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/pk/videogames/hybrid-professional-masters-degree/hybrid-professional-video-game-design

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01

# Introduction

The video game industry has been gaining unstoppable momentum with figures showing growth every year with Asian countries leading the rankings of the highest income places. In this sector, video game designers are highly sought after, but to reach the highest level requires a high level of technical knowledge. This program offers students a qualification with an up-to-date theoretical framework taught in 100% online mode and a practical stay in a leading studio in the field of video game creation and development. All this with the objective that the student has a complete and extremely useful learning for the performance of this profession in the main companies of the sector.

*Perfect your design technique with the mastery of After Effects, 3DX Max, Blender, or Maya in this Hybrid Professional Master's Degree"*

Titles such as Borderlands, Final Fantasy, Assassin's Creed, or League of Legends have reached the top thanks to the immense work of the creative, design, and development teams that make up the main studios of the video game industry. An arduous task where the role of the game designer is fundamental. This is why this Hybrid Professional Master's Degree provides students with a technical learning and a theoretical-practical approach, which will help them to be present in large companies in the sector.

In this way, students will find in this program a theoretical framework taught in 100% online mode that can be accessed without fixed schedules and from any device that allows you to connect to the Internet from anywhere in the world. This multimedia syllabus will cover 2D and 3D animation, as well as the key elements of object and character animation, modeling, and the main engines for video games. All this using the most widely used computer programs in the sector, allowing students to fully understand the design of the most successful titles.

An excellent opportunity offered by TECH to video game professionals looking for a specialization that will allow them to reach the best companies in the sector. For this purpose, the program provides flexibility to access the entire syllabus from the first day, distributing the course load according to the student's interests. The simulation of cases and multimedia content complete this program, which also ends with a 3-week internship program in one of the leading studios in the industry and with the best specialists in Video Game Design.

This **Hybrid Professional Master's Degree in Video Game Design** contains the most complete and up-to-date program on the market. Its most notable features are:

- Development of more than 100 cases that provide a broad knowledge of practical application in the field of video game design
- The development of practical case studies presented by experts in design and video game development
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used to improve learning.
- Its special emphasis on innovative methodologies
- All of this will be complemented by 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
- In addition, you will be able to do a technical internship in leading companies in the video game industry

*Design video games at the level of God of War Ragnarök, Starfield, Elden Ring thanks to this Hybrid Professional Master's Degree"*

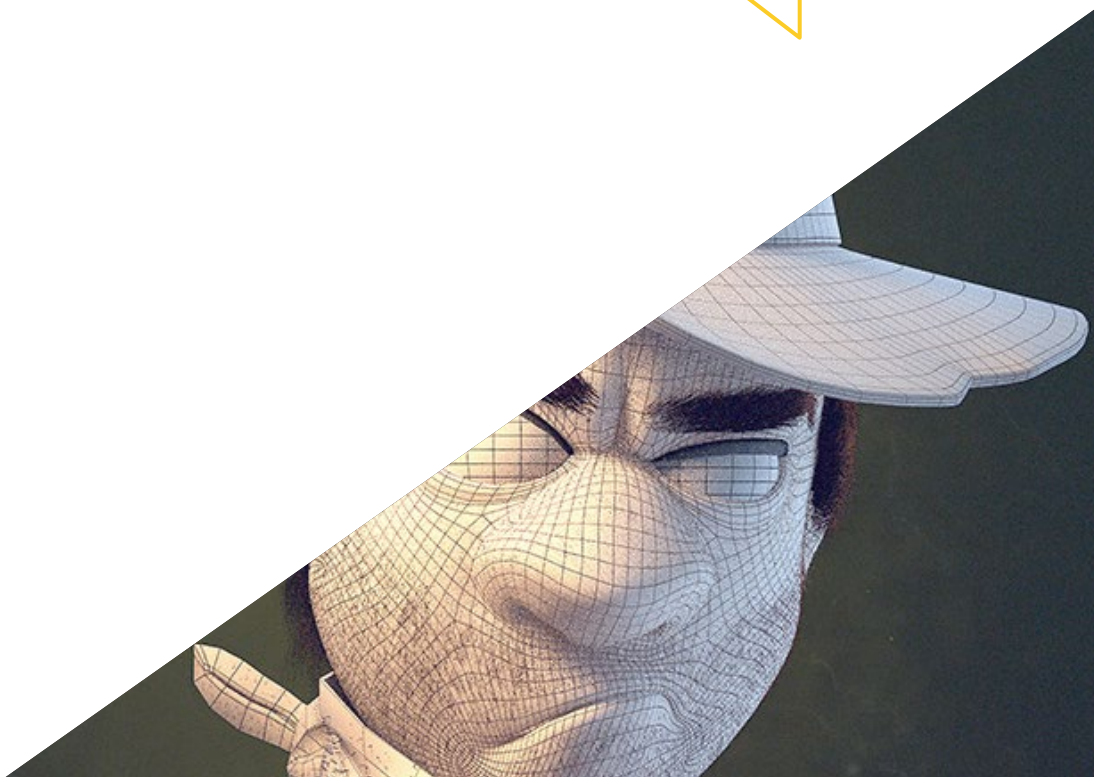
*This program offers you a 3-week stay in a leading company in the sector. Enroll now and don't miss the opportunity"*

*This Hybrid Professional Master's Degree gives you access to all the multimedia theoretical content from day one. Learn at your own pace.*

*Learn the key concepts of 2D and 3D modeling in this hybrid learning program.*

In this proposed Master's program, of a professional nature and hybrid mode, the program is aimed at updating video game professionals who develop their functions in studios dedicated to the creation and design of games. The contents are based on the latest scientific evidence, and oriented in an educational way to integrate theoretical knowledge in the practice of design and the elements that comprise its development in an industry that requires professionals with a high technical level.

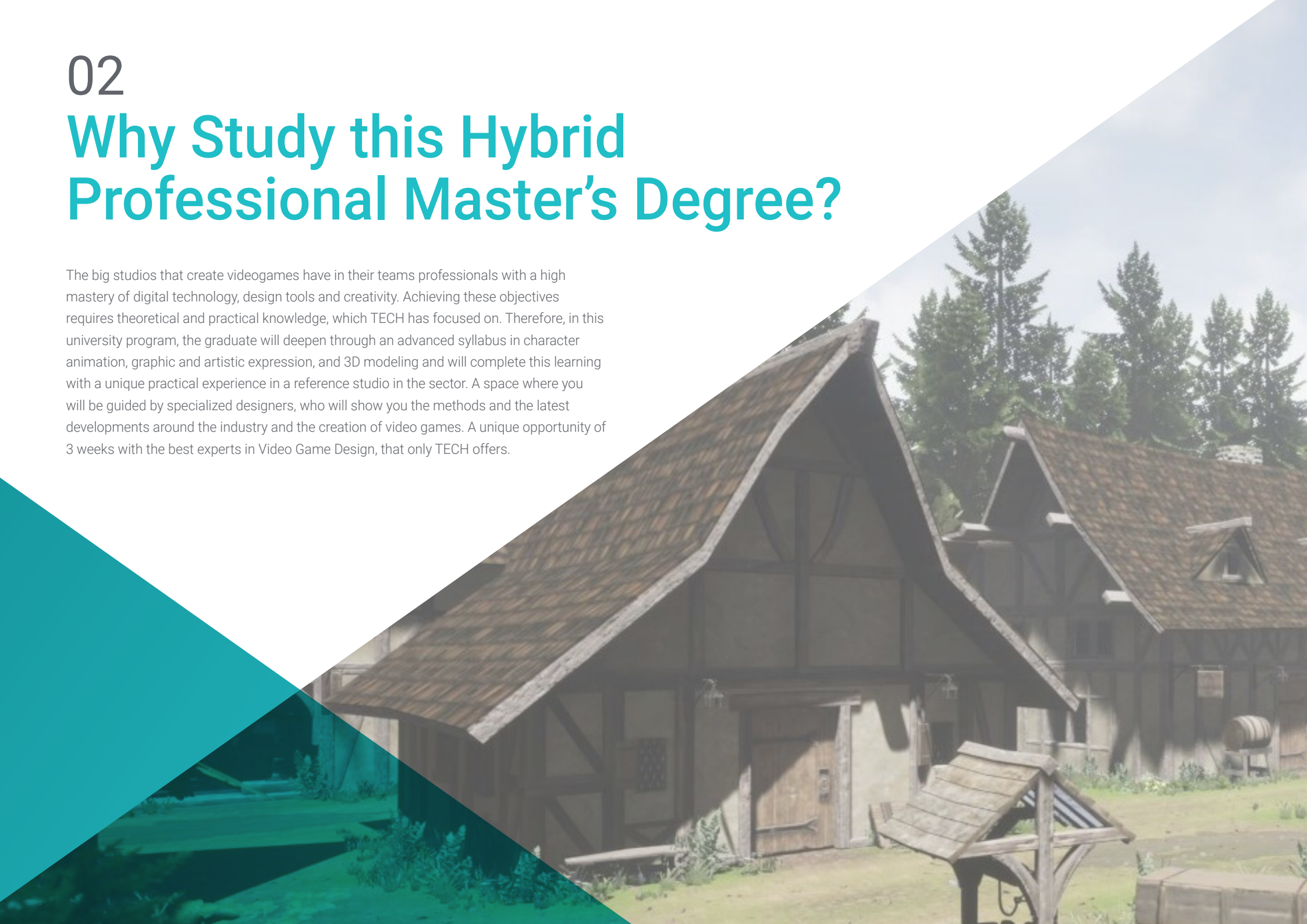
Thanks to multimedia content developed with the latest educational technology, they will allow video games professionals a situated and contextual learning, i.e., a simulated environment that will provide immersive learning programmed to prepare professionals for real situations. This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.



02

# Why Study this Hybrid Professional Master's Degree?

The big studios that create videogames have in their teams professionals with a high mastery of digital technology, design tools and creativity. Achieving these objectives requires theoretical and practical knowledge, which TECH has focused on. Therefore, in this university program, the graduate will deepen through an advanced syllabus in character animation, graphic and artistic expression, and 3D modeling and will complete this learning with a unique practical experience in a reference studio in the sector. A space where you will be guided by specialized designers, who will show you the methods and the latest developments around the industry and the creation of video games. A unique opportunity of 3 weeks with the best experts in Video Game Design, that only TECH offers.



