



# Postgraduate Diploma Integral Sustainability of Aeronautical Engineering

» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/us/engineering/postgraduate-diploma/postgraduate-diploma-integral-sustainability-aeronautical-engineering

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## tech 06 | Introduction

Aviation as an engine of connectivity and growth is currently committed to the Sustainable Development Goals (SDGs) approved by the UN in 2015. A commitment that has led it to implement actions aimed at considerably reducing its impact on the environment.

In this scenario, it is essential that engineering professionals who wish to progress successfully in this industry are aware of the goals set in this field, the aviation law that regulates the entire activity, as well as the development of air transport and its future challenges. A set of subjects that brings together this Postgraduate Diploma in Integral Sustainability of Aeronautical Engineering created by TECH to provide students with a very useful learning in their daily work performance.

It is, therefore, a unique opportunity to acquire an education from a theoretical-practical perspective and through numerous teaching resources such as multimedia pills, diagrams, specialized readings or scenario simulations. An excellent material prepared and elaborated by professionals specialized in aeronautical engineering and with consolidated trajectory in the industry.

Also, thanks to the Relearning method, based on the continuous reiteration of key concepts, students will be able to advance through the syllabus in a simple way, consolidating the contents in a simpler way and thus reducing the long hours of study.

An unparalleled academic option, which allows graduates to manage their own access time with greater freedom, and to consult the program whenever and wherever they wish from a digital device with an Internet connection. Thus, with no classroom attendance or scheduled classes, students will be able to reconcile their daily activities with a first class education.

This **Postgraduate Diploma in Integral Sustainability of Aeronautical Engineering** 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
- 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
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection



Master international aviation regulation in a short time and with the most innovative teaching material"



A 100% online Postgraduate Diploma that in only 6 months will allow you to deepen in the management of airport infrastructures and the environmental implications of aviation"

The program includes in its teaching staff professionals from the sector who bring to this program the experience of their work, as well as recognized 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.

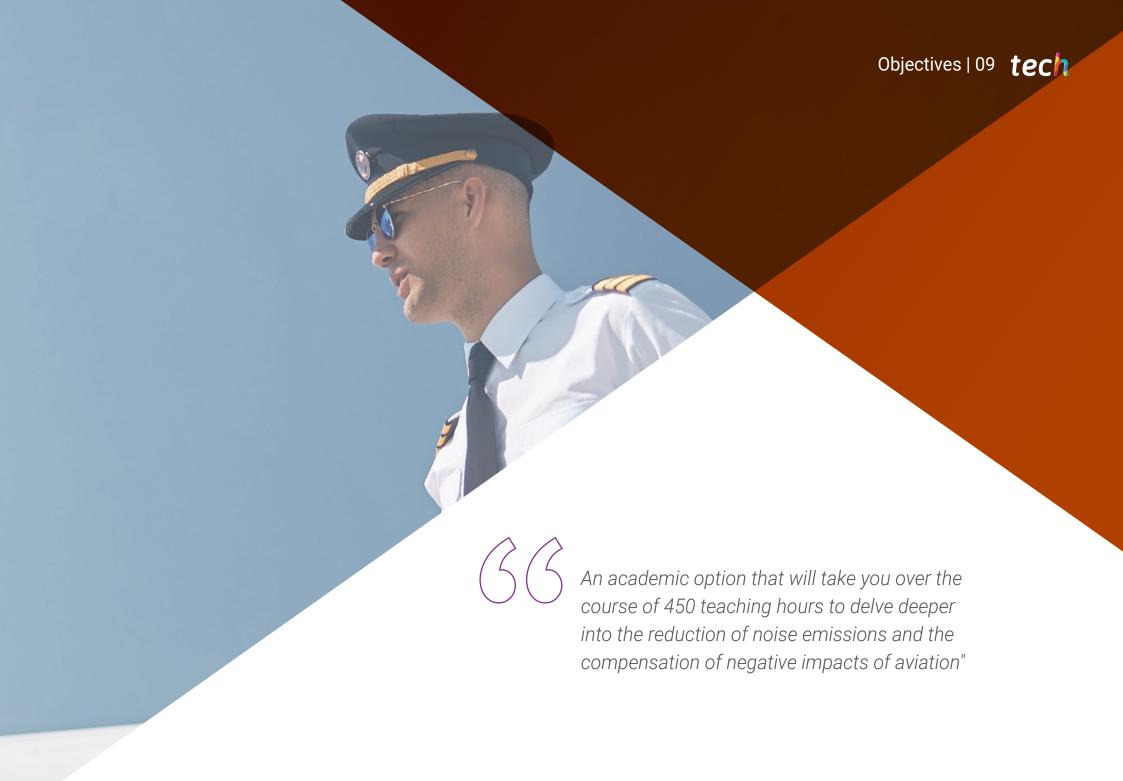
The design of this program focuses on Problem-Based Learning, by means of which the professionals must try to solve the different professional practice situations that are presented throughout the academic course. This will be done with the help of an innovative system of interactive videos made by renowned experts.

