

# Postgraduate Certificate Photogrammetry with Drones



## Postgraduate Certificate Photogrammetry with Drones

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Accreditation: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/engineering/postgraduate-certificate/photogrammetry-drones](http://www.techtute.com/us/engineering/postgraduate-certificate/photogrammetry-drones)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

# 01

# Introduction

Photogrammetry with Drones is emerging as a future option with great possibilities in the field of Engineering. The revolution brought about by the appearance of drones in the civilian, military and professional fields has opened the door to a much more specialized use of drones. As far as Geomatics and Geoinformation is concerned, the use of drones is a great advance for professionals in this field, so engineers specialized in this field will gain a considerable advantage when it comes to directing their career towards Geoinformation. Therefore, this program includes the main contents on drone piloting, UAVs and field topography. All this in a 100% online format free of fixed schedules and face-to-face classes.





“

*Access to state-of-the-art knowledge in the field of photogrammetric flights, data carrier configuration and results processing”*

The precision and efficiency of drones when performing flights of all kinds and in any kind of terrain, make them great allies of engineers dedicated to geomatics. Their versatility for use in extreme or irregular terrain conditions makes them a key part of any engineering team dedicated to geomatics field work.

For this reason, TECH has prepared this complete program that compiles the main information, both practical and theoretical, related to the use of drones in the field of Photogrammetry. Therefore, the engineer will have access to essential content in their professional development towards more specialized fields, presented by a highly qualified teaching staff who are experts in the handling of all types of drones and remote-controlled devices.

A unique opportunity to update their knowledge and direct their career path towards the use of drones in Geomatics and Geo information, with all the guarantees of a 100% online academic program. Prepared by expert teachers in the field and with a wide knowledge in the use of Photogrammetry with Drones. All content is available 24 hours a day, resulting in flexible teaching that is adaptable to all types of routines and demands.

This **Postgraduate Certificate in Photogrammetry with Drones** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ♦ Practical cases presented by experts in Topography, Civil Engineering and Geomatics
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ 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



*Become an expert in the use of  
Photogrammetry with Drones thanks  
to the advanced content of this  
Postgraduate Certificate"*





*Delve into the study of airspace, meteorological previsions, geographic dimensioning and drone flight configuration for photogrammetry projects"*

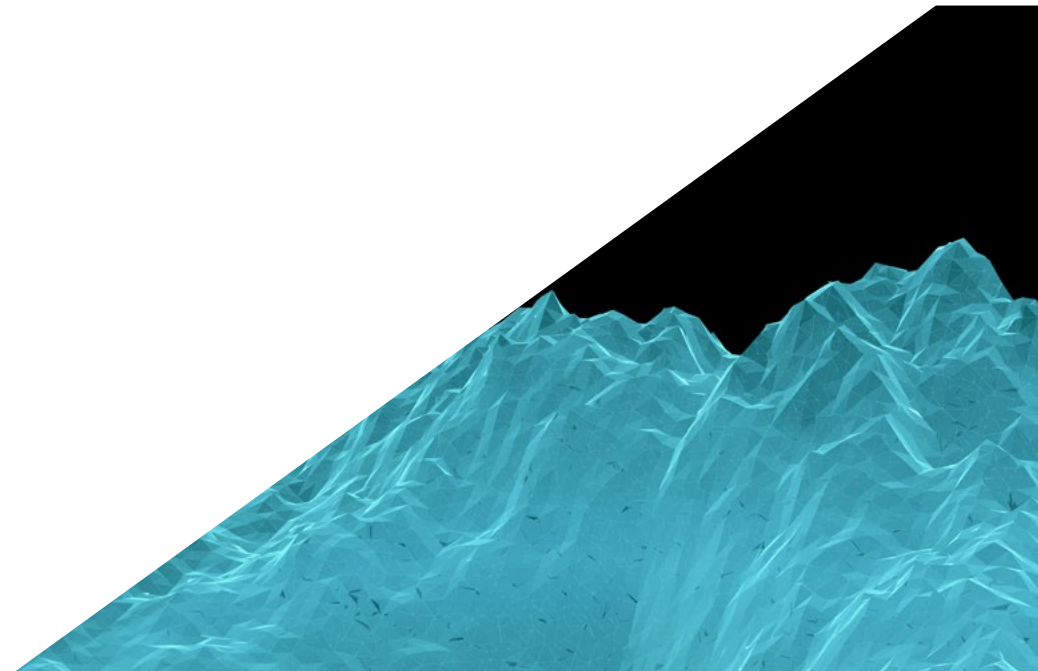
*Give a remarkable boost to your CV by incorporating this Postgraduate Certificate and by demonstrating your extensive knowledge of the most cutting-edge technologies in Geomatics and Geoinformation.*