*Enter into a 3-week practical stay, which will lead you to perfect your 3D design technique with the best specialists in video game creation"*

### 1. Updating from the Latest Technology Available

From Blender, 3DMAX and even artificial intelligence are part of the Gaming sector. New technologies are the present and the future of this industry, where the videogame designer must be fluent. For this reason, and in order to bring students closer to the latest technology in this field, TECH has created this Hybrid Professional Master's Degree, which will provide the most up-to-date knowledge in terms of the programs used for the creation and animation of characters, from the best experts in this field.

### 2. Delve into the experience of the best professionals

In this Hybrid Professional Master's Degree, students will have a specialized and experienced teaching team in Video Game Design. Thanks to this faculty, you will be able to learn about modeling, character Rigging, and animation methodology from an exhaustive syllabus. These concepts will be transferred to the practical phase, where you will have the opportunity to work side by side with the best specialists in this field.

### 3. Entering first-class environments

TECH carries out a rigorous selection process of all studios and companies where students will have the opportunity to do their internship. In this way, the graduate will have guaranteed access to a first level environment in the area of Video Game Design. A period where you can see firsthand what the daily work of experts in this field is like, the programs currently used, as well as all the ins and outs surrounding the creation and animation of characters for video games.

### 4. Combining the Best Theory with State-of-the-Art Practice

In this program, TECH approaches the real needs of students who wish to specialize in Video Game Design. For this reason, it has created a flexible university education, which students can access comfortably, whenever and wherever they wish, and also culminate with a practical phase of the highest level, together with professionals from the sector. A combination that results in an advanced theory and an intensive 3-week practical stay.

### 5. Expanding the Boundaries of Knowledge

TECH has established agreements with nationally and internationally renowned studios, which gives a variety of choice to students who wish to pursue this program. In this way, you will also be able to share a unique and effective hands-on experience with professionals who know the industry inside out, practicing in first-class studios on different continents.

*You will have full practical immersion at the center of your choice"*

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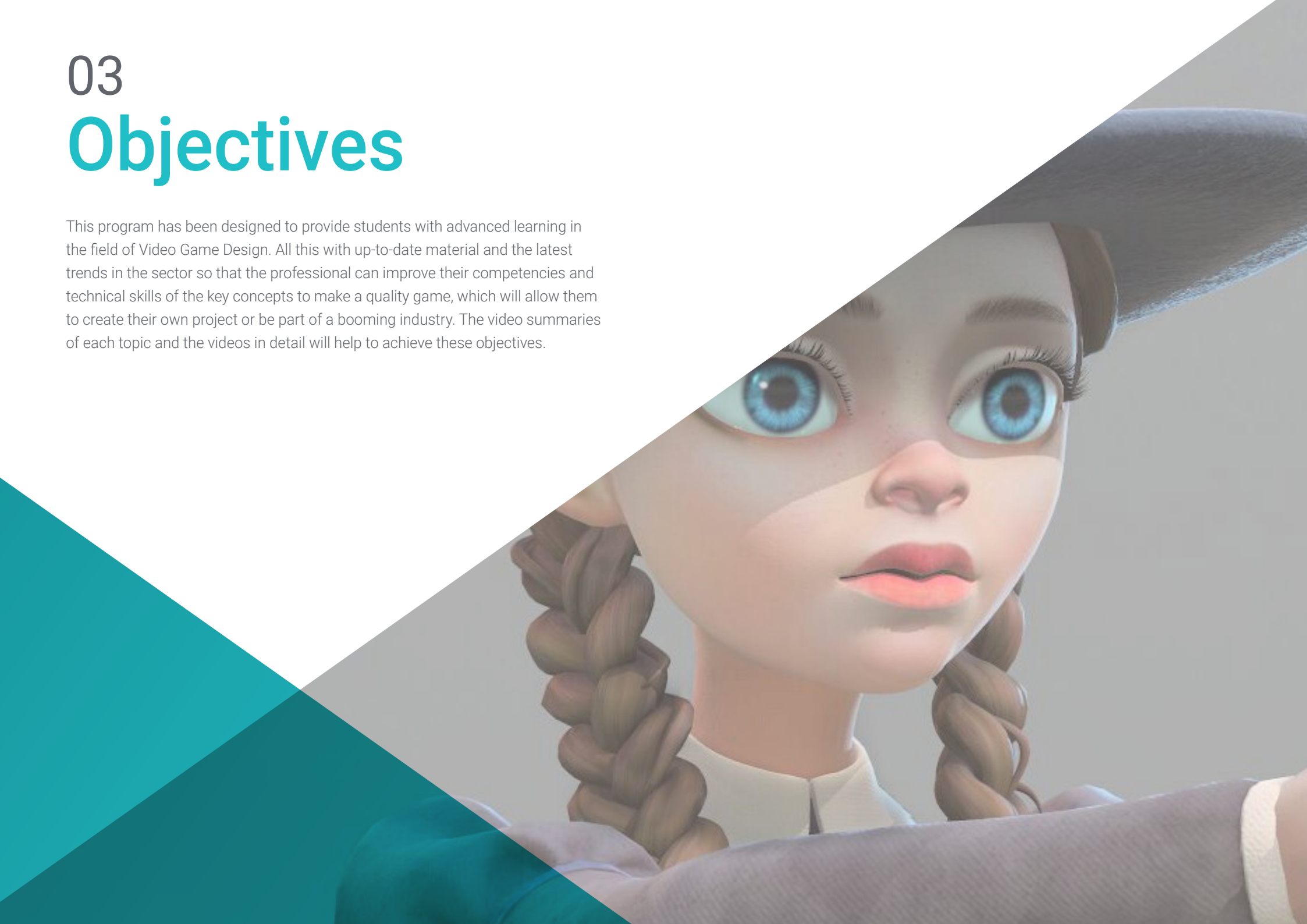
# Objectives

This program has been designed to provide students with advanced learning in the field of Video Game Design. All this with up-to-date material and the latest trends in the sector so that the professional can improve their competencies and technical skills of the key concepts to make a quality game, which will allow them to create their own project or be part of a booming industry. The video summaries of each topic and the videos in detail will help to achieve these objectives.

