

# Postgraduate Certificate Flight Engineering Technology Applied to Drones





## Postgraduate Certificate Flight Engineering Technology Applied to Drones

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

Website: [www.techtute.com/in/engineering/postgraduate-certificate/flight-engineering-technology-applied-drones](http://www.techtute.com/in/engineering/postgraduate-certificate/flight-engineering-technology-applied-drones)

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# 01

# Introduction

Although drones were born for military purposes, the use of unmanned aerial vehicles for commercial purposes is becoming more and more frequent. For this reason, engineering, and science are currently making efforts to take advantage of these tools for academic, pedagogical and research purposes. In accordance with the importance it has acquired in recent times, TECH has developed this academic program where it provides the engineering professional with innovative content on the skills needed to carry out safe flights, integrating all phases of flight and showing relevance to design and technology. This program has a 100% online pedagogical format along with a team of experienced teachers in drone piloting, offering an academic experience piloting, offering a first class academic experience.





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*This Postgraduate Certificate has been developed with the purpose of providing you with competences in systems that are part of the RPAS"*



The accelerated technological development in the field of aeronautics has made these devices even smaller, quieter, more agile, complex and with clear and powerful cameras. Due to these advances, drones can be used to expand the capacity of observation or intervention from inaccessible spaces or that simply put human life at risk. One of the most significant features that drones offer is the ability to access places where humans cannot reach. One of the most common applications in engineering is the use of drones to take topographic measurements in areas that are difficult to access.

In this way, research in this field has developed advances in relation to safe flights and drone regulations, making it clear that engineering professionals must be at the forefront in this area of knowledge, which is relatively contemporary and presents a new challenge. That is why this Postgraduate Certificate will provide the professional with updates in the environmental limitations of use (temperature, altitude, wind, electromagnetic environment).

The graduate will enhance his or her competences in detailed aspects related to the importance of flight preparation for a safe development. On the other hand, it is a program that counts with a professional team of great experience and is highly qualified. In the same way, it integrates a unique audiovisual content of the highest quality, offering a better experience to the expert for its dynamism and comfort with the online modality.

Therefore, TECH emphasizes on academic excellence and comfort, offering first class innovations with the highest standards, thus being a program of great flexibility by only needing an electronic device with internet connection to access the Virtual Platform without difficulties from the comfort of the place where you are.

This **Postgraduate Certificate in Flight Engineering Technology Applied to Drones** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ Practical cases presented by experts in Drone Piloting
- ◆ 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



*Stand out in a booming sector and great projection, being part of the global progress from excellence and efficiency"*

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*This field of study is new and that requires constant updating, that is why with TECH you will be able to do it thanks to its specialized readings"*

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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 the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Delve into your knowledge and become an expert engineer in Flight Applied to Drones with this Postgraduate Certificate.*

*TECH provides you with an exclusive audiovisual content, which offers you the best learning experience in the Drone Pilot sector.*



# 02

# Objectives

This Postgraduate Certificate in Flight Engineering Technology Applied to Drones has been focused primarily to provide the graduate with the most current developments in the field of Drone Piloting. That is why TECH provides incredible resources of technological innovation, successfully achieving the process of the academic program. At the end of the program, the student will have strengthened their skills in acquiring responsible habits regarding the basic and mandatory maintenance of aerial platforms.