*Choose when, where and how to take on the workload, having the freedom to adapt it to your own rhythm and demands.*

The teaching staff of this program includes professionals from the industry, who contribute the experience of their work to this program, in addition to recognized specialists from reference 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 program in Photogrammetry with Drones is to provide engineers with the technical and practical knowledge so that they can master and incorporate the use of drones into their daily work. This is achieved through an eminently practical approach for all the content, supported by numerous case studies and real examples.





“

*Register now and do not miss the opportunity to access a wide range of topics, enriched with specific multimedia content on Photogrammetry with Drones”*



## General Objectives

---

- ♦ Plan a photogrammetric survey according to requirements
- ♦ Develop a practical, useful and safe methodology for mapping with drones
- ♦ Analyze, filter and edit with topographic rigor, the results obtained
- ♦ Present in a clean, intuitive and practical way the cartography or reality represented



*Update your knowledge with this Postgraduate Certificate in Photogrammetry with Drones and aim towards the technology not of the future, but of the present"*







## Specific Objectives

---

- ◆ Develop the strengths and limitations of a drone for mapping purposes
- ◆ Identify the reality of the surface to be represented, on the ground
- ◆ Provide topographical accuracy by means of conventional topography, prior to the photogrammetric flight
- ◆ Identify the actual volume where we are going to work in order to minimize any risk
- ◆ Control at all times the trajectory of the drone based on the programmed parameters
- ◆ Ensure the correct copying of files to minimize the risk of file loss
- ◆ Configure the best restitution of the flight according to the desired results
- ◆ Download, filter and clean the results obtained from the flight with the required accuracy
- ◆ Present the cartography in the most common formats according to the client's needs

03

# Course Management

The teaching staff in charge of the creating this Postgraduate Certificate has extensive experience in the development and handling of topographic drones, especially those dedicated to Photogrammetry tasks. Thanks to this, the engineer not only has access to first-rate theoretical content, but also to a necessary practical point of view from which to contextualize all the topics covered in real working environments.





“

*Get advice from a faculty that is committed to you, with the personalized tutoring you need”*

## Management



### Mr. Puértolas Salañer, Ángel Manuel

- Application development in .Net environment, Python development, SQL Server database management, system administration. ASISPA
- Topographical Surveyor Study and reconstruction of roads and accesses to towns. Ministry of Defence Embedded with UN forces in Lebanon
- Topographical Surveyor Topography per Project Ministry of Defence
- Topographical Surveyor Georeferencing of the old cadastre of the province of Murcia (Spain). Geoinformation and Systems S.L
- Technical Engineer in Topography from the Polytechnic University Valencia
- Master's Degree in Cybersecurity from MF Business School and the Camilo José Cela University
- Web management, server administration and task development and automization in Python Milcom
- Development of applications in .Net environment. SQL Server management Own software support Ecomputer





## Professors

### Mr. Ramo Maicas, Tomás

- ♦ Administrator for the Revolotear company Technical director for the development of the use of drones and laser scanners to obtain topography through the handling and filtering of point clouds, meshes and textures applied to mining, construction, architecture and heritage
- ♦ Head of Topography at the Revolotear business Company dedicated mainly to photogrammetric surveys with drone Volumetric control of mining fronts and cubing of stockpiles, for the main mining companies
- ♦ Chief of Topography in Senegal for the company MOPSA (Marco Group in Senegal). Project design, volume study of materials, edition of plans, field and office topography, for the works of adaptation of the Pakh dam and CSS, in Guiers lake and adaptation of the Neti Yone canal
- ♦ Logistics implementation work for the company Blauverd, Korman, in Algeria Site manager and responsible for topography on several building sites, mainly in Algiers, Constantine and Oran
- ♦ Technical Engineer in Topography from the School of Geodesy, Cartography and Topography Engineering of the Polytechnic University of Valencia
- ♦ Technical Engineer in Topography from the School of Geodesy, Cartography and Topography Engineering of the Polytechnic University of Valencia
- ♦ Drone Pilot (RPAS), by FLYSCHOOL AIR ACADEMY aeronautical training center

