

Postgraduate Certificate

Applications from Modeling to 3D Printing, VR, AR and Photogrammetry



Postgraduate Certificate Applications from Modeling to 3D Printing, VR, AR and Photogrammetry

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

Website: www.techtute.com/in/information-technology/postgraduate-certificate/applications-modeling-3d-printing-vr-ar-photogrammetry

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01

Introduction

The importance of three-dimensional modeling in the current scenario translates into a multitude of applications and benefits among which 3D printing, virtual reality, augmented reality and photogrammetry stand out. The design of these models offers clear competitive advantages that make a difference in many areas, such as animation and design of films and video games, marketing, surveying or data collection, among many others. This educational program brings together the mastery of these techniques that are new and relevant in a global landscape that is constantly changing. For this reason, this program is offered in online mode, so that the training can be adapted to the users' routines and so that they do not have to sacrifice other professional or personal projects in order to achieve it.



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Update your knowledge and stay at the forefront of three-dimensional modeling. Be prepared for the demand for specialized professionals in this field"

With applications in multiple and diverse fields, three-dimensional modeling offers a number of unquestionable advantages and benefits to companies in different sectors. For this reason, the demand for professional experts in 3D design and digital sculpture is constantly increasing. This Postgraduate Certificate designed by TECH Technological University includes in simple sections all the information and knowledge necessary to handle 3D printing, photogrammetry, virtual reality and augmented reality.

The study plan is divided by objectives in order to get the graduate student to use organic modeling for the preparation of models for 3D printing and milling and to generate 3D models through photography and its treatment to integrate it in 3D printing, video games, film and other fields. Also for sculpting in virtual reality in a free, creative and interactive way using Quill and its importation to Arnold, Unreal and Unity, as well as to visualize real environments in augmented reality.

All this, with a program that addresses in 10 subsections from the preparation for 3D printing and types of prints: polygon reduction and mesh projections. Also the precepts for printing directly in 3D and working in photogrammetry with Megascan library and Agisoft Metashape software. Similarly, it delves into virtual reality, in characters and scenarios with Quill, Arnold and Unreal. Finally, it focuses on the preparation of scenes with augmented reality.

This Postgraduate Certificate in Applications from Modeling to 3D Printing, VR, AR and Photogrammetry, is taught in an online format so that students can adapt it to their routines and other personal and professional projects. In addition, it is based on Relearning and Learning by Doing teaching methodology, to ensure that students learn independently based on practice.

This **Postgraduate Certificate in Applications from Modeling to 3D Printing, VR, AR and Photogrammetry** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ The development of practical cases presented by experts in 3D modeling and digital sculpture
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where 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



A complete curriculum to give you all the notions in 3D Printing, VR, AR and Photogrammetry in a single program"

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Learn how to prepare models for 3D printing, as well as how to prepare scenes for augmented reality and how to work in photogrammetry through a single training”

Do you want to get started in the various fields of augmented reality, 3D printing and photogrammetry? You have found the program you were looking for.

In online format and with Relearning and Learning by Doing methodology: learn independently and at your own pace.

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

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



02 Objectives

This educational program is designed to enable graduates to be able to model three-dimensionally and prepare their productions for 3D printing, augmented reality and virtual reality, and for the use of photogrammetry, in addition to learning how to optimally manage all the tools and techniques that allow them to generate their own models. The program is led by a specialized teaching team that will accompany the students throughout their learning process, interacting through an online platform combining the best technology and the most suitable content.