Enroll now in a flexible university education, which you can access whenever you want, from your computer with Internet connection.

With this program, delve into the configuration of the global market, trends and perspectives of air transport in the 21st century.







## tech 10 | Objectives



## **General Objectives**

- 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**

#### Module 1. Integral Sustainability of Aviation

- Examine the involvement of aviation stakeholders in integrated sustainability
- Identify the relevant contents of the three pillars of sustainability in aviation
- Define the key elements of airport economic-technical sustainability, airport social sustainability and airport environmental sustainability
- Specify the outline of comprehensive airport sustainability as a model for the rest of the aviation stakeholders
- Propose and apply integrated solutions for aviation and develop a case study applied to safety

#### Module 2. Aviation Law: Regulation, Actors and Control Systems

- Develop the normative impulse that the Chicago Convention meant and its impact
  on the international community, which has manifested itself over the course of time
  as one of the great and scarce normative successes in the creation of standards of
  International Law
- Examine the issues of preferential attention in the regulation of the European Union in view of its objectives as a union of States aiming at economic integration based on the opening and liberalization of the different markets of products and services in the container and in its global relations with third parties (Single European Sky)

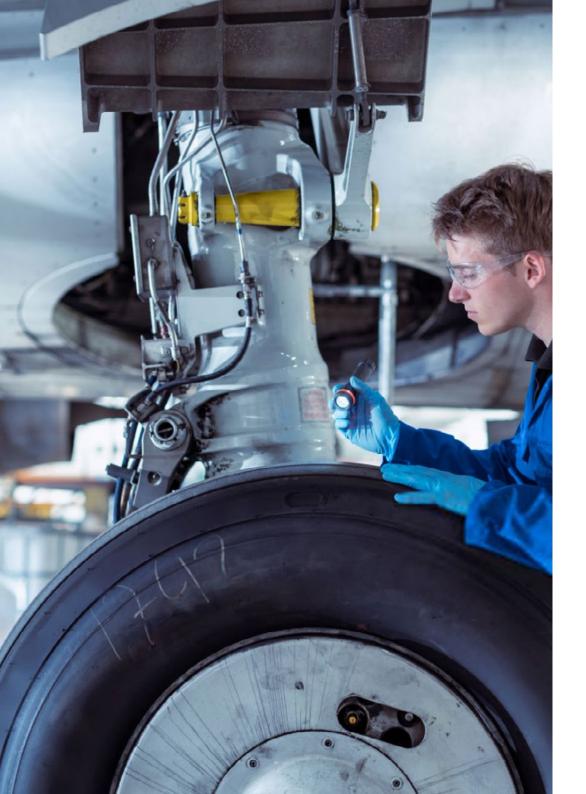


## tech 12 | Objectives

- Identify the issues that remain in the hands of the States and their specific regulations with their various levels, with particular reference to security issues
- Describe the different operators in the world of aeronautical management with their rules and interests, often contradictory, and check the functioning of the markets in which these companies operate under the supervision of their institutions
- Evaluate the coexistence of general and sectoral standards, especially in the cases of competition law, users' rights, environmental constraints and safety standards
- Specify the a priori and a posteriori control mechanisms maintained by States or national bodies to check the efficiency of management, the optimization of investments and the absence of monopolistic or discriminatory attitudes
- Propose future challenges for the management of European airports in particular
- Examine in depth the possible development of existing European Directives, the deepening or not of liberalized management, the coexistence of interests between airlines and airport managers
- Investigate the financing and continuity of the substantial investments in infrastructures, the flexible regulation in crisis situations or the limit on pollutant emissions as an objective brake on aeronautical activities

