Postgraduate Certificate

Advanced 3D Art for Video Games

tech technological university

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Postgraduate Certificate

Advanced 3D Art for Video Games

Course Modality: **Online**
Duration: **12 weeks**
Certificate: **TECH Technological University**
Official Nº of hours: **300 hours.**
Website: www.techtitute.com/pk/videogames/postgraduate-certificate/advanced-3d-art-video-games

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01

Introduction

The basis of the visual appearance of most video games today is 3D art. This discipline makes it possible to design the three-dimensional appearance of these works, making it a fundamental element for development companies. Therefore, it is a field with great professional prospects and this program has been designed to allow students to specialize in this area. Therefore, based on a 100% online teaching methodology, the program will delve into issues such as inorganic modeling or 3D modeling with software such as Blender or Maya. This knowledge will make the student a highly sought-after specialist by companies in the industry.

Become an expert in Advanced 3D Art for Videogames thanks to this program, which will improve your professional prospects immediately thanks to its advanced contents"

3D modeling is essential in the vast majority of current video games. For that reason, specialists in this field have become, in recent years, some of the most sought-after professionals in the industry. Therefore, in order to take advantage of all the opportunities offered by this area, it is necessary to have access to the latest knowledge, and that is precisely what this Postgraduate Certificate offers.

Throughout this program, the student will be able to delve into important issues of 3D art oriented to video games, such as the principles and systems of animation, libraries and use of motion capture files or the use of software such as Zbrush, Blender, Maya or Substance Designer.

With these contents, which will be presented through various multimedia resources, the student will be able to advance their career in an immediate way. All this, through an online learning system with which the student will be able to combine their personal life with their studies without problems, since it will allow them to complete the program at their own pace, without fixed schedules or inconvenient trips to an academic center.

This **Postgraduate Certificate in Advanced 3D Art for Video Games** contains the most complete and up-to-date program on the market. Its most notable features are:

- The development of case studies presented by experts in video game development and design
- 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
- 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 program will allow you to understand the use of software such as Zbrush, Blender or Substance Designer applied to video game design"

You will be able to choose the time and place to study, since the learning system with which this program is developed will be completely adapted to your personal and professional circumstances"

Develop all your talent thanks to the advanced contents of this program and the intuitive TECH method, with an eminently practical orientation.

You will have access to the best multimedia resources: theoretical and practical activities, videos, interactive summaries, master classes, etc.

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive learning programmed to learn 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. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

The main objective of this Postgraduate Certificate in Advanced 3D Art for Video Games is to bring the professional closer to the latest developments in 3D odelling, so that upon completing the program they will be prepared to access numerous opportunities in a rapidly expanding market such as the video game industry. For this reason, this program is essential to progress at the professional level, since all of its contents are focused on advancing the student's career.

You will achieve all your goals thanks to this Postgraduate Certificate"

General Objectives

- Learn the basics of video game design and the theoretical knowledge that a video game designer must have
- Know the theoretical and practical bases of the artistic design of a video game
- Know how to carry out 3D odelling tasks
- Master the key concepts of 3D art applied to video games

You will participate in the development of the big, successful video games of the future"

Specific Objectives

- Modeling and texturing 3D objects and characters
- Understand the 3D Studio Max and Mudbox program interface for modeling objects and characters
- Understand the theory of modeling in 3D
- Know how to extract textures
- Know the functioning of 3D cameras
- Examine in depth the models of complex nature, as well as the modeling techniques
- Optimize the modeling time
- Manage advanced tools for 3D design in order to provide post-production support for final visualization
- Creating environments and atmospheres for digital worlds

03

Structure and Content

This Postgraduate Certificate in Advanced 3D Art for Video Games is composed of 2 specific modules through which the professional will be able to learn, first hand and through the best multimedia resources, the latest developments in organic and inorganic modeling or facial rigging. It will also study in depth the use of specialized software such as 3D Max, Graphite, Maya or Blender. In this way, students will become great experts in this field and their careers will take off immediately.