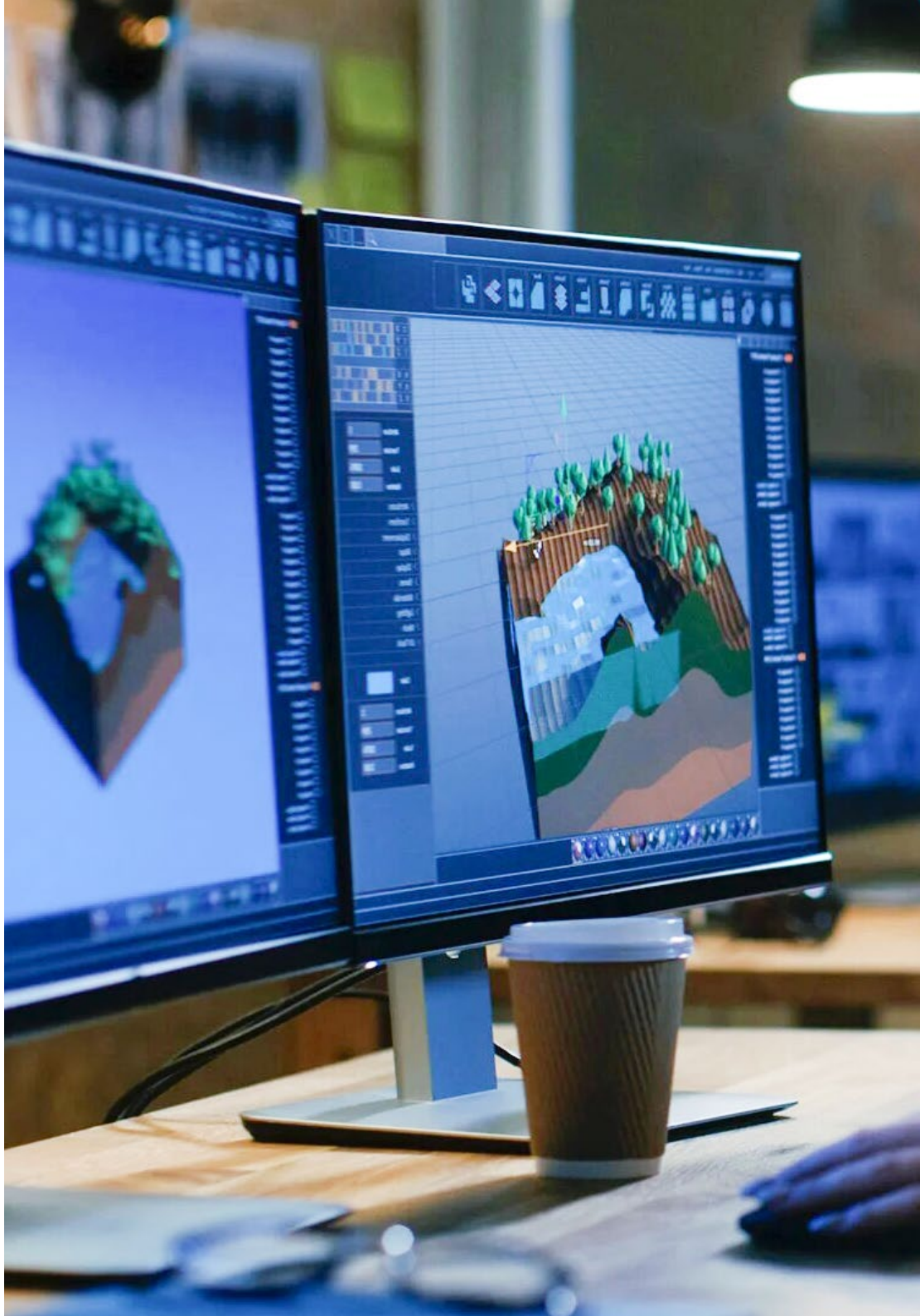


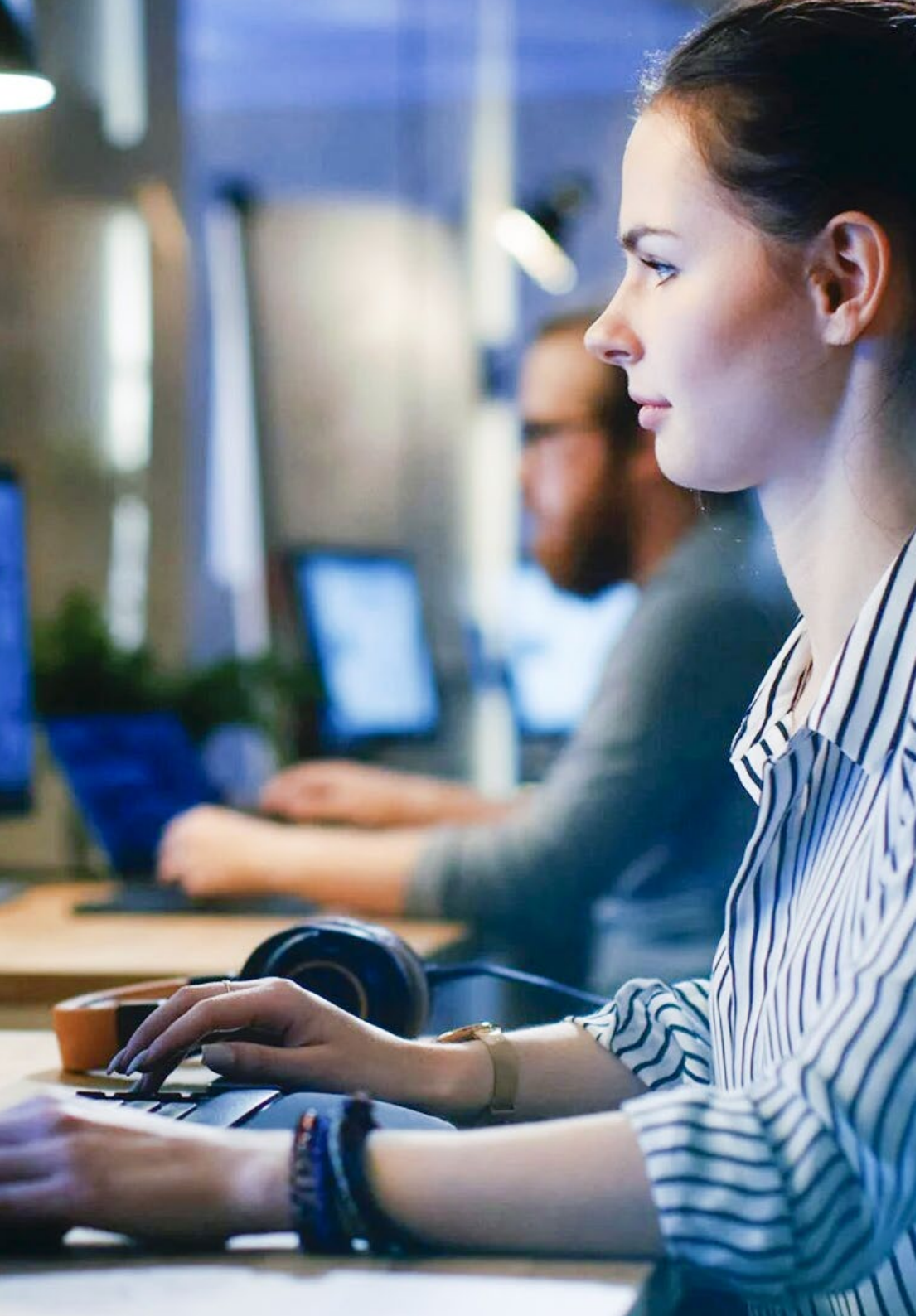
*Access a program that will allow you to be part of the best videogame design teams. Click and take the step"*

## General Objective

- This Hybrid Professional Master's Degree in Video Game Design provides students with a broad knowledge of video game genres, the concept of gameplay, and its characteristics to apply them in the analysis of video games or in the creation of video game design. In this way, the professional will be able to deepen in the theoretical and practical bases of artistic design with which to create any 2D and 3D animation, therefore acquiring a mastery of the design of a game from beginning to end

*Acquire the skills and abilities for Video Game Design and enter a booming industry"*







## Specific Objectives

### Module 1. Graphic and Artistic Expression

- Learn to correctly represent the proportions and postures of the human figure and other elements that can be included in video games
- Understand the different methods of three-dimensional representation on a flat surface
- Develop spatial representations with both graphic and computer tools
- Produce video game scenarios based on different spatial perspectives

### Module 2. 2D Animation

- Apply the means available for the development of 2D animation
- Understand the principles of proportion in animated artistic representation
- Understand that animation is a means that provides thematic freedom
- Optimize the use of resources to achieve new planned objectives

### Module 3. Motion Graphics

- Perform digital post-production tasks with multilayer digital compositing and digital video editing software
- Translate an idea from its initial conception through preparatory drawings
- Make use of tools, filters and effects in the production of graphic originals in order to act effectively as a member of a creative team
- Accomplish complex task objectives and develop a wide variety of ideas

### Module 4. 3D Art

- Model and texturize 3D objects and characters
- Gain knowledge about the 3D Studio Max and Mudbox program interface for modeling objects and characters
- Understand the theory of 3D modeling
- Be able to extract textures
- Get to know how 3D cameras work

### Module 5. 3D Design

- Examine models of complex natures, as well as modeling techniques in depth
- Optimize modeling time
- Manage advanced tools for 3D design in order to provide post-production support for final visualization
- Create environments and atmospheres for digital worlds

### Module 6. Computer Graphics

- Establish the technical specifications of the most commonly used graphic libraries for the creation of synthetic images
- Understand the basic principles of 2D and 3D imaging as well as methods in image creation
- Apply visualization, animation, simulation and interaction techniques to models

### Module 7. Video Game Engines

- Discover how a video game engine works and its architecture
- Understand their basic features and to modify existing game engines
- Program applications correctly and efficiently
- Choose the most appropriate programming paradigm and programming languages

### Module 8. Character Design and Animation

- Apply the principles of character creation
- Understand the basic concepts of animation and the applications of character modeling and animation in the context of video games
- Know how to define character skeletons and use them to control their movement

### Module 9. Animation and Simulation

- Apply the use of animation and physics simulation libraries in video games, as well as the use of animation software for sound
- Assimilate the fundamental physics principles to simulate in a video game, the method of motion capture and the basic techniques of physical simulation
- Create a skeleton animation character

### Module 10. Character Rigging

- Prepare 3D elements for animation
- Apply physically correct deformations to 3D models
- Acquire skills in the use of digital tools
- Learn skills on character weighing for animation

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# Skills

The video game professional who enters this hybrid program will improve their creative capacity, technical skills with the main software used in the Gaming sector, and the work flows to fully develop a title. Furthermore, in this process it is common to involve a multidisciplinary team, so that students will enrich their communication skills and collaborative work during the education process.

*You will acquire the necessary knowledge to perform a perfect Rigging and a high-quality 3D movement with this Hybrid Professional Master's Degree"*

## General Skills

- Acquire the necessary skills to develop video games
- Specialize as a video game designer in order to become an expert Game Designer
- Delve into all parts of development, from the initial architecture, the programming of the player character, the implementation of animations, and the creation of the artificial intelligence of enemy characters and non-playable characters
- Obtain an overall vision of the project, being able to provide solutions to the different problems and challenges that arise in the design of a video game

*With this program, you will be able to enhance the player's experience through your three-dimensional designs"*

## Specific Skills

- Get to know the necessary tools to be a professional in the design and development of Video games
- Understand the player's experience and know how to analyze video game gameplay
- Understand the entire theoretical and practical procedure of a Concept Artist's creation process
- Understand the theoretical and practical procedure of a 2D artist
- Perform 3D modeling and texturing of objects and characters
- Have a broad knowledge of 2D and 3D video game programming
- Perform 2D and 3D animation for video games and apply 2D and 3D video game programming for different platforms
- Learn character Rigging

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# Educational Plan

TECH, in its philosophy of offering an elite education within everyone's reach, offers the most recent and up-to-date content in each of its programs. In this way, students have at their disposal in this program a syllabus divided into 10 modules that will deal in depth with graphic and artistic expression, 2D and 3D animation, motion graphics, or the different computer programs that must be mastered for their development. A program that will be taught entirely in online mode, where you can access the content at any time, download it, and view it when you need it.

*Learn in a professional working environment with specialists who will provide you with all their knowledge, so that you can grow in the sector"*

## **Module 1.** Graphic and Artistic Expression

1.1. Drawing and Perspective
- 1.1.1. The Freehand Drawing or Sketch. The Importance of Sketching
- 1.1.2. Perspective and Methods of Spatial Representation
- 1.1.3. Proportions and Fitting Methods: The Human Figure
- 1.1.4. Proportions and Fitting Methods: The Animal Figure

1.2. Lights and Color
- 1.2.1. Chiaroscuro: Light and Shadows
- 1.2.2. Color Theory and Painting. How is Color Perceived?
- 1.2.3. Plastic Tools for the Creation of Contrasts
- 1.2.4. Color Harmony. Types of Color Harmony

1.3. Textures and Movement
- 1.3.1. Textures and Material Rendering Methods
- 1.3.2. Textured Artwork Analysis
- 1.3.3. Representation of Actions and Movement
- 1.3.4. Moving Artwork Analysis

1.4. Composition
- 1.4.1. Structural Aspects of the Image: the Point, the Line and the Plane
- 1.4.2. Gestalt Laws
- 1.4.3. Formal Operations: Development of Shape from Concepts
- 1.4.4. Rhythm, Structure, Scale, Symmetry, Balance, Tension, Attraction, and Clustering
- 1.4.5. Patterns

1.5. Approach to the Digital Iconographic Environment
- 1.5.1. Introduction
- 1.5.2. Verification of the Generative Scope of the Digital Iconography
- 1.5.3. Adoption of New Digital Iconographic Archetypes
- 1.5.4. Aesthetics and Function as Concepts Derived from the Use of the Machine

1.6. Analysis of Digital Graphic Resources. Synthesis Image
- 1.6.1. Digital Iconographic Typologies: Recycled and Synthetic Images
- 1.6.2. Digital Graphic File Formats
- 1.6.3. Two-Dimensional Shapes. Analysis of Software for Image Creation and Retouching
- 1.6.4. Three-Dimensional Shapes. Analysis of Software for the Creation of Volumetric Structures
- 1.6.5. 3D Graphic Structures. Introduction. Wire Structures
- 1.6.6. Devices for Visualization and Interaction with Multimedia Applications
- 1.6.7. Terminology Assigned to the Sector where the Digital Image is Framed

1.7. Artistic Expression in Digital Media: Graphics in Adobe Photoshop
- 1.7.1. Installation and Introduction to Adobe Photoshop
- 1.7.2. Basic Adobe Photoshop Tools
- 1.7.3. Analyzing and Learning Adobe Photoshop
- 1.7.4. Use of the Digital Tool in Graphic Works for the Creation of Video Games

1.8. Scenarios and Atmosphere for Video Games
- 1.8.1. Cartoon Scenarios and Atmosphere
- 1.8.2. Compositional Analysis
- 1.8.3. Realistic Scenarios and Atmosphere
- 1.8.4. Compositional Analysis

1.9. Characters for Video Games
- 1.9.1. Cartoon Characters
- 1.9.2. Compositional Analysis
- 1.9.3. Realistic Characters
- 1.9.4. Compositional Analysis

1.10. Presentation of Professional Portfolio
- 1.10.1. Approach
- 1.10.2. Methodology
- 1.10.3. Document Creation Software
- 1.10.4. Analytical Study of Professional Portfolios

## **Module 2.** 2D Animation

2.1. What is Animation?
- 2.1.1. History of Animation
- 2.1.2. Animation Pioneers
- 2.1.3. 2D and 3D Animation
- 2.1.4. Is it Necessary to Know How to Draw?

