

# Postgraduate Certificate Aeronautical Technological and Operational Innovations





## Postgraduate Certificate Aeronautical Technological and Operational Innovations

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

Website: [www.techtute.com/us/engineering/postgraduate-certificate/aeronautical-technological-operational-innovations](http://www.techtute.com/us/engineering/postgraduate-certificate/aeronautical-technological-operational-innovations)

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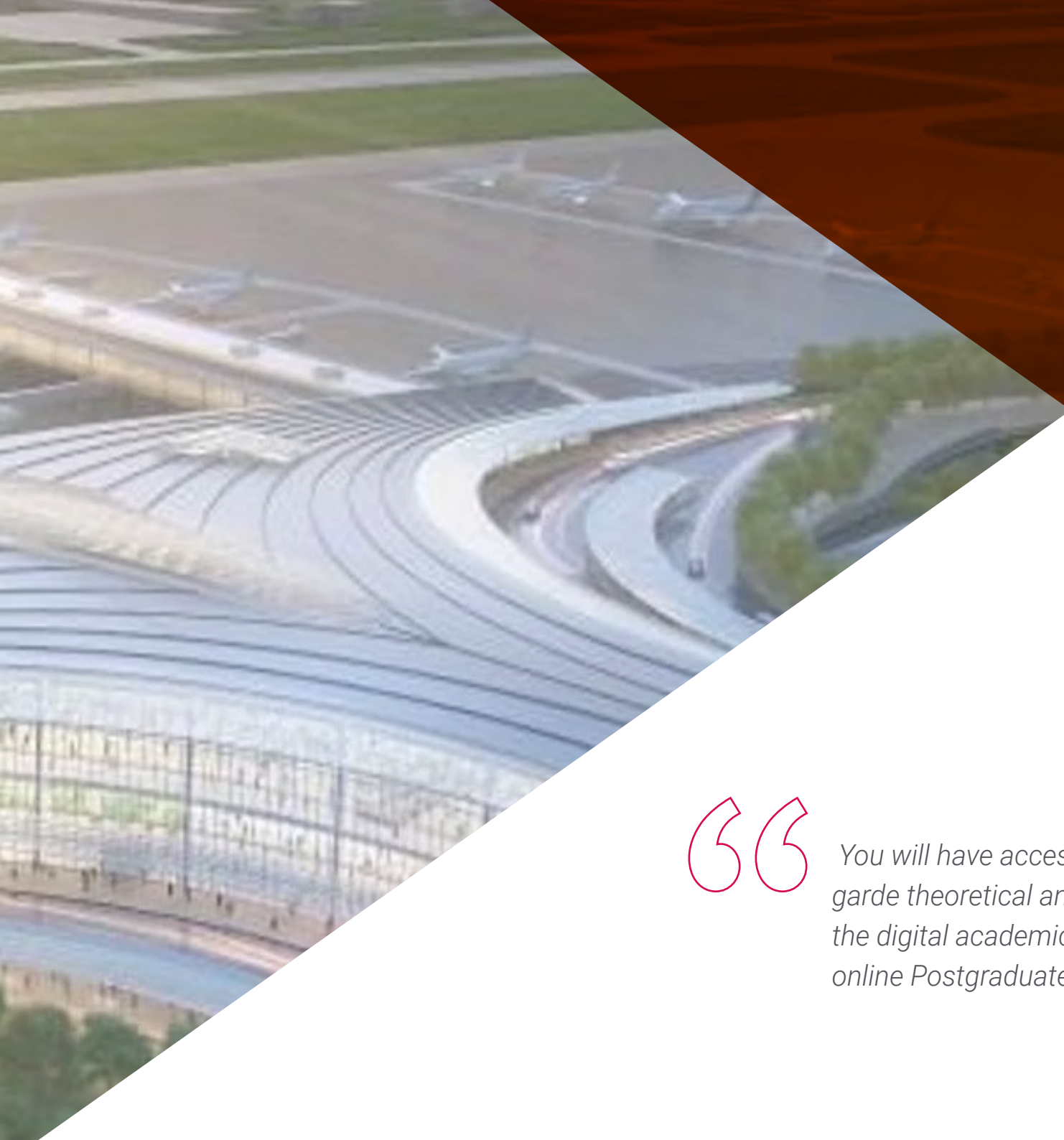
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# 01