This program will give you access to one of the biggest development companies in the video game industry"

Module 1. 3D Art

1.1. Advanced Art
- 1.1.1. From Concept Art to 3D
- 1.1.2. 3D Modeling Principles
- 1.1.3. Types of Modeling: Organic / Inorganic

1.2. 3D Max Interface
- 1.2.1. 3D Max Software
- 1.2.2. Basic Interface
- 1.2.3. Scene Organization

1.3. Inorganic Model
- 1.3.1. Modeling with Primitives and Deformers
- 1.3.2. Modeling with Editable Polygons
- 1.3.3. Modeling with Graphite

1.4. Organic Model
- 1.4.1. Character Modeling I
- 1.4.2. Character Modeling II
- 1.4.3. Character Modeling III

1.5. Creation of UV
- 1.5.1. Materials and Basic Maps
- 1.5.2. Unwrapping and Texture Projections
- 1.5.3. Retopology

1.6. Advanced 3D
- 1.6.1. Creation of Texture Atlas
- 1.6.2. Hierarchies and Bone Creation
- 1.6.3. Application of a Skeleton

1.7. Animation Systems
- 1.7.1. Bipet
- 1.7.2. CAT
- 1.7.3. Own Rigging

1.8. Facial Rigging
- 1.8.1. Expressions
- 1.8.2. Restrictions
- 1.8.3. Controllers

1.9. Principles of Animation
- 1.9.1. Cycles
- 1.9.2. Libraries and Use of Motion Capture MoCap Archives
- 1.9.3. Motion Mixer

1.10. Exporting to Engines
- 1.10.1. Exporting to the Unity Engine
- 1.10.2. Exporting Models
- 1.10.3. Exporting Animations

Module 2. 3D Design

2.1. 3D in Video Games: Why It Is Important?
- 2.1.1. History of 3D Computer Vision
- 2.1.2. Implementation of 3D in Video Games
- 2.1.3. Techniques for 3D Optimization in Video Games
- 2.1.4. Interaction Between Graphics Software and Game Engines

2.2. 3D Modeling: Maya
- 2.2.1. Maya Philosophy
- 2.2.2. Maya Skills
- 2.2.3. Projects Carried Out with Autodesk Maya
- 2.2.4. Introduction to Modeling Tools, Rigging, Texturing, etc

2.3. 3D Modeling: Blender
- 2.3.1. Blender Philosophy
- 2.3.2. Past, Present or Future
- 2.3.3. Projects Done with Blender
- 2.3.4. Blender Cloud
- 2.3.5. Introduction to Modeling Tools, Rigging, Texturing, etc

2.4. 3D Modeling: ZBrush
- 2.4.1. ZBrush Philosophy
- 2.4.2. Integration of ZBrush in a Production Pipeline
- 2.4.3. Advantages and Disadvantages of Blender
- 2.4.4. Analysis of Designs Carried out in ZBrush

2.5. 3D Texturing: Substance Designer
- 2.5.1. Introduction to Substance Designer
- 2.5.2. Philosophy of Substance Designer
- 2.5.3. Substance Designer in the Video Games Production
- 2.5.4. Interaction between Substance Designer and Substance Painter

2.6. 3D Texturing: Substance Painter
- 2.6.1. Why Use Substance Painter?
- 2.6.2. Substance Painter and its Standardization
- 2.6.3. Substance Painter and Stylized Texturing
- 2.6.4. Substance Painter and Realist Texturing
- 2.6.5. Analysis of Texturized Models

2.7. 3D Texturing: Substance Alchemist
- 2.7.1. What is Substance Alchemist?
- 2.7.2. Workflow of Substance Alchemist
- 2.7.3. Alternatives to Substance Alchemist
- 2.7.4. Examples of Projects

2.8. Rendering: Texture Mapping and Baking
- 2.8.1. Introduction to Texture Mapping
- 2.8.2. Mapping of UV
- 2.8.3. Optimization of UV
- 2.8.4. UDIM
- 2.8.5. Integrations with Texturized Software

2.9. Rendered: Advanced Lighting
- 2.9.1. Lighting Techniques
- 2.9.2. Contrast Balance
- 2.9.3. Color Balance
- 2.9.4. Lighting in Video Games
- 2.9.5. Resource Optimization
- 2.9.6. Pre-Rendered Lighting vs. Real-Time Lighting

2.10. Rendering: Scenes, Render Layers and Passes
- 2.10.1. Use of Scenes
- 2.10.2. Use of Render Layers
- 2.10.3. Use of Passes
- 2.10.4. Integration of Passes in Photoshop

There is no more complete syllabus than this in 3D art focused on video games. Enroll and see how to gain great professional opportunities"