04

# Structure and Content

The structure and contents of this Postgraduate Certificate follow TECH's most advanced pedagogical methodology, Relearning. This means that key concepts at the theoretical level are reiterated naturally throughout the program, resulting in much easier learning. Likewise, the large number of self-knowledge exercises and complementary readings serve as a turning point for the engineer to continue deepening in those topics that generate more interest.



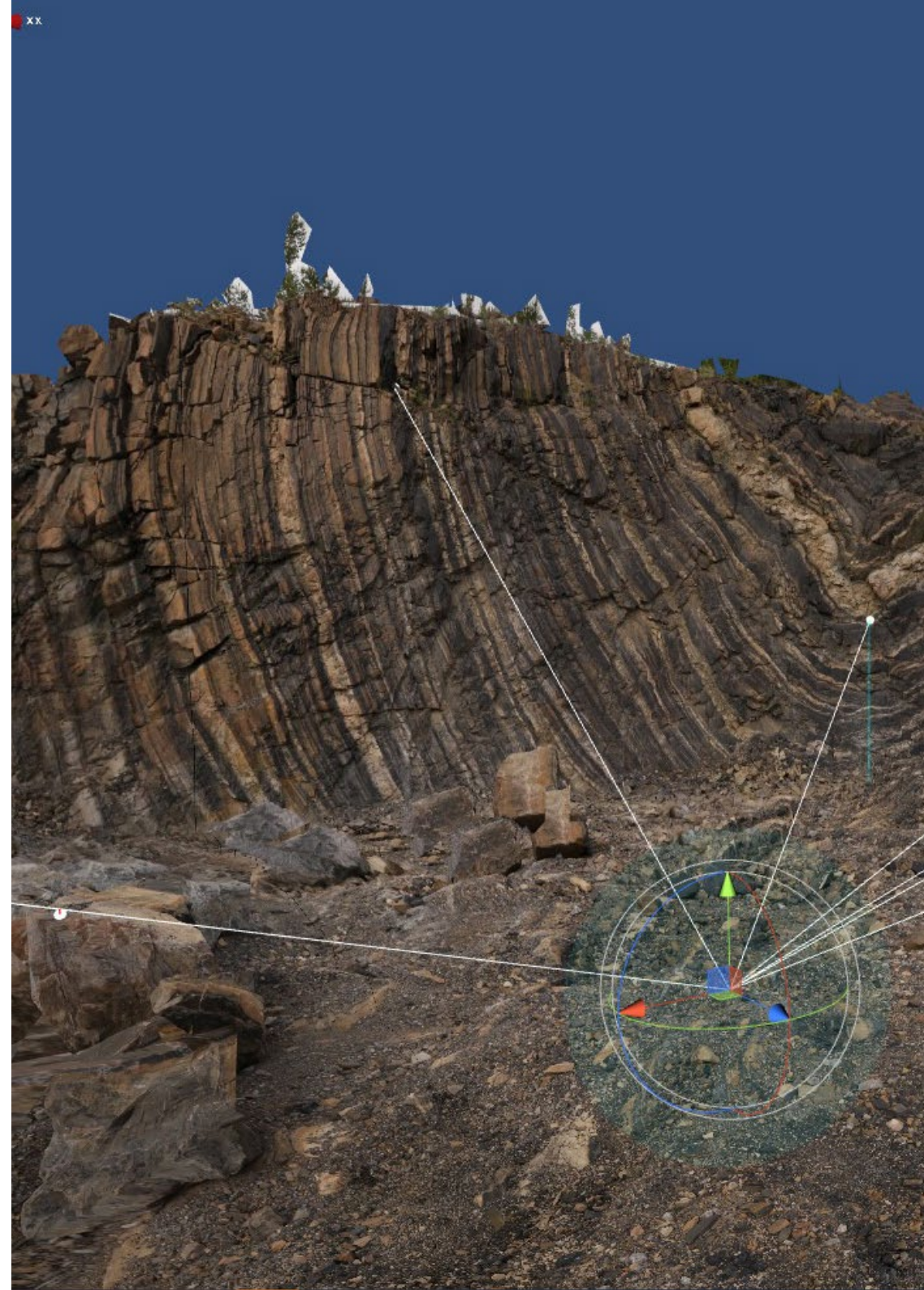


“

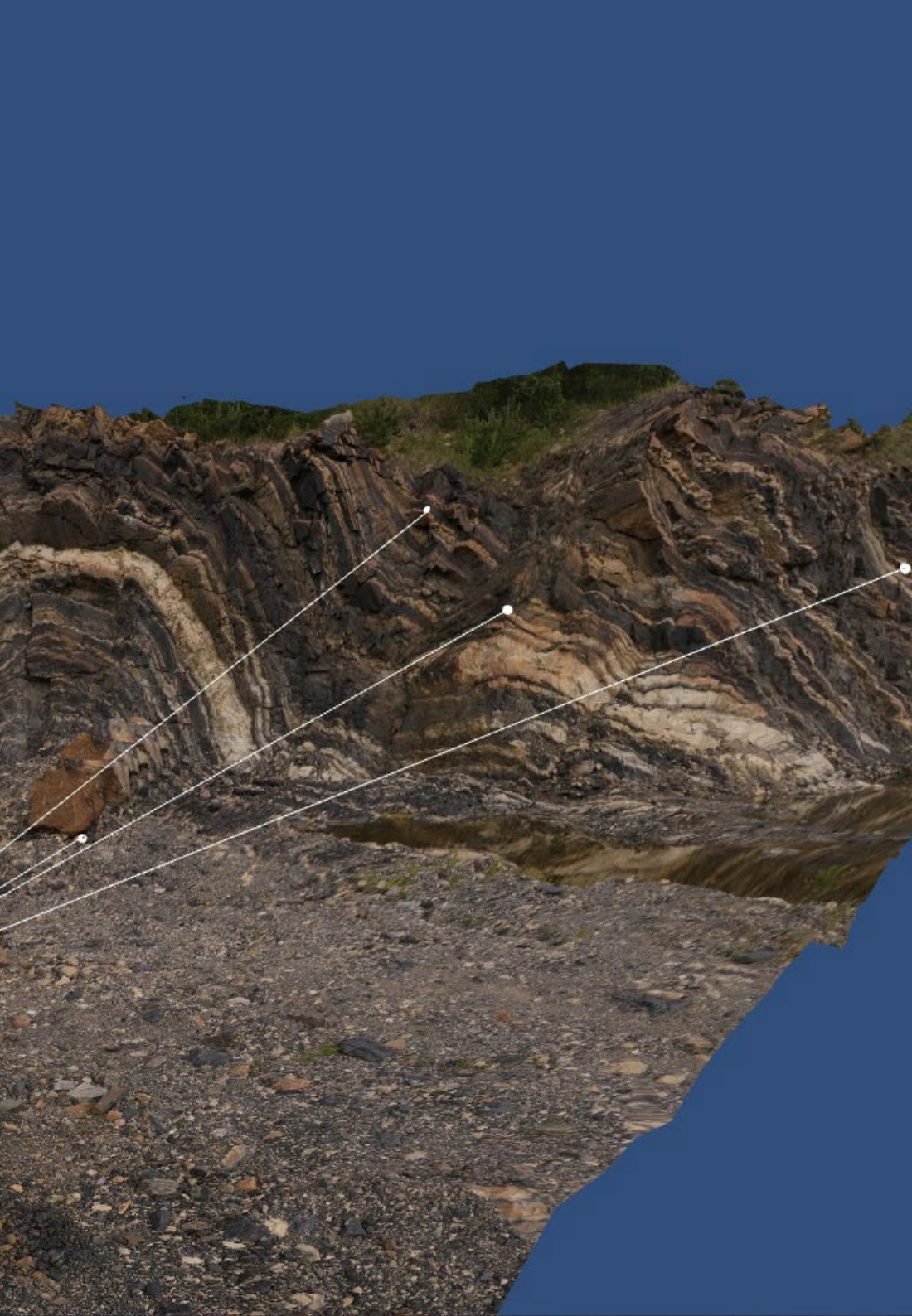
*You will have an exceptional content library in the field of Photogrammetry with Drones, and you can even download it and use it later as a reference guide”*