#### Module 3. Air transport: economics and management in the global marketplace

- Identify how aviation is integrated into the transportation system, as well as the various forms of cooperation in the environment
- Examine the various factors involved in the air transport system: manufacturers, airlines, and air navigation service providers
- Analyze the air transport system, its integration, competition and cooperation with intermodal mode
- Evaluate the contemporary social reality using macroeconomic and air environment tools
- Determine the technical characteristics of air transport modes
- Contextualize relevant information from the physical or business contexts
- Propose mechanisms for interpreting the solutions identified





A program that will take you deeper into the measures taken by aviation to reduce its carbon footprint"





## Management



## Mr. 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**

#### Dr. De Alfonso Bozzo, Alfonso

- Senior Consultant in aeronautical and airport matters at Cognolink, GLG
- Aeronautical and Airport Management, with responsibility in the areas of Human Resources Development, Commercial and Internal Audit at Aena
- Director of Barcelona Airport
- Professor in Master's Degree programs and Specialization Courses in airport management
- Doctor in Law from the Autonomous University of Barcelona (UAB)
- Law Degree from the University of Santiago de Compostela (UAB)
- Member of the Spanish Association of Aeronautical and Space Law

## Mr. Leal Pérez Chao, Rafael

- Specialist in Air Navigation Service Providers
- Expert in Implementation of Cost and Management Control Systems projects,
   Project Management and ERP Systems Integration and coordination of Institutional Relations Areas
- Associate Professor at the Autonomous University of Madrid
- Participated in several teaching innovation projects in the last ten years, highlighting those of professional coaching, rubrics and academic support

- Degree in Economics and Business Administration from the Complutense University of Madrid
- Certificate of Pedagogical Aptitude from the Complutense University of Madrid
- Master's Degree in Financial Management from ESIC
- Superior Technician in Occupational Risk Prevention: specialties in Occupational Safety, Industrial Hygiene and Ergonomics and Applied Psychosociology



Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"





## tech 20 | Structure and Content

#### Module 1. Integral Sustainability of Aviation

- 1.1. Cross-border vocation of aviation in its development
  - 1.1.1. Development and evolution of civil aviation
  - 1.1.2. ICAO as a regulatory actor and internationalization
  - 1.1.3. IATA coordination actor for airlines
- 1.2. Flag carriers and air transport agreements between countries
  - 1.2.1. From sport and general aviation to national strategic operators
  - 1.2.2. Intentional agreements between countries for commercial air transport
  - 1.2.3. The freedoms of the air
- 1.3. 20th Century: Own, Western or Eastern aircraft
  - 1.3.1. From national manufacturers to two duopolies and some state-owned giants
  - 1.3.2. The fastest or the largest
  - 1.3.3. New management models: manufacturer, maintainer and financier
- 1.4. Airline alliances, EUROCONTROL, AIRBUS and international airport concessions
  - 1.4.1. Airlines: from agreed route sharing, to competition and/or integration
  - 1.4.2. Alliances in European aviation favored by supranational integration
  - 1.4.3. From airports in a national network to groups with international concessions
- 1.5. Physical globalization: Navigating the sea and Virtual, navigating the network
  - 1.5.1. The adventure of navigating the earth in both directions
  - 1.5.2. Magellan and El Cano
  - 1.5.3. The global village
- 1.6. From green to integral sustainable development
  - 1.6.1. Ecologism
  - 1.6.2. Integral sustainable development
  - 1.6.3. SDGs and Agenda 2030
- 1.7. Comprehensive global and sustainable aviation
  - 1.7.1. Multinational and global aviation organizations
  - 1.7.2. Positive and negative impacts of aviation and on aviation
  - 1.7.3. The airport as a hub for the concentration of all aviation stakeholders

- 1.8. Economic-technical sustainability of aviation
  - 1.8.1 We are all "low cost", some are "low cost"
  - 1.8.2 Economic income for all and also social income for the "public"
  - 1.8.3. OACI. Generator of global technical standards
- 1.9. Social sustainability of aviation
  - 1.9.1. Generators of connectivity, wealth and employment
  - 1.9.2. From access for tourism to enabling emergency assistance
  - 1.9.3. Public dissemination of positive impacts unknown to society
- 1.10. Environmental sustainability of aviation
  - 1.10.1. Efficiency in consumption and reduction of acoustic and gaseous emissions
  - 1.10.2. Suppression, attenuation and compensation of negative impacts
  - 1.10.3. Aviation commitment and involvement to reduce carbon footprint