# Introduction

The aeronautics industry has experienced rapid growth in recent years, both in the commercial, military and space sectors. This trend is expected to continue in the coming years, with the incorporation of new technologies such as artificial intelligence, robotics, and electrical and renewable energy into air systems. As a result, the demand for air services continues to increase worldwide, resulting in more employment and professional development opportunities for experts in aeronautical technological and operational innovations. In response to this knowledge, TECH has designed a program in 100% online format, to update the skills of engineers. All this, through theoretical and practical materials and simulation of real cases that make teaching a unique academic experience





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*You will have access to the most avant-garde theoretical and practical materials in the digital academic market thanks to this online Postgraduate Certificate”*

Aeronautical technological and operational innovations are transforming the airline industry. The incorporation of artificial intelligence, robotics and renewable energy technologies are enabling the creation of more efficient and sustainable aviation systems, as well as improving passenger safety and comfort. For example, lighter, quieter and less polluting aircraft are being developed, using more advanced materials and technologies. In addition, automated navigation and control systems are being implemented that reduce human error and improve flight accuracy.

For this reason, it is essential for aeronautical engineers to keep up to date and specialized in the latest aeronautical technological and operational innovations. They must have the ability to adapt quickly to changes in the industry and be able to innovate to stay ahead of the competition. In addition, the complexity of aviation systems requires a high level of specialization and technical knowledge to ensure flight safety and efficiency. For example, according to the International Civil Aviation Organization (ICAO), aviation safety training is essential to reduce air accidents, which can have catastrophic consequences for human life and the global economy.

For all these reasons, TECH and its team of experienced engineers have designed a degree that responds to the increased demand for qualified professionals. Thus, it has created a unique program in which the engineering professionals will delve into urban air mobility and operation infrastructure.

All this through 6 weeks of 100% online training that allows students to study while combining their other daily tasks, whenever and wherever they wish. In addition, TECH includes in all its programs the Relearning methodology, consisting of the reiteration of fundamental concepts throughout the syllabus so that you can integrate the knowledge in a natural and progressive way, without having to spend hours memorizing.

This **Postgraduate Certificate in Aeronautical Technological and Operational Innovations** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ Development of case studies presented by experts in Aeronautical Engineering
- ◆ The graphic, schematic, and practical contents with which they are created, provide 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



*Forget about memorizing with TECH Relearning. You will learn with the most effective methodology and integrate knowledge efficiently”*



*No preset attendance, tight schedules or uncomfortable commuting. All are advantages for you with this TECH program”*

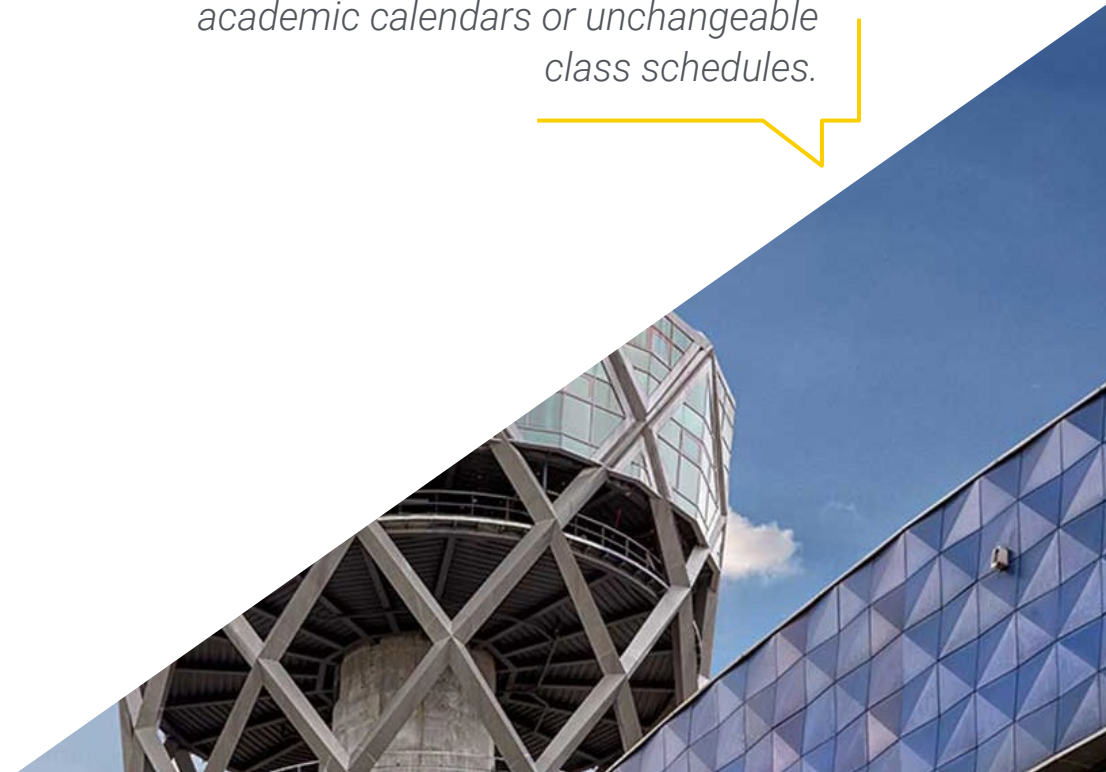
The program’s teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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

The design of this program focuses on Problem-Based Learning, by means of which the professionals must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned experts.