2.2. The Animator and Its Role in the Production
- 2.2.1. Positions in the Department: Junior, Mid, Senior
- 2.2.2. Animator Lead, Supervisor and Director
- 2.2.3. Supervisory Steps in a Production
- 2.2.4. Quality Criteria

2.3. Physical Laws
- 2.3.1. Push
- 2.3.2. Friction
- 2.3.3. Severity
- 2.3.4. Inertia

2.4. Animation Tools
- 2.4.1. Timeline
- 2.4.2. Dope Sheet
- 2.4.3. Curve Editor
- 2.4.4. Use of Rigs

2.5. Animation Methodology
- 2.5.1. Graph Editor: Curves and Curve Types
- 2.5.2. Timing and Spacing
- 2.5.3. Overshoots
- 2.5.4. Stepped and Spline
- 2.5.5. Parents and Constraints
- 2.5.6. Charts and Inbetweens
- 2.5.7. Extreme Poses and Breakdowns

2.6. The 12 Principles of Animation
- 2.6.1. Timing
- 2.6.2. Squash and Stretch
- 2.6.3. Slow In and Slow Out
- 2.6.4. Anticipation
- 2.6.5. Overlap
- 2.6.6. Arcs
- 2.6.7. Pose to Pose and Straight Ahead
- 2.6.8. Pose
- 2.6.9. Secondary Action
- 2.6.10. Staging
- 2.6.11. Exaggeration
- 2.6.12. Appeal

2.7. Anatomical Knowledge and its Function
- 2.7.1. Human Anatomy
- 2.7.2. Animal Anatomy
- 2.7.3. Anatomy of Cartoon Characters
- 2.7.4. Breaking the Rules

2.8. Posing and Silhouettes
- 2.8.1. Importance of Location
- 2.8.2. Importance of the Pose
- 2.8.3. Importance of the Silhouettes
- 2.8.4. Final Result. Compositional Analysis

2.9. Exercise: Ball
- 2.9.1. Shape
- 2.9.2. Timing
- 2.9.3. Spacing
- 2.9.4. Weight

2.10. Exercise: Basic Cycles and Body Dynamics
- 2.10.1. Walking Cycle
- 2.10.2. Walking Cycle with Personality
- 2.10.3. Running Cycle
- 2.10.4. Parkour
- 2.10.5. Pantomime

## **Module 3.** Motion Graphics

3.1. Introduction to After Effects
- 3.1.1. What After Effects Are and Their Use? Illustrative Examples
- 3.1.2. Project and Interface Settings
- 3.1.3. Composition Settings, Brushes and Windows
- 3.1.4. Workflow Definition: Creation of a Basic Project
- 3.1.5. Preliminary Video Issues
- 3.1.6. Color Depth, Display Formats, Audio and Video Compression

3.2. After Effects Basics
- 3.2.1. Import
- 3.2.2. Basic Tools. Layer Types and Options
- 3.2.3. Transformation Properties and Origin of Coordinates
- 3.2.4. H.264 Basic Export

3.3. Brushes and 3D Space
- 3.3.1. Brush Panels and Paint Effect
- 3.3.2. Eraser, Cloning Brush, Rotoscoping Brush
- 3.3.3. Activate 3D Space. Views for 3D Working
- 3.3.4. Material and Processing Properties
- 3.3.5. Lights and Cameras. Camera Control
- 3.3.6. Unified Camera Tool. Customized View
- 3.3.7. 3D Text: Text Extrusion. Raytracing
- 3.3.8. Vanishing Point and Camera Projection

3.4. Text and Transparencies
- 3.4.1. Text Tool
- 3.4.2. Layer Styles
- 3.4.3. Animators, Ranges and Selectors
- 3.4.4. Text Animation Presets
- 3.4.5. Alpha Channel: Mates Alpha and Preservation of Transparencies
- 3.4.6. Transfer Control Panel: Track Mate, Blending Modes, Preserve Underlying Transparency
- 3.4.7. Luminance Inlays

3.5. Masks and Shape Layers
- 3.5.1. Masks Creation and Edition Tools
- 3.5.2. Shape Layers
- 3.5.3. Convert Text and Graphics to Shape Layers or Masks
- 3.5.4. Masks as Trajectories
- 3.5.5. Effects that Work with Masks: Stroke, Doodle

3.6. Animation
- 3.6.1. Keyframes. Types
- 3.6.2. Trajectories
- 3.6.3. Curve Graph
- 3.6.4. Convert Audio to Keyframes
- 3.6.5. Parenting and Pre-Comps
- 3.6.6. Alternative Animation Techniques: Loops, Layer Sequencing, Free Transform Tool, Motion Sketch, Slider
- 3.6.7. Time Remapping

3.7. Effects and Chroma Key
- 3.7.1. Effects Application
- 3.7.2. Examples of Effects
- 3.7.3. Color Correction
- 3.7.4. Chroma Key: Keylight

3.8. Stabilization
- 3.8.1. Classic Stabilizer
- 3.8.2. Deformation Stabilizer
- 3.8.3. Tracking Options
- 3.8.4. Position, Rotation and Scale Stabilization

3.9. Tracking and Expressions
- 3.9.1. Position and Rotation Tracking Perspectives
- 3.9.2. Tracing with Solids, Adjustment Layers and Null Objects
- 3.9.3. 3D Track Embedding Logos, Text or Images in 3D Space
- 3.9.4. Mocha AE
- 3.9.5. Expressions: Time
- 3.9.6. Expressions: Loop Out
- 3.9.7. Expressions: Wiggle

3.10. Export
- 3.10.1. Export Configurations: Most Common Formats and Codecs for Editing and Viewing I
- 3.10.2. Export Configurations: Most Common Formats and Codecs for Editing and Viewing II
- 3.10.3. Export Configurations: Most Common Formats and Codecs for Editing and Viewing III
- 3.10.4. Saving Complete Projects: Collecting Files and Backups

## **Module 4.** 3D Art

4.1. Advanced Art
- 4.1.1. From Concept Art to 3D
- 4.1.2. 3D Model Principles
- 4.1.3. Modeling types: Organic / Inorganic

4.2. 3D Max Interface
- 4.2.1. 3D Max Software
- 4.2.2. Basic Interface
- 4.2.3. Organización escenas

4.3. Inorganic Modeling
- 4.3.1. Modeling with Primitives and Deformers
- 4.3.2. Editable Polygon Modeling
- 4.3.3. Modeling with Graphite

4.4. Organic Model
- 4.4.1. Character Modeling I
- 4.4.2. Character Modeling II
- 4.4.3. Character Modeling III

4.5. Creation of UVs
- 4.5.1. Basic Materials and Maps
- 4.5.2. Unwrapping and Texture Projections
- 4.5.3. Retopology

4.6. Advanced 3D
- 4.6.1. Creation of Texture Atlas
- 4.6.2. Hierarchies and Bone Creation
- 4.6.3. Application of a Skeleton

4.7. Animation Systems
- 4.7.1. Biped
- 4.7.2. CAT
- 4.7.3. Own Rigging

4.8. Facial Rigging
- 4.8.1. Expressions
- 4.8.2. Restrictions
- 4.8.3. Controllers

4.9. Principles of Animation
- 4.9.1. Cycles
- 4.9.2. Libraries and Use of MoCap Motion Capture Files
- 4.9.3. Motion Mixer

4.10. Export to Engines
- 4.10.1. Export to Unity Engine
- 4.10.2. Models Export
- 4.10.3. Animation Export

## **Module 5.** 3D Design

5.1. 3D in Video Games, Why is it Important?
- 5.1.1. History of Computer 3D
- 5.1.2. Implementation of 3D in Video Games
- 5.1.3. Techniques for 3D Optimization in Video Games
- 5.1.4. Interaction between Graphics Software and Game Engines

5.2. 3D Modeling: Maya
- 5.2.1. Maya's Philosophy
- 5.2.2. Maya's Capabilities
- 5.2.3. Projects Carried out with Autodesk Maya
- 5.2.4. Introduction to Modeling Tools, Rigging, Texturing, etc.

5.3. 3D Modeling: Blender
- 5.3.1. Blender's Philosophy
- 5.3.2. Past, Present and Future
- 5.3.3. Projects Made with Blender
- 5.3.4. Blender Cloud
- 5.3.5. Introduction to Modeling Tools, Rigging, Texturing, etc.