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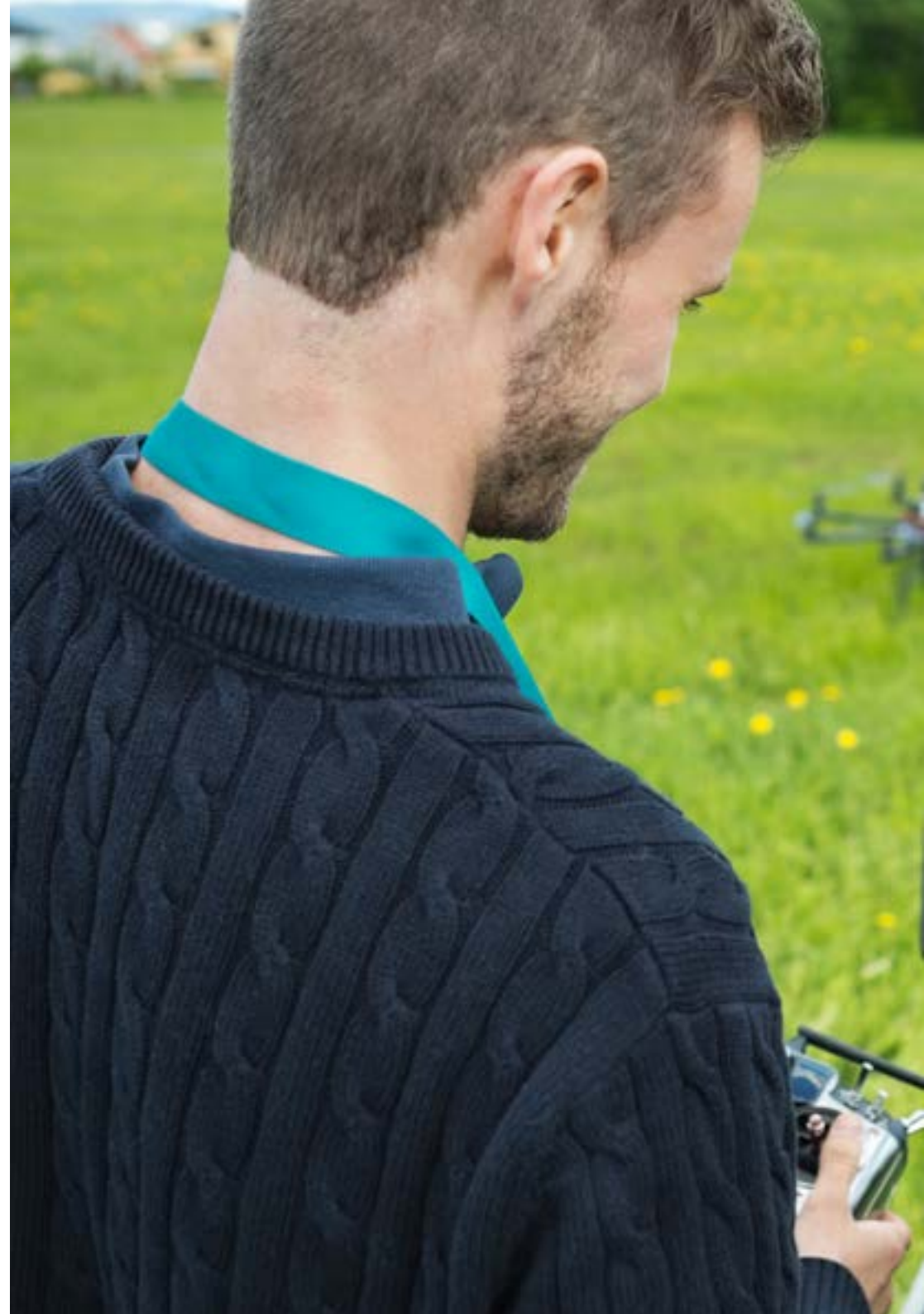
*One of TECH's main objectives is for you to acquire sufficient skills to further advance your career as an engineer"*



## General Objectives

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- ♦ Carry out professional safe flights in the different scenarios, following the normal and emergency procedures established in the Operations Manual
- ♦ Carry out the test flights necessary for the development of air operations following the manufacturer's maintenance manual indications and the legislation in force
- ♦ Identify the work procedures involved in each intervention, both flight and maintenance, in order to select the required technical documentation
- ♦ Evaluate situations of occupational risk prevention and environmental protection. Propose and apply prevention and protection measures, both personal and collective, according to the applicable regulations in the work processes, in order to guarantee safe environments





## Specific Objectives

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- ◆ Acquire an overview of the design of a drone based on a concrete example
- ◆ Acquire sufficient skills to perform safe flights, integrating all phases of flight and demonstrating the relevance of design and technology
- ◆ Acknowledge the importance of adequate flight preparation to ensure a safe flight
- ◆ Acquire responsible habits regarding the basic and mandatory maintenance of aerial platforms
- ◆ Register the flights in the corresponding books

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*You will achieve your goals thanks to our tools, Didactics and you will be accompanied along the way by leading professionals”*



03

# Course Management

One of TECH's premises is to provide its students with a first class education. This is with the support of the Didactics tools that successfully carry out the development of each of its programs. Therefore, the graduate will have access to material designed by a faculty specialized in unmanned aviation and with extensive experience as airline transport pilots. Its extensive background and deep knowledge will allow the graduate to resolve doubts or answer questions that arise in the course of the program.





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*Acquire the knowledge and skills  
necessary to embark in the field  
of Applied Drone Flight”*



## Management



### Mr. Pliego Gallardo, Ángel Alberto

- ◆ Airline Transport Pilot ATPL and RPAS Instructor
- ◆ Drone flight instructor and examiner at Aero-cameras
- ◆ Project Manager at ASE Pilot School
- ◆ Flight Instructor at FLYBAI ATO 166
- ◆ RPAS specialist teacher in university programs
- ◆ Author of publications related to the field of Drones
- ◆ Researcher in R+D+i projects related to RPAS
- ◆ Airline Transport Pilot ATPL by the Ministry of Education and Science
- ◆ Degree in Primary Education Teaching from the University of Alicante
- ◆ Certificate in Pedagogical Aptitude, University of Alicante



### Dr. Bazán González, Gerardo

- ◆ Electronic Engineer
- ◆ Founder and CEO of DronesSkycam
- ◆ Senior Managing Consultant at FlatStone Energy Partners Ltd
- ◆ Managing Director and Consultant at ON Partners Mexico
- ◆ Deputy Director of Industrial Development of Hydrocarbons
- ◆ Author of publications related to the global energy industry
- ◆ Graduate in Electronic Engineering
- ◆ Master's Degree in Engineering Project Management from the University of Birmingham