*A 100% online program with which you will obtain the most comprehensive knowledge about the new air traffic control systems.*

*You will have at your disposal a Virtual Campus available 24 hours a day, without the usual pressure of adapting to rigid academic calendars or unchangeable class schedules.*



# 02

# Objectives

This program contains the most updated and detailed knowledge on the latest trends in Aeronautical Technological and Operational Innovations. Thus, it has been designed with the objective of increasing the knowledge of aeronautical engineers so that they can implement the most effective strategies in their professional practice. Thus, in just 6 weeks of online training, the professionals will be able to improve their technical skills and thus adapt to changes in the industry and remain competitive. In addition, graduates will be able to contribute to the technological progress of the aeronautical industry, improving the efficiency and sustainability of air services and reducing their environmental impact.





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*With this certification you will gain insight into the leading developers of remote tower technologies”*



## General Objectives

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- ◆ Provide the professionals with the specific and necessary knowledge to perform, with a critical and informed opinion, in any phase of planning, design, manufacture, construction or operation in the various companies of the aviation sector
- ◆ Identify the problems in aeronautical designs and projects in order to know how to propose effective, viable and sustainable overall solutions
- ◆ Acquire the fundamental knowledge of existing technologies and innovations under development in transport systems, in order to be able to conduct research, development and innovation studies in aeronautical companies and technology centers
- ◆ Analyze the main conditioning factors involved in the aeronautical activity and how to efficiently apply the latest techniques used in the aviation sector today
- ◆ Acquire a specialized approach and be able to monitor the management of any aeronautical department, as well as to execute the general management and the technical management of designs and projects
- ◆ Delve into the knowledge of the different critical aeronautical areas according to their different relevant actors, as well as achieve the knowledge, understanding and ability to apply the applicable aeronautical or non-aeronautical legislation and regulations





## Specific Objectives

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- ◆ Examine the different actors involved in the technological development of aviation
- ◆ Identify the main technological developments to improve the sustainability of the aeronautical sector
- ◆ Define new materials and new elements that contribute to technological innovation in the sector
- ◆ Substantiate how digitization processes and artificial intelligence can contribute to the improvement of aeronautical systems
- ◆ Analyze the development and utilities of aerial mobility in our cities
- ◆ Determine the different uses that can be made of airport infrastructures
- ◆ Propose solutions associated with the sector that can be applicable to improving the lives of citizens

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

# 03

# Course Management

Students who access this Postgraduate Certificate will have at their disposal a syllabus prepared by distinguished professionals in aeronautical engineering. Their excellent knowledge of this sector is a guarantee for the graduates who seek to obtain the most solid knowledge of technologies applicable to airport security through the best experts. Thus, the engineering professionals who attend this program will have before them a highly qualified management and teaching staff with a long professional career. An extraordinary background that will be reflected in the exhaustive syllabus to which the students will have access.





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*TECH provides you with a first class academic qualification made up of renowned specialists in the aeronautical sector and you can learn from them”*

## Management



### D. Torrejón Plaza, Pablo

- ♦ Engineering Technician at ENAIRE
- ♦ Head of the Regulatory Unit of the National Airports Autonomous Organization
- ♦ Head of the Analysis Section of the National Airports Autonomous Organization Cabinet of the General Director
- ♦ Head of the Operations Section, Head of the Airport Security Office and Service Executive at Tenerife Sur Airport
- ♦ Head of the Procedures and Organization Section in the Office of the General Director of Aena Airports
- ♦ Head of the Programming Department and in the Office of the President of Aena
- ♦ Head of the Institutional Coordination and Parliamentary Affairs Division
- ♦ Associate Professor and Collaborator in the Aeronautical Management Degree at the Universidad Autónoma de Madrid
- ♦ Head of the Regulatory Unit of the National Airports Autonomous Organization
- ♦ Head of the Analysis Section of the National Airports Autonomous Organization Cabinet of the General Director
- ♦ Head of the Operations Section, Head of the Airport Security Office and Service Executive at Tenerife Sur Airport.
- ♦ Master's Degree in Airport Systems from the Polytechnic University of Madrid
- ♦ Master in Organizational Management in Knowledge Economy from the Universitat Oberta de Catalunya (Open University of Catalonia)
- ♦ Master's Degree in Executive MBA from the Instituto de Empresa in Madrid
- ♦ Aerospace Engineer from the University of León
- ♦ Aeronautical Technical Engineer by Universidad Politécnica de Madrid
- ♦ Aeronautical Manager from the Autonomous University of Madrid
- ♦ Honorary decoration "Alférez Policía Nacional del Perú Mariano Santos Mateos gran General de la Policía Nacional del Perú" for exceptional services in aeronautical consultancy and training