5.4. 3D Modeling: ZBrush
- 5.4.1. Zbrush Philosophy
- 5.4.2. Integrating ZBrush into Production Pipelines
- 5.4.3. Advantages and Disadvantages Compared to Blender
- 5.4.4. Analysis of Designs Made in ZBrush

5.5. 3D Texturing: Substance Designer
- 5.5.1. Introduction to Substance Designer
- 5.5.2. Substance Designer Philosophy
- 5.5.3. Substance Designer in Video Game Production
- 5.5.4. Substance Designer and Substance Painter Interaction

5.6. 3D Texturing: Substance Painter
- 5.6.1. What Is Substance Painter Used For?
- 5.6.2. Substance Painter and its Standardization
- 5.6.3. Substance Painter in Stylized Texturing
- 5.6.4. Substance Painter in Realistic Texturing
- 5.6.5. Analysis of Textured Models

5.7. 3D Texturing: Substance Alchemist
- 5.7.1. What is Substance Alchemist?
- 5.7.2. Substance Alchemist Workflow
- 5.7.3. Alternatives to Substance Alchemist
- 5.7.4. Examples of Projects

5.8. Rendering: Texture Mapping and Baking
- 5.8.1. Introduction to Texture Mapping
- 5.8.2. UVs Mapping
- 5.8.3. Optimization of UVs
- 5.8.4. UDIMs
- 5.8.5. Integration with Texturing Software

5.9. Rendering: Advanced Lighting
- 5.9.1. Lighting Techniques
- 5.9.2. Contrast Balance
- 5.9.3. Color Balance
- 5.9.4. Lighting in Video Games
- 5.9.5. Resource Optimization
- 5.9.6. Pre-Rendered Lighting vs. Real-Time Lighting

5.10. Rendering: Scenes, Render Layers and Passes
- 5.10.1. Use of Scenes
- 5.10.2. Utility of Render Layers
- 5.10.3. Utility of the Passes
- 5.10.4. Integration of Passes in Photoshop

## **Module 6.** Computer Graphics

6.1. Computer Graphics Overview
- 6.1.1. Computer Graphics Applications and Uses
- 6.1.2. Computer Graphics History
- 6.1.3. Basic Algorithms for 2D Graphics
- 6.1.4. 3D Transformations: Projections and Perspectives

6.2. Mathematical and Physical Basis for Simulations and Textures
- 6.2.1. Light Rays
- 6.2.2. Absorption and Scattering
- 6.2.3. Specular and Diffuse Reflection
- 6.2.4. Color
- 6.2.5. Bidirectional Reflectance Distribution Function (BRDF) Color
- 6.2.6. Energy Conservation and Fresnel F0 Effect
- 6.2.7. Key Features of Physically Based Rendering (PBR)

6.3. Image Representation: Nature and Format
- 6.3.1. Presentation: Theoretical Foundation
- 6.3.2. Digital Image Size: Color and Resolution
- 6.3.3. Uncompressed Image Formats
- 6.3.4. Compressed Image Formats
- 6.3.5. Color Spaces
- 6.3.6. Levels and Curves

6.4. Image Representation Textures
- 6.4.1. Procedural Textures
- 6.4.2. Quixel Megascans: Texture Scanning
- 6.4.3. Texture Baking
- 6.4.4. Normal Mapping and Displacement
- 6.4.5. Albedo, Metallic and Roughness Maps

6.5. Scene Rendering: Display and Lighting
- 6.5.1. Light Direction
- 6.5.2. Contrast
- 6.5.3. Saturation
- 6.5.4. Color
- 6.5.5. Direct and Indirect Light
- 6.5.6. Hard and Soft Light
- 6.5.7. Shadows: Basic Rules and Types

6.6. Rendering Hardware Evolution and Performance
- 6.6.1. The 1970s: The Advent of First 3D Modeling and Rendering Software
- 6.6.2. Architectural Orientation
- 6.6.3. The 1990s: Current 3D Software Development
- 6.6.4. 3D Printing
- 6.6.5. VR Equipment for 3D Visualization

6.7. 2D Graphics Software Analysis
- 6.7.1. Adobe Photoshop
- 6.7.2. Gimp
- 6.7.3. Krita
- 6.7.4. Inkscape
- 6.7.5. Pyxel Edit

6.8. 3D Modeling Software Analysis
- 6.8.1. Autodesk Maya
- 6.8.2. Cinema 4D
- 6.8.3. Blender
- 6.8.4. ZBrush
- 6.8.5. SketchUp
- 6.8.6. Computer-Aided Design (CAD) Software

6.9. 3D Texturing Software Analysis
- 6.9.1. Procedural Texturing in Maya
- 6.9.2. Procedural Texturing in Blender
- 6.9.3. Baking
- 6.9.4. Substance Painter and Substance Designer
- 6.9.5. ArmorPaint

6.10. 3D Texturing Software Analysis
- 6.10.1. Arnold
- 6.10.2. Cycles
- 6.10.3. Vray
- 6.10.4. IRay
- 6.10.5. Real-Time Rendering: Marmoset Toolbag

## **Module 7.** Video Game Engines

7.1. Video Games and Information Communication Technology (ICT)
- 7.1.1. Introduction
- 7.1.2. Opportunities
- 7.1.3. Challenges
- 7.1.4. Conclusions

7.2. History of Video Game Engines
- 7.2.1. Introduction
- 7.2.2. Atari
- 7.2.3. The 80s
- 7.2.4. First Engines: The 90s
- 7.2.5. Current Engines

7.3. Video Game Engines
- 7.3.1. Types of Engines
- 7.3.2. Video Game Engine Parts
- 7.3.3. Current Engines
- 7.3.4. Selecting an Engine

7.4. Motor Game Maker
- 7.4.1. Introduction
- 7.4.2. Scenario Design
- 7.4.3. Sprites and Animations
- 7.4.4. Collisions
- 7.4.5. Scripting in Game Maker Languages (GML)

7.5. Unreal Engine 4: Introduction
- 7.5.1. What Is Unreal Engine 4? What Is Its Philosophy?
- 7.5.2. Materials
- 7.5.3. UI
- 7.5.4. Animations
- 7.5.5. Particle Systems
- 7.5.6. Artificial Intelligence
- 7.5.7. Frames Per Second (FPS)

7.6. Unreal Engine 4: Visual Scripting
- 7.6.1. Blueprints and Visual Scripting Philosophy
- 7.6.2. Debugging
- 7.6.3. Types of Variables
- 7.6.4. Basic Flow Control

7.7. Unity 5 Engine
- 7.7.1. C# y Visual Studio Programming
- 7.7.2. Creating Prefabs
- 7.7.3. Using Gizmos to Control Video Games
- 7.7.4. Adaptive Engine: 2D and 3D

7.8. Godot Engine
- 7.8.1. Godot Design Philosophy
- 7.8.2. Object-Oriented Design and Composition
- 7.8.3. All in One Package
- 7.8.4. Open and Community-Driven Software

7.9. RPG Maker Engine
- 7.9.1. RPG Maker Philosophy
- 7.9.2. Taking as a Reference
- 7.9.3. Creating a Game with Personality
- 7.9.4. Commercially Successful Games

7.10. Source 2 Engine
- 7.10.1. Source 2 Philosophy
- 7.10.2. Source and Source 2: Evolution
- 7.10.3. Community Use: Audiovisual Content and Video Games
- 7.10.4. Future of Source 2 Engine
- 7.10.5. Successful Mods and Games

## **Module 8.** Character Design and Animation

8.1. Why is Aesthetics and Character Design so Important in Video Games?
- 8.1.1. Design with Personality
- 8.1.2. Sources of Inspiration. Referencing is not Plagiarism
- 8.1.3. Filtering Reality
- 8.1.4. Adopt your Own Style

8.2. 2D Phase: Alternative Use of Software or Hand Drawing
- 8.2.1. Quick Sketch
- 8.2.2. Cleanup
- 8.2.3. Color
- 8.2.4. Introduction

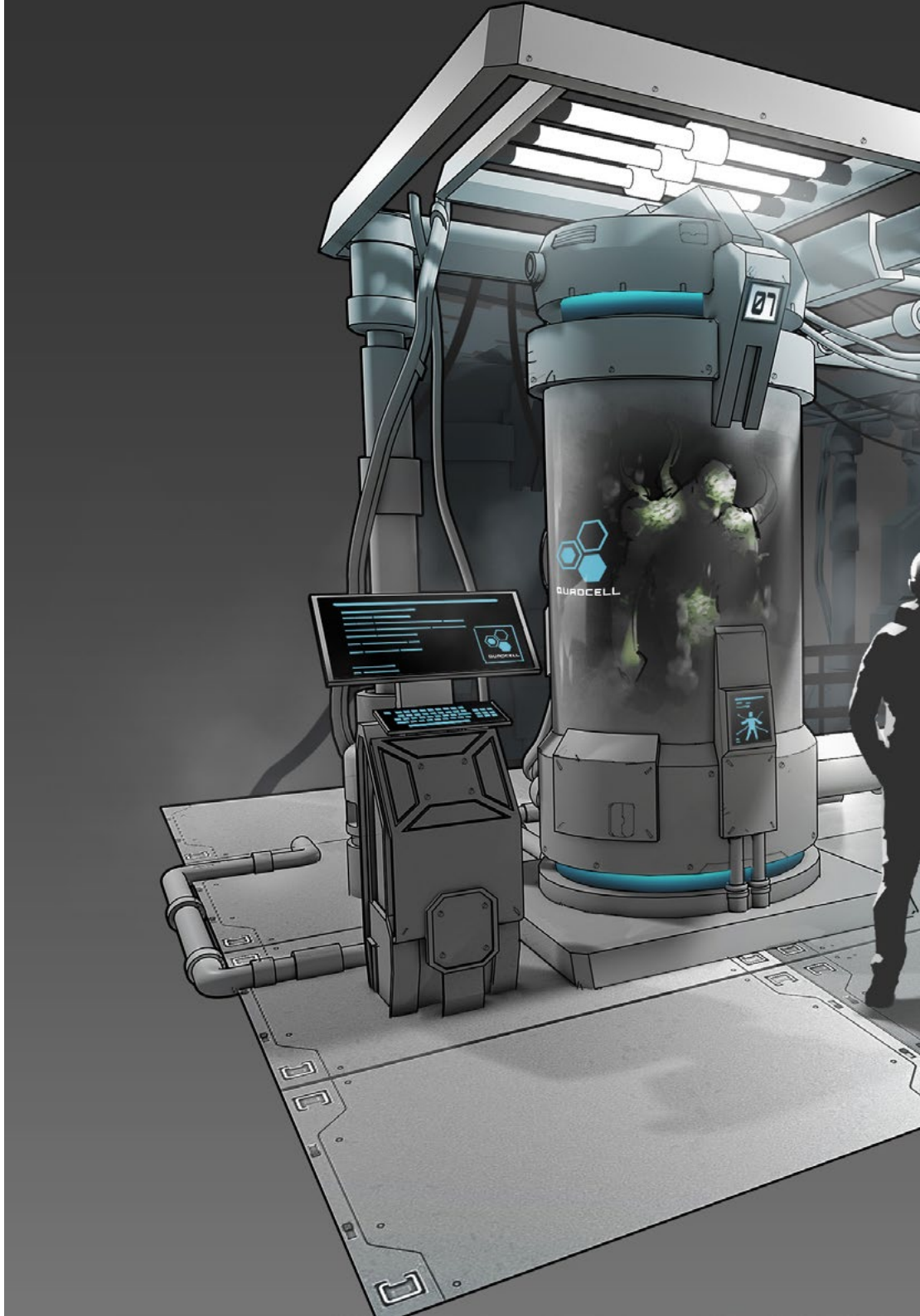
8.3. 2D Phase: Part I
- 8.3.1. Archetypes
- 8.3.2. Personality
- 8.3.3. Style
- 8.3.4. Basic Geometry
- 8.3.5. Proportions and Anatomy
- 8.3.6. Teamwork