## Professors

### Ms. López Amedo, Ana María

- ◆ RPAS Pilot and Instructor
- ◆ RPA instructor in several courses
- ◆ RPAS Examiner in several courses
- ◆ Vice-president of the Valencian Federation of Aerial Sports
- ◆ President of the San Vicente del Raspeig Air Sports Club
- ◆ Drone Pilot by the ATO-166 FLYBAI
- ◆ Drone Instructor by ATO-166 FLYBAI
- ◆ Radiotelephone operator by ATO-166 FLYBAI

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*A unique, key, and decisive educational experience to boost your professional development”*

# 04

# Structure and Content

This program has been developed and focused on the most recent research in the aeronautical field, establishing a curriculum that provides a great deal of content on Flight Engineering Technology Applied to Drones. This Postgraduate Certificate is oriented to provide the most exclusive and prestigious content on the impact of the assembly of any special equipment related to a particular use. All this, by means a series of audiovisual tools that offer dynamism and a greater attractiveness to this program.







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*With TECH, you have a curriculum that is focused on bringing you the most advanced content in the loss of flight control relationship"*

## Module 1. Engineering Technology in Flight

- 1.1. Particularities
  - 1.1.1. Aircraft Description
  - 1.1.2. Motor, Propeller, Rotor(s)
  - 1.1.3. Three-View Plan
  - 1.1.4. Systems That Form Part of the RPAS (Ground Control Station, Catapults, Nets, Additional Information Displays, etc.)
- 1.2. Limitations
  - 1.2.1. Mass
    - 1.2.1.1. Maximum Mass
  - 1.2.2. Speeds
    - 1.2.2.1. Maximum Speed
    - 1.2.2.2. Loss of Speed
  - 1.2.3. Limitations of Altitude and Distance
  - 1.2.4. Maneuvering Load Factor
  - 1.2.5. Mass and Centering Limits
  - 1.2.6. Authorized Maneuvers
  - 1.2.7. Drive Unit, Propellers, Rotor, If Applicable
  - 1.2.8. Maximum Potential
  - 1.2.9. Engine, Propeller, Rotor Speed
  - 1.2.10. Environmental Limitations of Use (Temperature, Altitude, Wind, Electromagnetic Environment)
- 1.3. Abnormal and Emergency Procedures
  - 1.3.1. Engine Failure
  - 1.3.2. Restarting an Engine in Flight
  - 1.3.3. Fire
  - 1.3.4. Gliding
  - 1.3.5. Self-Rotation
  - 1.3.6. Emergency Landing
  - 1.3.7. Other Emergencies.
    - 1.3.7.1. Loss of a Means of Navigation
    - 1.3.7.2. Loss of Connection With Flight Control
    - 1.3.7.3. Others
  - 1.3.8. Safety Devices
- 1.4. Normal Procedures
  - 1.4.1. Pre-Flight Revision
  - 1.4.2. Commissioning
  - 1.4.3. Take-Off
  - 1.4.4. Cruise Control
  - 1.4.5. Hovering
  - 1.4.6. Landing
  - 1.4.7. Engine Shutdown After Landing
  - 1.4.8. Pre-Flight Revision
- 1.5. Loans
  - 1.5.1. Take-Off
  - 1.5.2. Limit of Crosswind at Take-off
  - 1.5.3. Landing
  - 1.5.4. Limit of Crosswind When Landing
- 1.6. Weight and Centering, Equipment
  - 1.6.1. Reference Unladen Mass
  - 1.6.2. Vacuum Reference Centering
  - 1.6.3. Configuration for the Determination of Mass in Vacuum
  - 1.6.4. List of Equipment
- 1.7. Assembly and Adjustment
  - 1.7.1. Instructions for Assembly and Adjustment
  - 1.7.2. List of User-Accessible Settings and Consequences on Flight Characteristics
  - 1.7.3. Impact of the Installation of Any Special Equipment Related to a Particular Use
- 1.8. Software
  - 1.8.1. Identification of Versions
  - 1.8.2. Verification of its Correct Functioning
  - 1.8.3. Updates
  - 1.8.4. Programming
  - 1.8.5. Aircraft Adjustments





- 1.9. Safety Study for Declarative Operations
  - 1.9.1. Records
  - 1.9.2. Methodology
  - 1.9.3. Operations Description
  - 1.9.4. Risk Evaluation
  - 1.9.5. Conclusions
- 1.10. Applicability: From Theory to Practice
  - 1.10.1. Flight Syllabus
  - 1.10.2. Expert Testing
  - 1.10.3. Maneuvers

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*A 100% online program that provides the flexibility and convenience to delve into the most advanced Applied Drone Flight programs and tools at your convenience”*

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.





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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 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 Flight Engineering Technology Applied to Drones 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 Flight Engineering Technology Applied to Drones** 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 Flight Engineering Technology Applied to Drones**

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.



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# Postgraduate Certificate

## Flight Engineering Technology Applied to Drones