## Professors

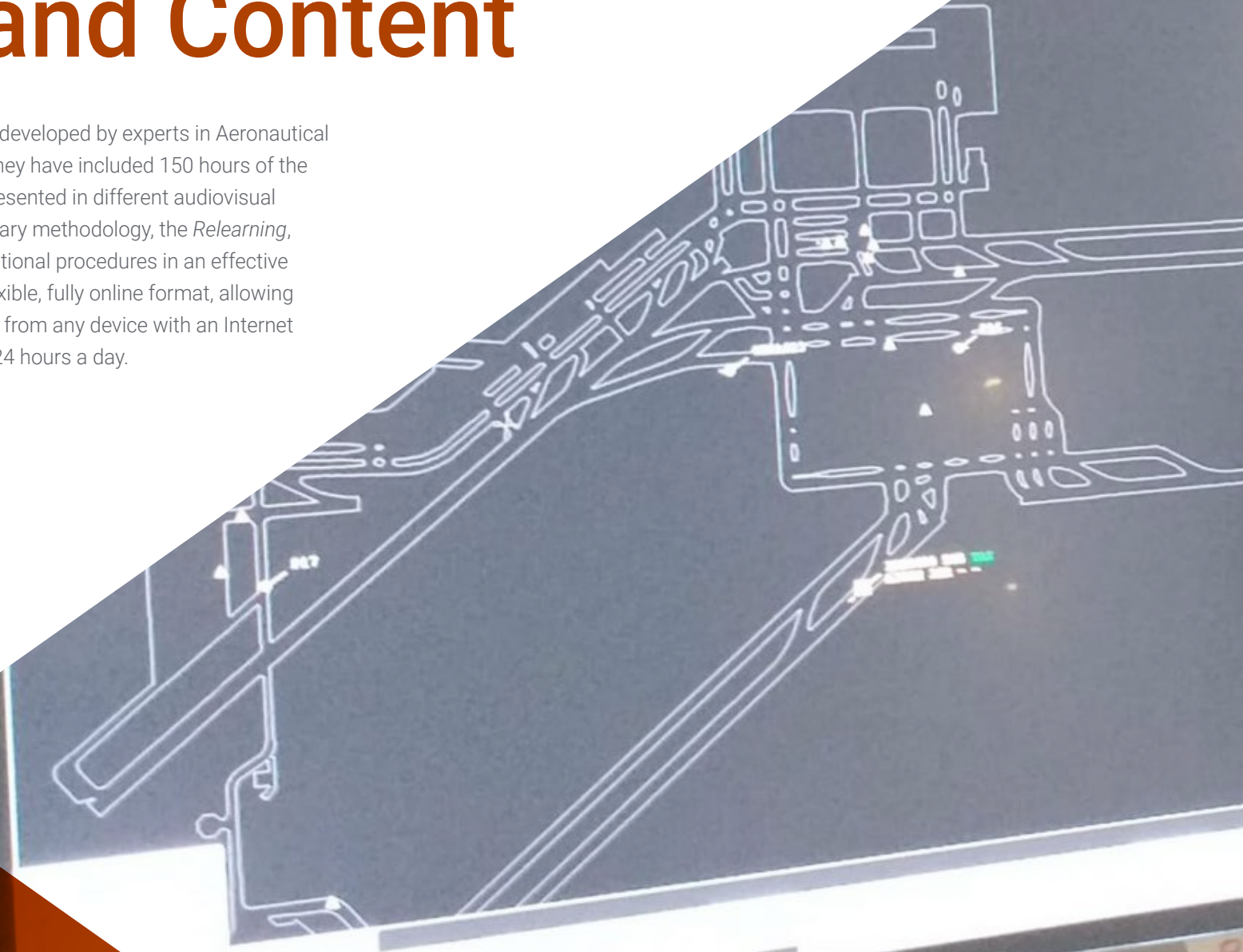
### D. Torres Pinilla, Eduardo

- ◆ Airport infrastructure works manager at Aena network facilities
- ◆ Inspector with the rank of team leader, assigned to the State Aviation Safety Agency (AESA), in the Airport Inspections Division (DIA)
- ◆ Engineer in the Projects and Constructions Section (SEPCO) of the Air Force Engineering and Infrastructures Directorate (DIN)
- ◆ Head of Department at the General Technical Secretariat of the Urban Development Area of the Madrid City Council
- ◆ Associate Professor in the Department of Business Organization, University Autonomous of Madrid
- ◆ Aerospace Engineer from the University of León
- ◆ Aeronautical Technical Engineering in Airports, Universidad Politécnica de Madrid
- ◆ Advanced Unmanned Aircraft Pilot License CNT/RPA/P/33-16
- ◆ Air Safety State Agency qualification for Airport Inspection

# 04

## Structure and Content

The syllabus that makes up this program has been developed by experts in Aeronautical Technological and Operational Innovations. Thus, they have included 150 hours of the best theoretical, practical and additional content presented in different audiovisual media. In addition, with TECH's exclusive revolutionary methodology, the *Relearning*, the graduates will deepen in the innovation in operational procedures in an effective and progressive way. All of this is presented in a flexible, fully online format, allowing the engineer to acquire the most cutting-edge tools from any device with an Internet connection and with access to the virtual campus 24 hours a day.







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*A 100% online Postgraduate Certificate that adapts to your needs and allows you to combine the improvement of your knowledge with your personal and professional life”*

## Module 1 Technological innovations and aeronautical operations

- 1.1. Unmanned Aircraft Systems (UAS)
  - 1.1.1. Historical evolution of unmanned aircrafts
  - 1.1.2. Unmanned Aircraft Typology
  - 1.1.3. Industry and main unmanned aircraft manufacturers
- 1.2. Urban Air Mobility (UAM)
  - 1.2.1. Mobility of the future in cities
  - 1.2.2. Integration of unmanned aircraft into conventional airspace
  - 1.2.3. Innovative urban air mobility projects
- 1.3. Innovative infrastructures for unmanned aircraft
  - 1.3.1. Operating infrastructures. Vertiports
  - 1.3.2. Control centers for unmanned aircraft
  - 1.3.3. Unmanned aircraft anti-intrusion systems