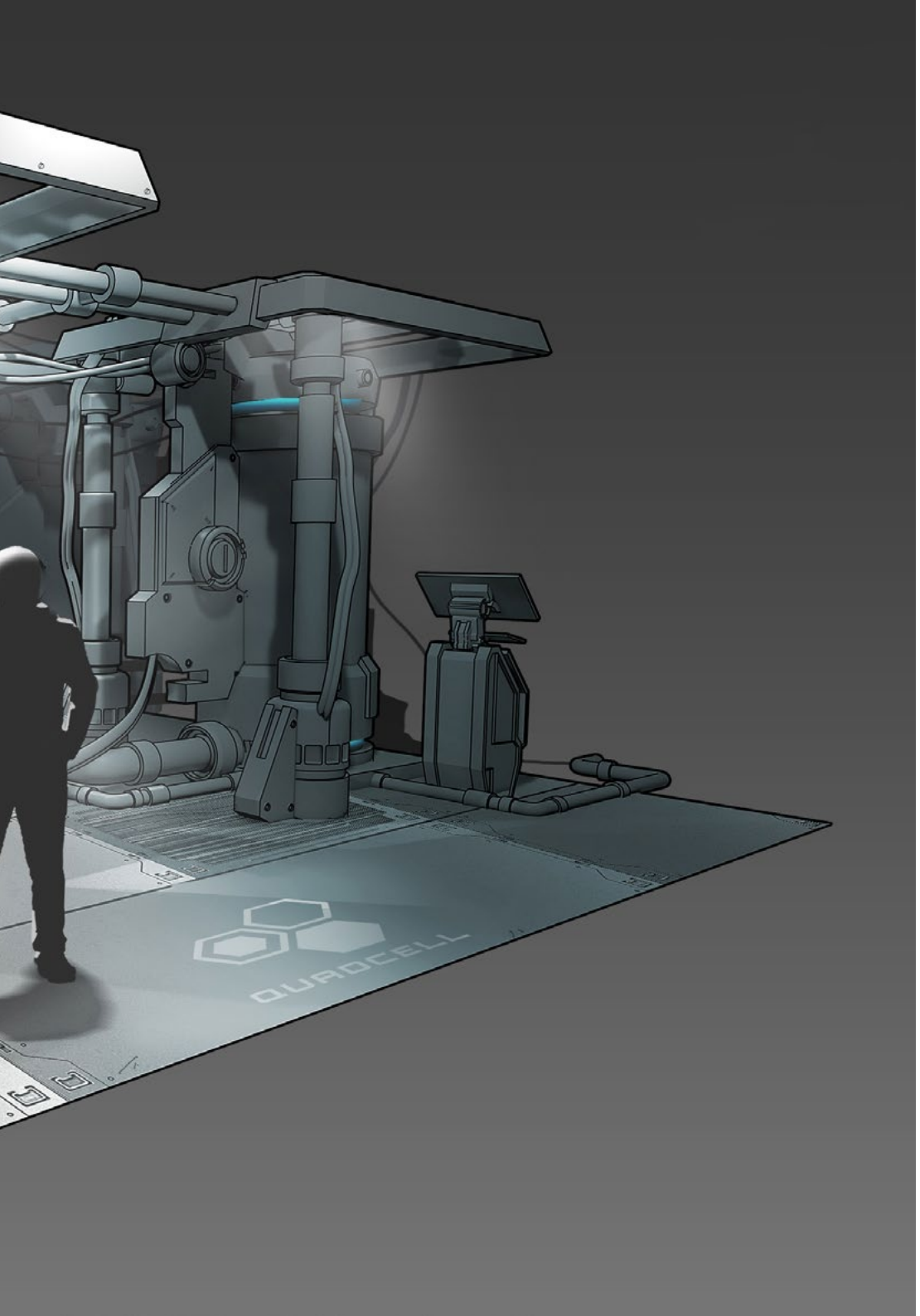
8.4. 2D Phase: Part II
- 8.4.1. Color Palettes
- 8.4.2. Illumination and Contrast
- 8.4.3. Level of Detail
- 8.4.4. Adaptation to 2D Pipeline

8.5. 3D Modeling Phase: Concepts and Pipeline 3D
- 8.5.1. Modeling Adapted to Production
- 8.5.2. Modeling for an Audiovisual Project
- 8.5.3. Modeling for an Interactive Project
- 8.5.4. 3D Pipeline: Phases

8.6. 3D Phase Modeling: Introduction to Blender
- 8.6.1. Navigation
- 8.6.2. Outliner and Viewport: Workbench Render
- 8.6.3. Concept of Vertex, Edge and Face
- 8.6.4. Concept of Normal
- 8.6.5. Loops

8.7. 3D Modeling Phase: Basic Modeling Notions
- 8.7.1. Extrude Tool
- 8.7.2. Bevel Tool
- 8.7.3. Apply Transformations
- 8.7.4. Knife Tool
- 8.7.5. Other Useful Tools








8.8. 3D Modeling Phase: Topology
- 8.8.1. Edge Loops
- 8.8.2. Face Loops
- 8.8.3. Low Poly vs. High Poly
- 8.8.4. Flow of Shapes
- 8.8.5. Quads vs. Tris

8.9. 3D Modeling Phase: Textures, Materials and UVs
- 8.9.1. Introduction to Nodes in Blender
- 8.9.2. Basic Procedural Texture Creation
- 8.9.3. Application of Materials
- 8.9.4. UVs, What Are They?
- 8.9.5. Utility of UVs
- 8.9.6. Avoid Stretching in UV Mapping and Optimization

8.10. 3D Phase Introduction to Animation
- 8.10.1. AutoKey
- 8.10.2. Insert Keys
- 8.10.3. Animation Curves: Graph Editor
- 8.10.4. Interpolation Modes

## **Module 9.** Animation and Simulation

9.1. Introduction: Physics and Mathematics Behind the Simulation
- 9.1.1. Concepts Applied to Simulation
- 9.1.2. Collisions, Volume Calculation
- 9.1.3. Computing Time
- 9.1.4. Prerenderized vs. Real-Time Calculations

9.2. Methodology
- 9.2.1. Emitter
- 9.2.2. Collisions
- 9.2.3. Fields
- 9.2.4. Breakage

9.3. Rigid Body Dynamics
- 9.3.1. Basic Concepts of Movement
- 9.3.2. Force Management
- 9.3.3. Interaction Between Objects
- 9.3.4. Collisions

9.4. Non-Rigid Body Dynamics
- 9.4.1. Fluid Simulation
- 9.4.2. Smoke Simulation
- 9.4.3. Effective Volume
- 9.4.4. Real-Time Non-Rigid Body Simulation

9.5. Clothing Simulation
- 9.5.1. Marvelous Designer
- 9.5.2. Clothing Pattern References
- 9.5.3. Wrinkles: Sculpted Clothing for Resource Savings
- 9.5.4. Blender: ClothBrush

9.6. Hair Simulation
- 9.6.1. Types of Particle Siss
- 9.6.2. Technologies for Hair Simulation
- 9.6.3. Particles vs. Mesh
- 9.6.4. Resource Consumption

9.7. Motion Capture
- 9.7.1. Motion Capture Technologies
- 9.7.2. Motion Capture Refinement
- 9.7.3. Application of Motion Capture to Audiovisual and Interactive Projects
- 9.7.4. Mixamo

9.8. Motion Capture Software
- 9.8.1. Kinect
- 9.8.2. Implementation of Kinect in Video Games
- 9.8.3. Refinement Technologies
- 9.8.4. Other Motion Capture Software

9.9. Facial Capture
- 9.9.1. FaceRig
- 9.9.2. MocapX
- 9.9.3. Advantages and Disadvantages of the Facial Capture
- 9.9.4. Facial Capture Refinement

9.10. Future Technologies: Artificial Intelligence
- 9.10.1. Artificial Intelligence in Animation: Cascadeur
- 9.10.2. Artificial Intelligence in Simulation
- 9.10.3. Future: Possible Alternatives
- 9.10.4. Current Case Studies

## **Module 10.** Character Rigging

10.1. Functions of a Rigger Knowledge of a Rigger Types of Rig
- 10.1.1. What is a Rigger?
- 10.1.2. Functions of a Rigger
- 10.1.3. Knowledge of a Rigger
- 10.1.4. Types of Rig
- 10.1.5. Blender Rigging Facilities
- 10.1.6. First Contact with Bones and Constraints

10.2. Bone Chains and Bone Parenting. FK and IK Differences and Restrictions
- 10.2.1. Bone Chains
- 10.2.2. Bone Parenting
- 10.2.3. FK and IK Chain
- 10.2.4. Differences between FK and IK
- 10.2.5. Use of Restrictions

10.3. Human Skeleton and Facial Rig Shape Keys
- 10.3.1. Human Skeleton
- 10.3.2. Advanced Human Skeleton
- 10.3.3. Facial Rig
- 10.3.4. Shape Keys

10.4. Vertex Weighing. Complete Weighing of a Character and Creation of a Pose
- 10.4.1. Weighing System
- 10.4.2. Character Weighting: Face
- 10.4.3. Character Weighting: Body
- 10.4.4. Use of Pose Mode

10.5. Character Rig: IK-FK Column System
- 10.5.1. Bone Location and Parenting
- 10.5.2. FK Systems
- 10.5.3. IK Systems
- 10.5.4. Other Options
- 10.5.5. Controls

10.6. Character Rig: IK-FK Arm System
- 10.6.1. Bone Location and Parenting
- 10.6.2. FK Systems
- 10.6.3. IK Systems
- 10.6.4. Other Options
- 10.6.5. Controls

10.7. Character Rig: IK-FK Hand System
- 10.7.1. Bone Location and Parenting
- 10.7.2. FK Systems
- 10.7.3. IK Systems
- 10.7.4. Other Options
- 10.7.5. Controls

10.8. Character Rig: IK-FK Leg System
- 10.8.1. Bone Location and Parenting
- 10.8.2. FK Systems
- 10.8.3. IK Systems
- 10.8.4. Other Options
- 10.8.5. Controls

10.9. Facial
- 10.9.1. Facial Setup
- 10.9.2. Use of Shape Keys
- 10.9.3. Use of Buttons
- 10.9.4. Eye Configuration
- 10.9.5. Squash and Stretch of the Head