04

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

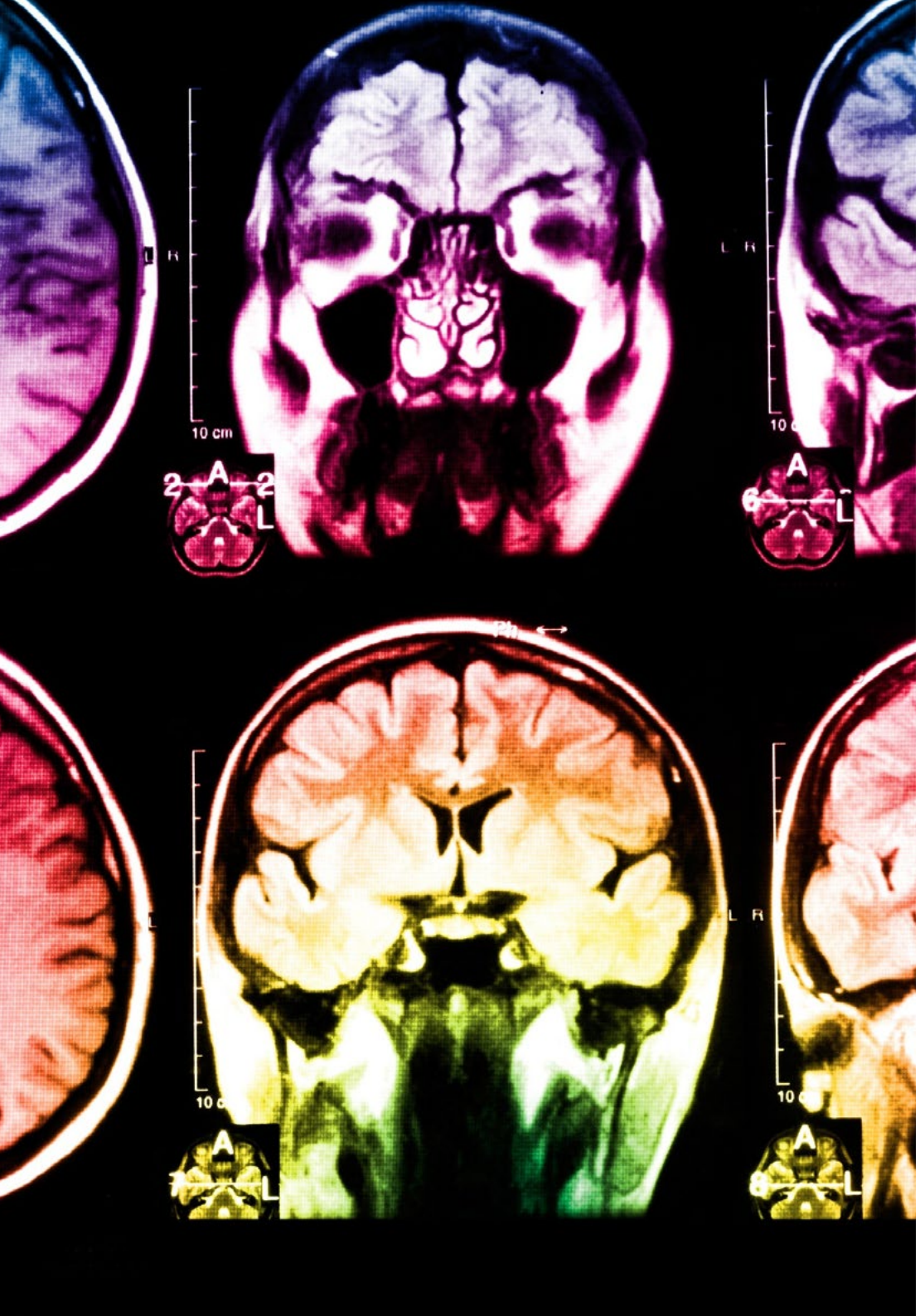
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