## Module 1. Photogrammetry with Drones

- 1.1. Topography, Mapping and Geomatics
  - 1.1.1. Topography, Mapping and Geomatics
  - 1.1.2. Photogrammetry
- 1.2. Structure of the System
  - 1.2.1. UAVs (Military Drones), RPAS (Civilian Aircraft) or DRONES
  - 1.2.2. Photogrammetric Method with Drones
- 1.3. Work Planning
  - 1.3.1. Study of Airspace
  - 1.3.2. Meteorological Previsions
  - 1.3.3. Geographic Dimensioning and Flight Configuration
- 1.4. Field Topography
  - 1.4.1. Initial Inspection of the Area of Work
    - 1.4.1.1. Photomodeler
    - 1.4.1.2. Photomodeler Scanner
  - 1.4.2. Requirements
  - 1.4.3. Calibration
- 1.5. Photogrammetric Flights
  - 1.5.1. Planning and Configuration of Flights
  - 1.5.2. Field Analysis and Take-Off and Landing Points
  - 1.5.3. Flight Review and Quality Control
- 1.6. Commissioning and Configuration
  - 1.6.1. Information Download. Support, Security and Communication
  - 1.6.2. Image and Topographic Data Processing
  - 1.6.3. Processing, Photogrammetric Restitution and Configuration







- 1.7. Results Editing and Analysis
  - 1.7.1. Interpretation of Results
  - 1.7.2. Cleaning, Filtering and Treatment of Point Clouds
  - 1.7.3. Obtaining Meshes, Surfaces and Orthomosaics
- 1.8. Presentation-Representation
  - 1.8.1. Mapped. Formats and Common Extensions
  - 1.8.2. 2D and 3D Representation. Level Curves, Orthomosaics and MDT
  - 1.8.3. Presentation, Diffusion and Storage of Results
- 1.9. Phases of a Project
  - 1.9.1. Planning
  - 1.9.2. Fieldwork (Topography and Flights)
  - 1.9.3. Download Processing, Editing and Delivery
- 1.10. Topography with Drones
  - 1.10.1. Parts of the Exposed Method
  - 1.10.2. Impact or Repercussion on Topography
  - 1.10.3. Future Projection of Topography with Drones



*Enroll today and gain access to 10 extensive knowledge topics in which you will learn everything related to the presentation and cartographic representation, interpretation of results and future projection of the work with Drones"*

# 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.





The background of the slide features a close-up, slightly blurred image of a drafting table. A wooden ruler is positioned horizontally across the upper portion of the frame. Below it, a metal compass is resting on a blue sheet of paper with white dashed lines forming a grid. The entire image is overlaid with a large, diagonal graphic element that splits the slide into a dark red upper-right section and a white lower-left section.

“

*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 is the most widely used learning system in the best faculties in the world. 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 program, the studies 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 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.

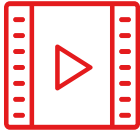
*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

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.