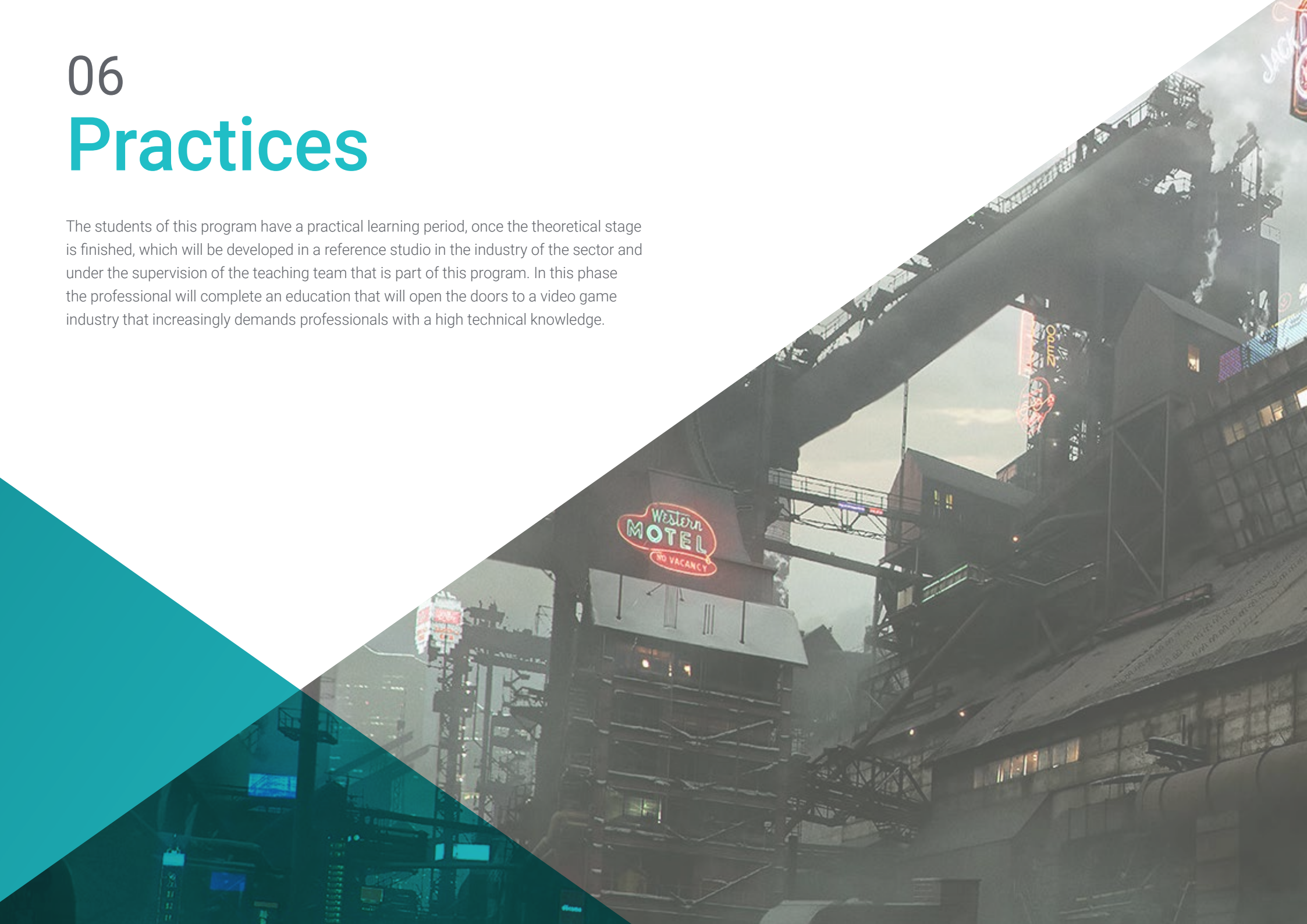
10.10. Corrections of Facial Shape and Setup
- 10.10.1. Shape Corrections
- 10.10.2. Pose Mode
- 10.10.3. Easy Weighing
- 10.10.4. Leaving the Rig Ready for Production

*Achieve successful animation products with the learning acquired in the 12 months of this program"*

06

# Practices

The students of this program have a practical learning period, once the theoretical stage is finished, which will be developed in a reference studio in the industry of the sector and under the supervision of the teaching team that is part of this program. In this phase the professional will complete an education that will open the doors to a video game industry that increasingly demands professionals with a high technical knowledge.



*Carry out your internship in a leading company in the sector. Learn with the best during an intensive stay"*

The internship period of this Video Game Design program consists of an on-site stay at leading companies in the creation and development of video games. An excellent opportunity for the students of this program to complete all the knowledge acquired during the theoretical phase of this course together with specialized professionals who are part of these companies.

The students will be present during this period in 8-hour consecutive days, from Monday to Friday, in which they will see on-site what the daily work of the video game professional is like, the tools used, and the main techniques applied to achieve an optimal and quality result. In this phase, the student will not only learn with the best in the industry, but will also have the help of the teaching team that delivers this program. All of this with the objective that the professionals achieve the goals they have set, at the same time that they are accompanied to achieve quality learning according to the demands of the market.

The internship program of this qualification consists of a minimum number of hours that students must complete in the company where they will carry out activities that are directly related to the theoretical content. This experience gives students the opportunity to apply the key concepts they have assimilated and to be guided by professionals who work in this field on a daily basis.

The activities are aimed, therefore, at developing and perfecting the skills necessary for the creation of any type of video game for different devices and taking into account the characteristics of the audience for which it is created.

The student will actively participate by performing activities and procedures related to each area of competence (learning to learn and learning to do), with the support and guidance of the teachers and other classmates to facilitate teamwork and multidisciplinary integration as transversal skills for the practice of Video Game Design (learning to be and learning to relate to others).

The procedures described below will be the basis of the practical part of the training, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:

*You will be able to create characters and fictional environments at the level of the great artistic designers of videogames"*

| Module | Practical Activity |
|---|---|
| Graphic and artistic expression | Texture and image compositing for proper graphical representation and motion programming |
| | Make use of the most common 3D graphic structures in digital media |
| | Enrich your personal Portfolio with new creations in real professional environments |
| | Animate certain elements in 2D environments, following the fundamental principles of animation. |
| | Work with the most common animation tools in video games in 2D designs |
| | Highlight the final work with proper posing and compositional analysis |
| Art and 3D Design | Create quality UV mapping with the right materials and retopology techniques |
| | Create inorganic and organic models of characters with different complexities |
| | Handle the main tools to create 3D artwork |
| | Perform a suitable export according to the engine on which you are going to work later on |
| | Work with Graphics in 3D movements in After Effects |
| | Create animations with alternative techniques such as loops, layer sequencing or free transformation |
| | Correctly export the work done to speed up and streamline the subsequent video game design processes |
| | Work with some of the most common 3D modeling tools |
| | Working with 3D texturing tools |
| | Render texture mapping and UV mapping with optimization methodology |
| | Use scenes, Render Layers and Passes in the rendering job |
| Character design and animation | Design and animate 2D or 3D characters based on the most advanced modeling, lighting and color schemes |
| | Produce a character model going through all its stages, from conceptualization to texturing |
| | Prepare the model for subsequent smoother animation |
| | Simulate fluids, smoke or other non-rigid bodies efficiently and in real time |
| | Simulate clothing and hair appropriately based on the style of the character you are working on |
| | Refine motion captures to speed up animation and simulation work |
| Character Rigging | Perform proper rigging of the spine, arms, legs, and head |
| | Create poses that highlight the virtues of the characters you are working on |
| | Create a complete facial Rigging using Shape Keys |
| | Use the most accurate techniques to be able to perform quality character Rigging and in the shortest time |

## Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.

## General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Hybrid Professional Master's Degree, students will be assigned two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the educational tutor.

4. CERTIFICATION: Students who pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their educational tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

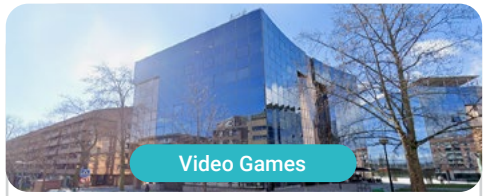
07

# Where Can I Do the Internship?

This Hybrid Professional Master's Degree program includes a practical stay where video game professionals will be able to develop all their artistic and technical potential in leading companies in the field of video game design and creation. On-site training by specialized professionals who will provide you with the keys to perfect your work and succeed in the sector.

*The Video Game industry is waiting for you. Access with one click to this Hybrid Professional Master's Degree and advance in your professional goals"*

The student will be able to complete the practical part of this Hybrid Professional Master's Degree at the following centers:




**Lab66**

Country
Spain

City
Navarra

Address: Tomás Caballero nº2,
1ª Planta Oficina 9, 31005

Studio specialized in Virtual Reality
and 3D Rendering

**Related internship programs:**
- Organic 3D Modeling
- Video Game Programming

*Enroll now and advance in your field of work with a comprehensive program that will allow you to put into practice everything you have learned"*