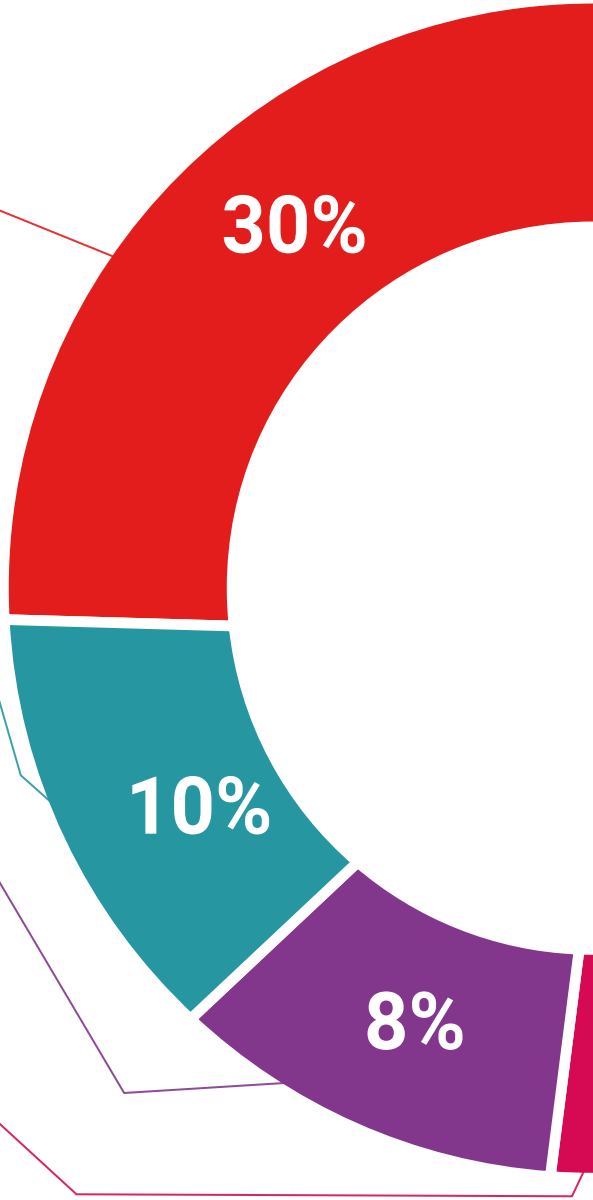
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

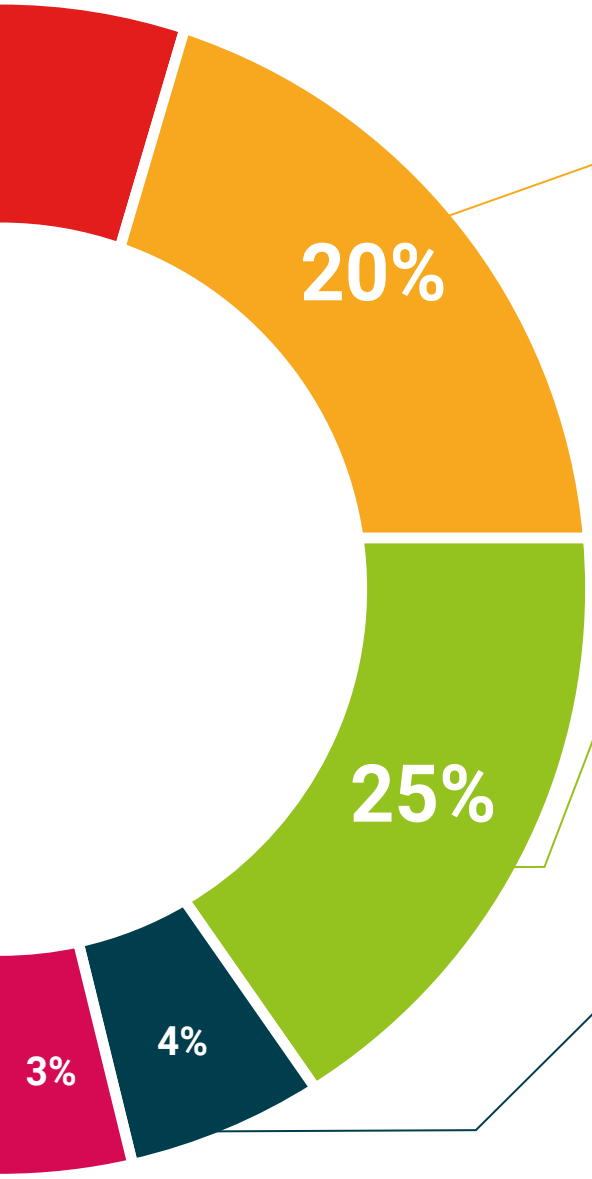
Practising Skills and Abilities

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.

05

Certificate

The Postgraduate Certificate in 3D Design for Video Games guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

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

This **Postgraduate Certificate in 3D Design for Video Games** contains the most complete and up-to-date program on the market.

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

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

Title: **Postgraduate Certificate in Advanced 3D Art for Video Games**

Official Nº of Hours: **300 h.**


tech technological university

Awards the following

CERTIFICATE

to

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

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Advanced 3D Art for Video Games

This is a qualification awarded by this University, equivalent to 300 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

*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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