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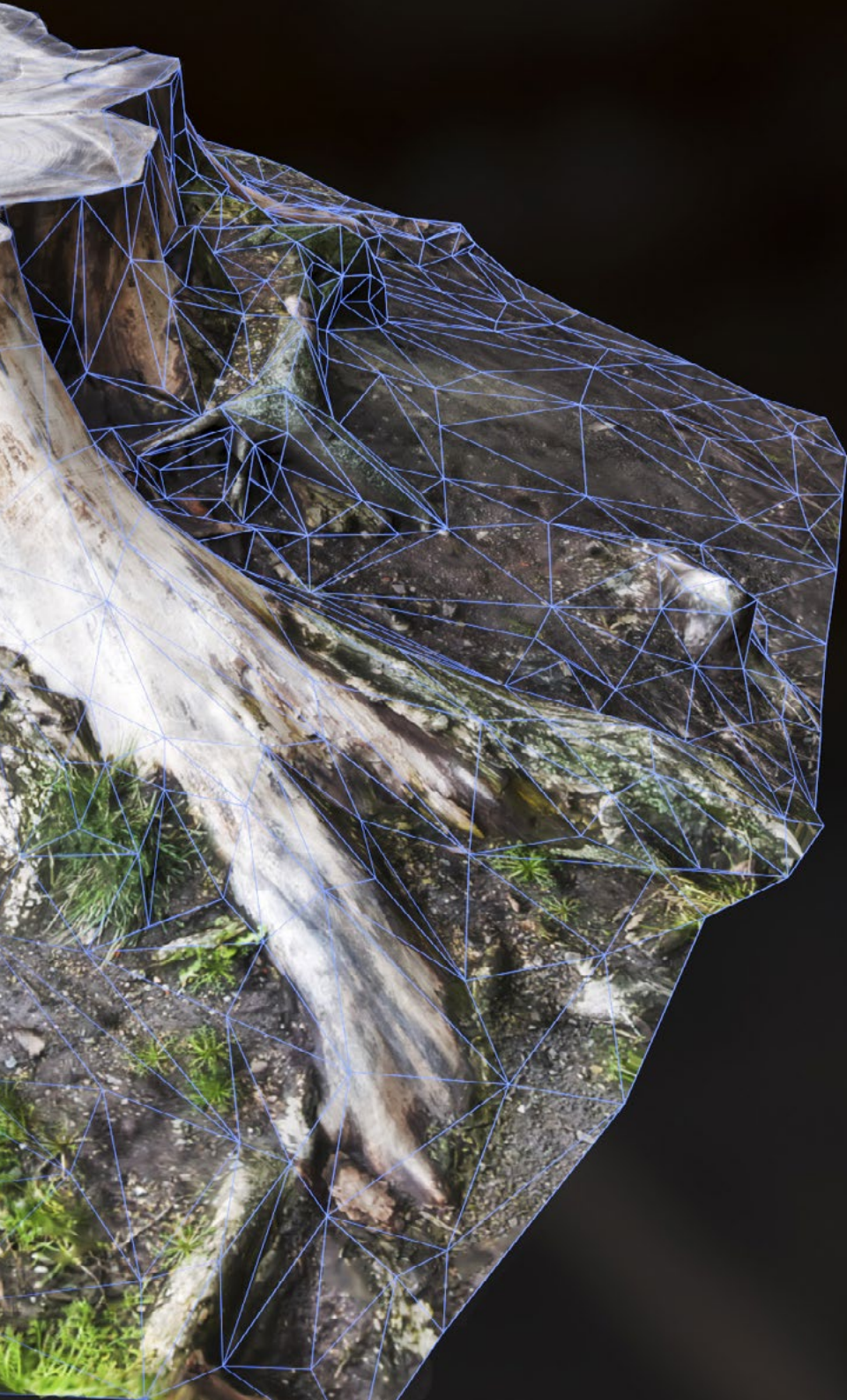
Acquires notions in three-dimensional modeling, prepares productions for 3D printing, augmented reality and virtual reality, and for photogrammetry”



General Objectives

- ◆ Apply modeling, texturing, lighting and rendering processes accurately
- ◆ Implement development technologies implementing CGI
- ◆ Learn how to import models into formats for 3D printing, VR and AR
- ◆ Employ photogrammetry to generate 3D models
- ◆ Understand the need for good topology at all levels of development and production
- ◆ Understand current film and video game industry systems to deliver great results





Specific Objectives

- ◆ Use organic modeling for the preparation of models for 3D printing and milling
- ◆ Generate 3D models through photography and their treatment to integrate them in 3D printing, video games and films
- ◆ Sculpt in virtual reality in a free, creative and interactive way using Quill and its import into Arnold, Unreal and Unity
- ◆ Visualize work in real environments through augmented reality

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Distinguish your portfolio by adding this qualification that prepares you to be an expert in Applications from Modeling to 3D Printing, VR, AR and Photogrammetry”

03

Course Management

The management and faculty of this program in Applications from Modeling to 3D Printing, VR, AR and Photogrammetry, has been carefully selected by TECH. It is a team made up of true professionals in the field of three-dimensional modeling and digital sculpture who have dedicated a large part of their professional careers as specialists, researchers and teachers. Through a 100% online environment using a reliable and dynamic platform, they have developed content tailored to the needs of the labor market.