08

# 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

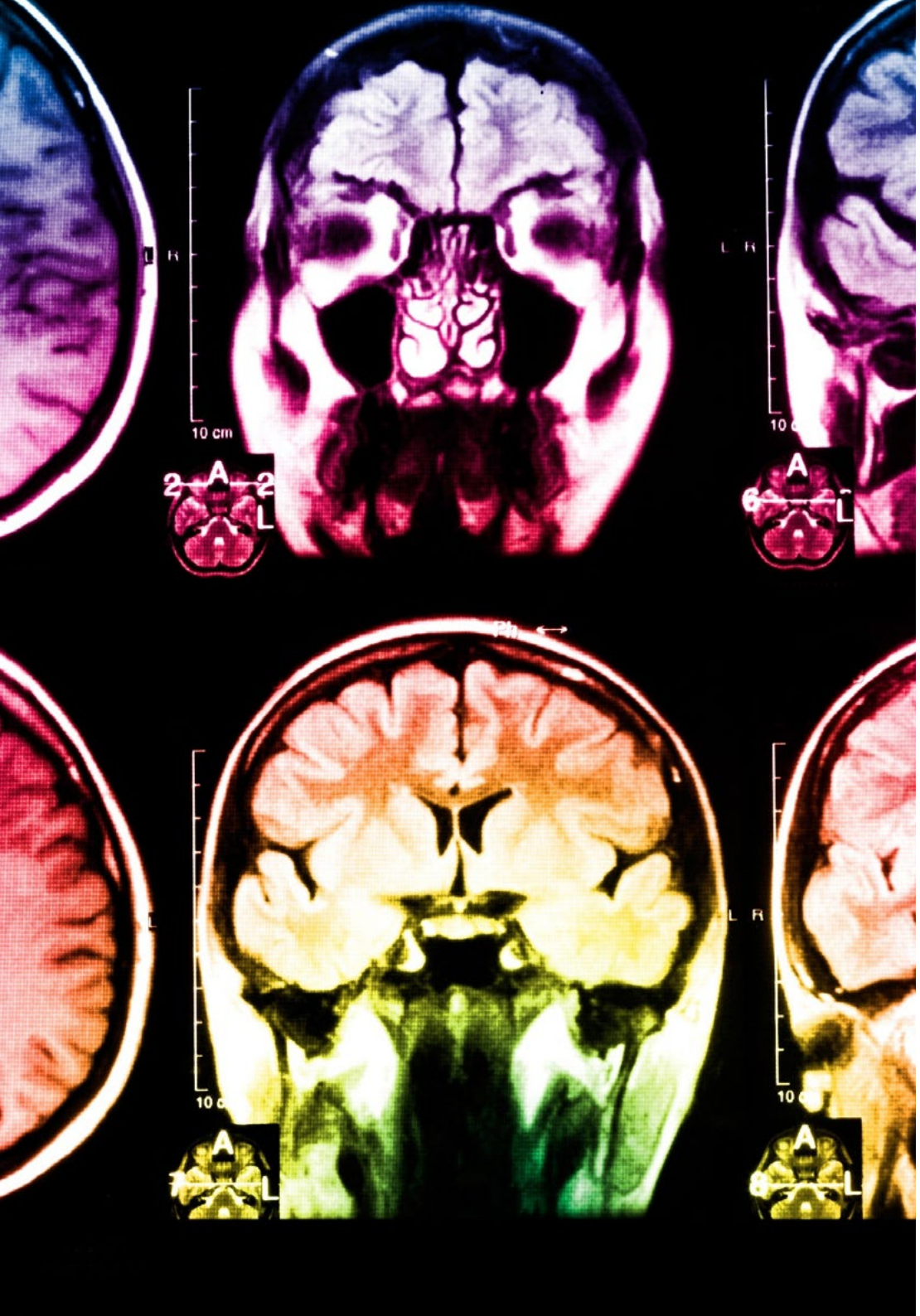
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

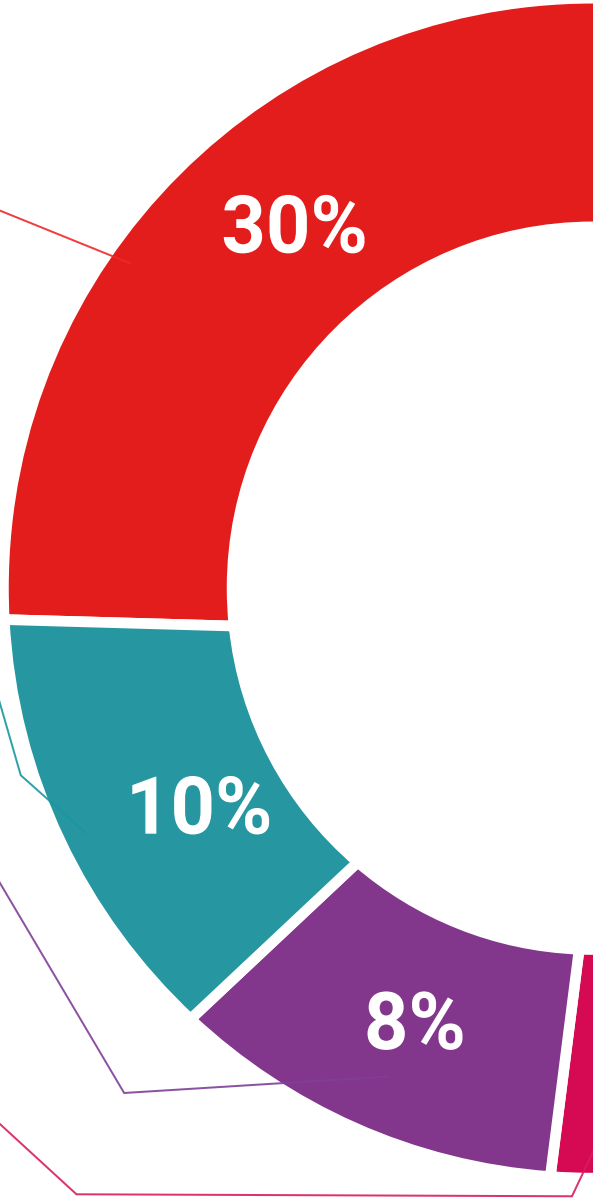
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

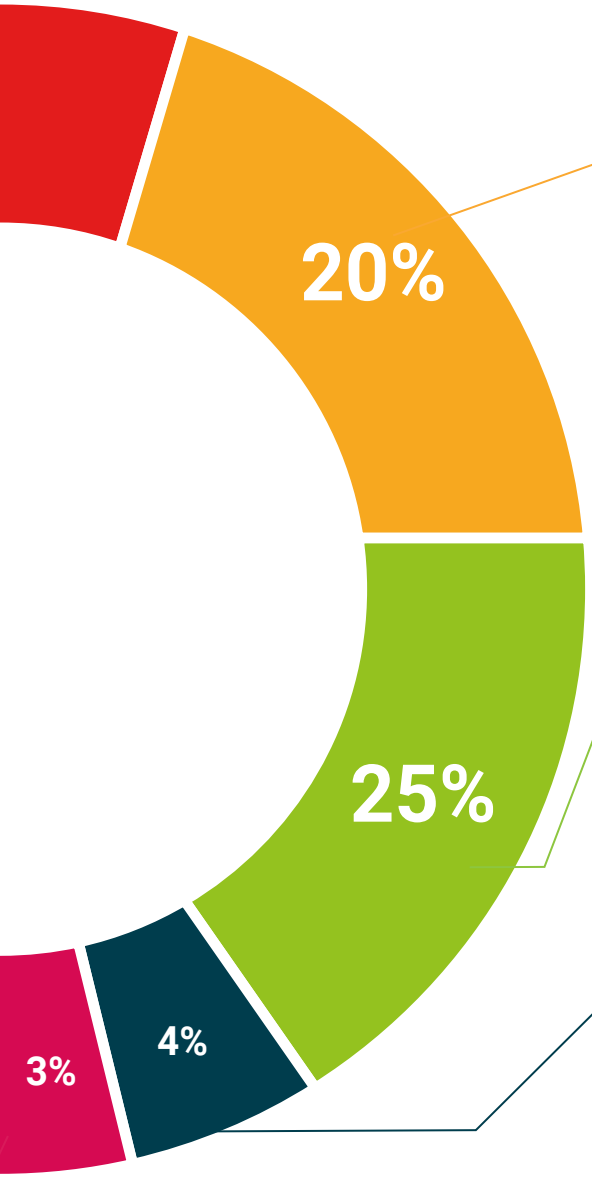
### Practising Skills and Abilities

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.

09

# Certificate

The Hybrid Professional Master's Degree in Video Game Design guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree 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 **Hybrid Professional Master's Degree in Video Game Design** contains the most complete and up-to-date program on the professional and academic field.

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

In addition to the certificate, students will be able to obtain an academic transcript, as well as a certificate outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

Title: **Hybrid Professional Master's Degree in Video Game Design**

Modality: **Hybrid (Online + Internship)**

Duration: **12 months.**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 hours.**

tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having successfully passed and accredited the following program

HYBRID PROFESSIONAL MASTER'S DEGREE

in

Video Game Design

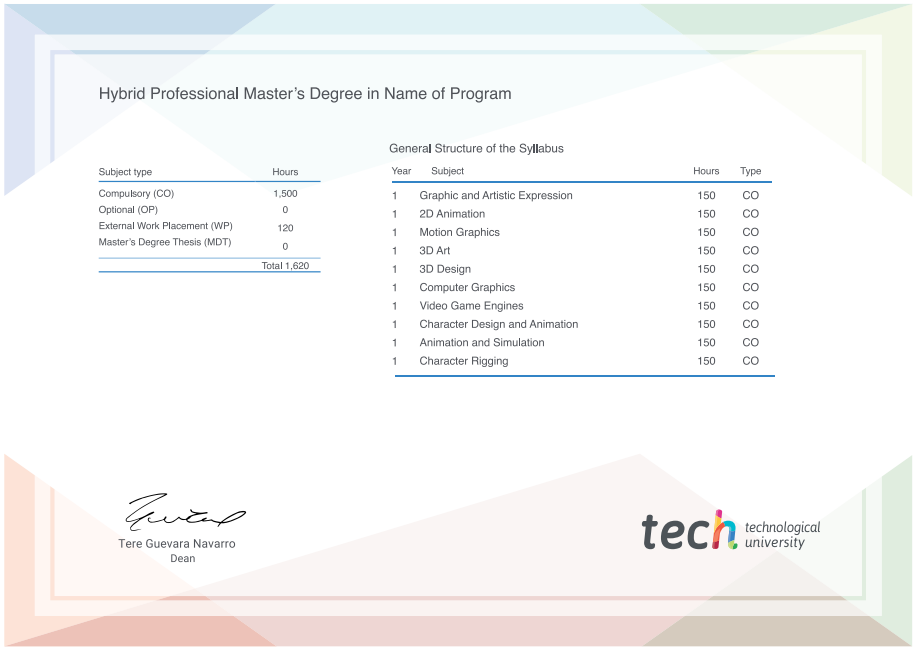
This is a qualification awarded by this University, with a duration of 1,620 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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


Hybrid Professional Master's Degree in Name of Program

| Subject type | Hours |
|---|---|
| Compulsory (CO) | 1,500 |
| Optional (OP) | 0 |
| External Work Placement (WP) | 120 |
| Master's Degree Thesis (MDT) | 0 |
| | Total 1,620 |

General Structure of the Syllabus

| Year | Subject | Hours | Type |
|---|---|---|---|
| 1 | Graphic and Artistic Expression | 150 | CO |
| 1 | 2D Animation | 150 | CO |
| 1 | Motion Graphics | 150 | CO |
| 1 | 3D Art | 150 | CO |
| 1 | 3D Design | 150 | CO |
| 1 | Computer Graphics | 150 | CO |
| 1 | Video Game Engines | 150 | CO |
| 1 | Character Design and Animation | 150 | CO |
| 1 | Animation and Simulation | 150 | CO |
| 1 | Character Rigging | 150 | CO |

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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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# Hybrid Professional Master's Degree

## Video Game Design

- Modality: **Hybrid (Online + Clinical Internship)**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

# Hybrid Professional Master's Degree

## Video Game Design

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