- 1.4. New air traffic control systems
  - 1.4.1. Remote control tower technology
  - 1.4.2. Major developers of remote tower technologies
  - 1.4.3. Pioneering NA service providers in the use of remote towers
- 1.5. New sources of aircraft propulsion
  - 1.5.1. Electric propulsion systems
  - 1.5.2. Hydrogen propulsion systems
  - 1.5.3. PAS propulsion systems
- 1.6. Innovation in operational procedures
  - 1.6.1. Conventional approach procedures
  - 1.6.2. Trombone approach procedures
  - 1.6.3. Point Merge System approach procedure





- 1.7. Technologies applicable to airport security
  - 1.7.1. Automated Border Control Posts (ABC)
  - 1.7.2. Implementation of biometric systems
  - 1.7.3. Security information management platforms (MISP)
- 1.8. Innovations in ground handling equipment
  - 1.8.1. Services to aircraft through tunnels with retractable platform sockets
  - 1.8.2. ZERO emission propulsion *handling* vehicles
  - 1.8.3. Artificial intelligence in the improvement of passenger and aircraft assistance processes
- 1.9. Airports and renewable energies
  - 1.9.1. Renewable energies applicable to airport infrastructures
  - 1.9.2. Management of sustainable airports (Net-Zero 2050)
  - 1.9.3. Airports as an energy solution for their environment
- 1.10. Innovations in the use of airport infrastructures
  - 1.10.1. Airports as aircraft parking aprons
  - 1.10.2. Airports for aircraft maintenance and recycling
  - 1.10.3. Airports as a platform for space launches

“A complete and multidisciplinary syllabus presented in different audiovisual supports so that you can internalize the information quickly and effectively”

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.





“

*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 Aeronautical Technological and Operational Innovations 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 Aeronautical Technological and Operational Innovations** 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 diploma** issued by **TECH Technological University** via tracked delivery\*.

The diploma 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 Aeronautical Technological and Operational Innovations**

Official N° of hours: **150 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma 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 innovation  
knowledge present  
development language  
virtual classroom

**tech** technological  
university

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