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*With the support of the faculty: a team
made up of true industry professionals”*

Management



Mr. Sequeros Rodríguez, Salvador

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



04

Structure and Content

The content of this program has been designed so that it can be taken in an autonomous and progressive way, so that the syllabus can be consulted from the virtual campus as many times as necessary. The structure of the topics allows to combine the practical part with the theoretical part and to speed up the assimilation of contents. All this, with a program that addresses in 10 subsections from the preparation for 3D printing, working in photogrammetry with Megascan library and Agisoft Metashape software, delving into virtual reality and the preparation of scenes with augmented reality.





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Delve into the content at your own pace, the content will always be available in the virtual classroom”

Module 1. Applications from Modeling to 3D Printing, VR, AR and Photogrammetry

- 1.1. Preparation for 3D Printing
 - 1.1.1. Types of Printing
 - 1.1.2. Polygon Reduction
 - 1.1.3. Mesh Projections
- 1.2. Ready for 3D Printing
 - 1.2.1. Hollowing
 - 1.2.2. Inserts
 - 1.2.3. Tips and Imports
- 1.3. Photogrammetry
 - 1.3.1. Megascan Library
 - 1.3.2. Agisoft Metashape Software
 - 1.3.3. Model Preparation
- 1.4. Preparing the Photogrammetry
 - 1.4.1. Point Obtainment
 - 1.4.2. Retopology
 - 1.4.3. Model Optimization
- 1.5. Working in Virtual Reality
 - 1.5.1. Quill Software
 - 1.5.2. Interface
 - 1.5.3. Brushes and Clone Tool
 - 1.5.4. VR Character Creation
- 1.6. Character and Scenario with Quill
 - 1.6.1. VR Character Creation
 - 1.6.2. Immersive Scenario
 - 1.6.3. Character Development
- 1.7. Scene Preparation in Quill
 - 1.7.1. Character Painting in VR
 - 1.7.2. Pose
 - 1.7.3. Spawn Area. Camera Adjustments





- 1.8. From Quill to Arnold and Unreal
 - 1.8.1. Export and Format
 - 1.8.2. Rendering in Arnold
 - 1.8.3. Integration in Unreal
- 1.9. Augmented Reality: Unity and Vuforia
 - 1.9.1. Import to Unity
 - 1.9.2. Vuforia
 - 1.9.3. Lighting and Materials
- 1.10. Augmented Reality: Scene Preparation
 - 1.10.1. Scene Preparation
 - 1.10.2. Visualization on Real Environment
 - 1.10.3. Creation of Multiple Display in AR

“*What are you waiting for? Enroll now and find out in just 6 weeks all the Applications from Modeling to 3D Printing, VR, AR and Photogrammetry*”

05 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.



A close-up photograph of a person's hands typing on a laptop keyboard. The image is partially obscured by a teal diagonal graphic element that runs from the top right towards the bottom left. The background is a solid teal color.

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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.

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



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



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

A learning method that is different and innovative

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

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

The case method has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the course, students will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

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

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

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

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

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



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 that we are experiencing.



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.



06

Certificate

The Postgraduate Certificate in Applications from Modeling to 3D Printing, VR, AR and Photogrammetry guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Applications from Modeling to 3D Printing, VR, AR and Photogrammetry** 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 Applications from Modeling to 3D Printing, VR, AR and Photogrammetry**

Official N° of Hours: **150 h.**



*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.

future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service in
knowledge present
development lang
virtual classroom



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

Postgraduate Certificate

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