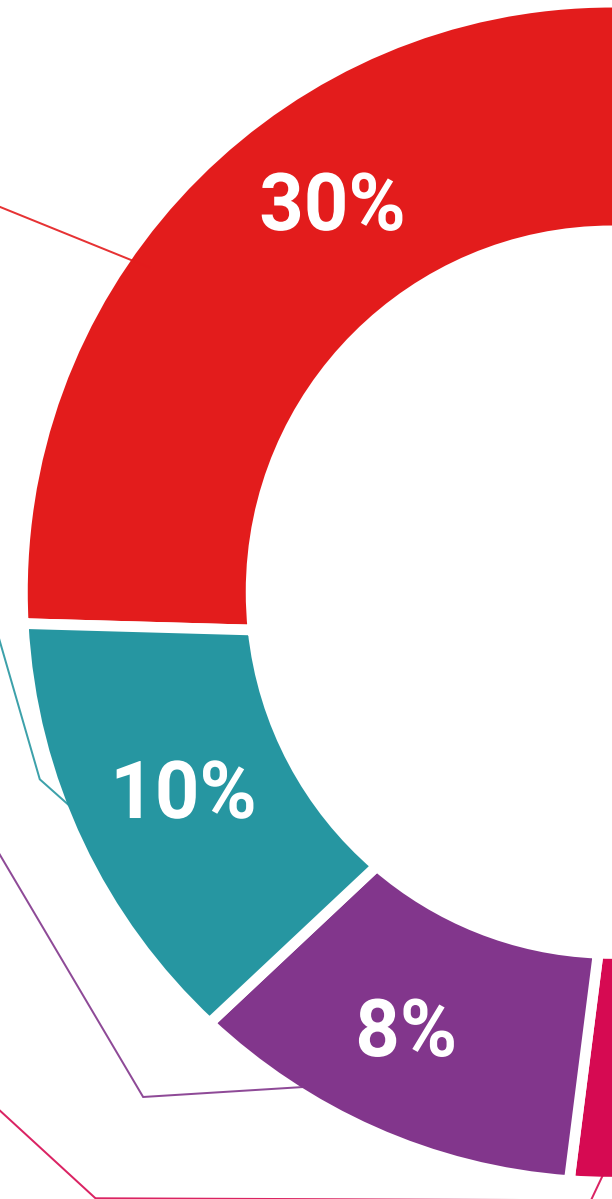
#### Practising Skills and Abilities

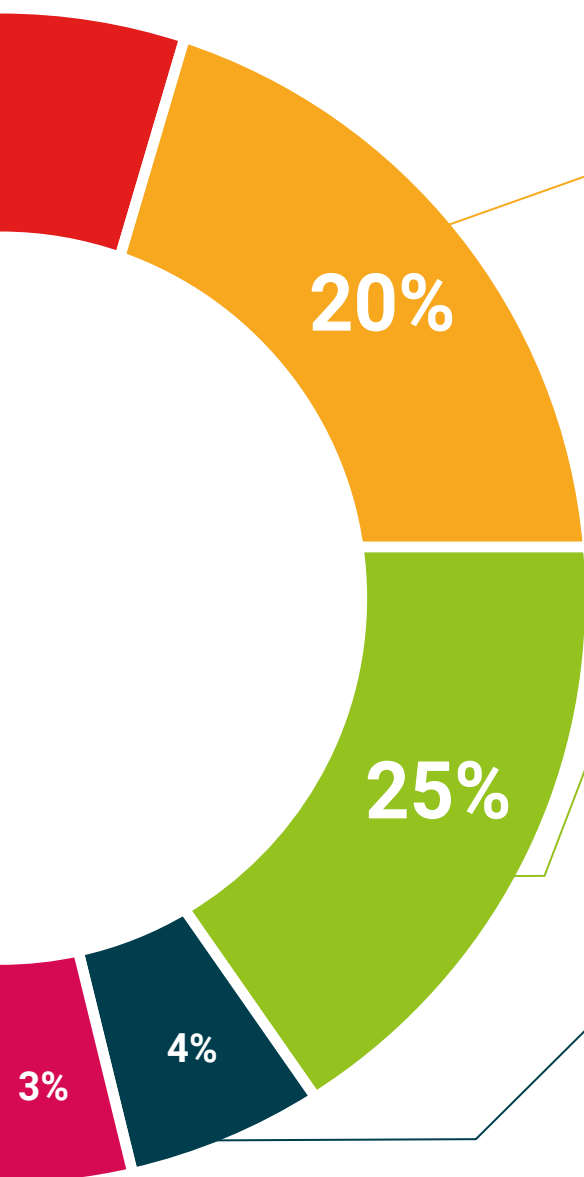
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



#### 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 Photogrammetry with Drones guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



“

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

This private qualification will allow you to obtain an **Postgraduate Certificate in Photogrammetry with Drones** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University**, is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Photogrammetry with Drones**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**







## Postgraduate Certificate Photogrammetry with Drones

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Accreditation: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

# Postgraduate Certificate

## Photogrammetry with Drones