#### Module 2. Aviation Law: Regulation, Actors and Control Systems

- 2.1. International aviation regulation
  - 2.1.1. International regulation of Aviation Law Description and general characteristics
  - 2.1.2. ICAO as a Source of Air Law: Types of Source and Their Value: International conventions, technical instructions and recommendations
  - 2.1.3. Content of the ICAO regulatory framework: description of the international framework, airspace structure, service management, aeronautical personnel, environment and safety
- 2.2. European development of air law
  - 2.2.1. European aviation regulatory framework. Gestation process: liberalization of services, competition in the market and Single European Sky (1987)
  - 2.2.2. The main Directives and their content: access to markets and airlines, ground handling, airport slots and airport charges
  - 2.2.3. The current "European Aviation Strategy" (2017)
- 2.3. European regulation of the economic management of airports: Directive 2009/12/EC
  - 2.3.1. The European Pricing Directive: content, development and revision
  - 2.3.2. Positions of the actors of the system in the face of a possible reconsideration of the Directive
  - 2.3.3. Air traffic system charges

## Structure and Content | 21 tech

- 2.4. Rationale and issues of national regulations in aviation law
  - 2.4.1. Aeronautics as the basis of State Sovereignty
  - 2.4.2. Aeronautical development in the States
  - 2.4.3. Aviation safety control
- 2.5. Different players in the aeronautical services market. Management model
  - 2.5.1. The subjects of the air transport system: institutional actors and commercial companies Conditions for action: coexistence of regimes and forms of action
  - 2.5.2. General and sector regulations, impact of competition law and private regulations in a sector with a public component
  - 2.5.3. Characteristics of the European model of airport management. The management of airport networks. Other aeronautical services and their managers
- 2.6. The concession as a general framework for airport management
  - 2.6.1. Basis for the entry of non-institutional managers: Concession contract, management agreement or entrustment
  - 2.6.2. Detailed analysis of the airport concession: issues, forms and obligations of the parties
  - 2.6.3. Management through program-contracts: content and limits
- 2.7. Economic activities at airports: revenues and management indicators
  - 2.7.1. Economic activities at airports: Self-sufficiency of the system
  - 2.7.2. Aeronautical and commercial revenues. Economic regime
  - 2.7.3. Efficiency as a measure of management. Management Indicators
- 2.8. Control systems and areas of supervision
  - 2.8.1. Forms of control that go beyond the interventionist system. Control in operation and investment. Security controls. Economic control through program-contracts
  - 2.8.2. Control through independent agencies: the European system of ISAs. Its relationship with competition supervision mechanisms. A European example
  - 2.8.3. Alternatives to intervention: self-regulation through bilateral airport services contracts
- 2.9. Airlines and system resources
  - 2.9.1. The economic resources of the system and how they are managed. The role of the airlines as controllers
  - 2.9.2. IATA-ACI (2016) positions and discussions on airport competition
  - 2.9.3. Investment planning, development and financing processes

- 2.10. Current situation and challenges of airport economic management
  - 2.10.1. Reconsideration of the regulated economic system at European airports
  - 2.10.2. State of the art of the airport services market
  - 2.10.3. The current challenges of post-pandemic airport management

#### **Module 3.** Air transport: economics and management in the global marketplace

- 3.1. Transport economics framework, principles, efficiency and productivity
  - 3.1.1. Transport as a large system. Evolution and typologies
  - 3.1.2. Principles of transport economics
  - 3.1.3. Intermodal transport: weaknesses, strengths, value of time
- 3.2. Institutional and regulatory environment
  - 3.2.1. Structure of international air transport, global characteristics of the private environment
  - 3.2.2. International Agreements
    - 3.2.2.1. Multilateral and bilateral agreements
    - 3.2.2.2. Traffic rights, responsibilities
  - 3.2.3. Unique characteristics of commercial aviation
- 3.3. Air Transport Companie
  - 3.3.1. Company concepts, the value chain in air transport
  - 3.3.2. Typology of airlines

    Regional, network, charter, operators and integrators
  - 3.3.3. Air cargo, operational modalities
- 3.4. Cost, revenue and profit and loss management in a transport company
  - 3.4.1. Description, measurement and allocation of producer and user costs
  - 3.4.2. Revenues
    - 3.4.2.1. Pricing and pricing
    - 3.4.2.2.2.Management results
  - 3.4.3. Industry value chain and geographic impact
- 3.5. Air transport: the market
  - 3.5.1. Demand and supply
  - 3.5.2. Market structure
  - 3.5.3. Air transport magnitudes and their impact on society

## tech 22 | Structure and Content

3.6.	Infrastructure	management

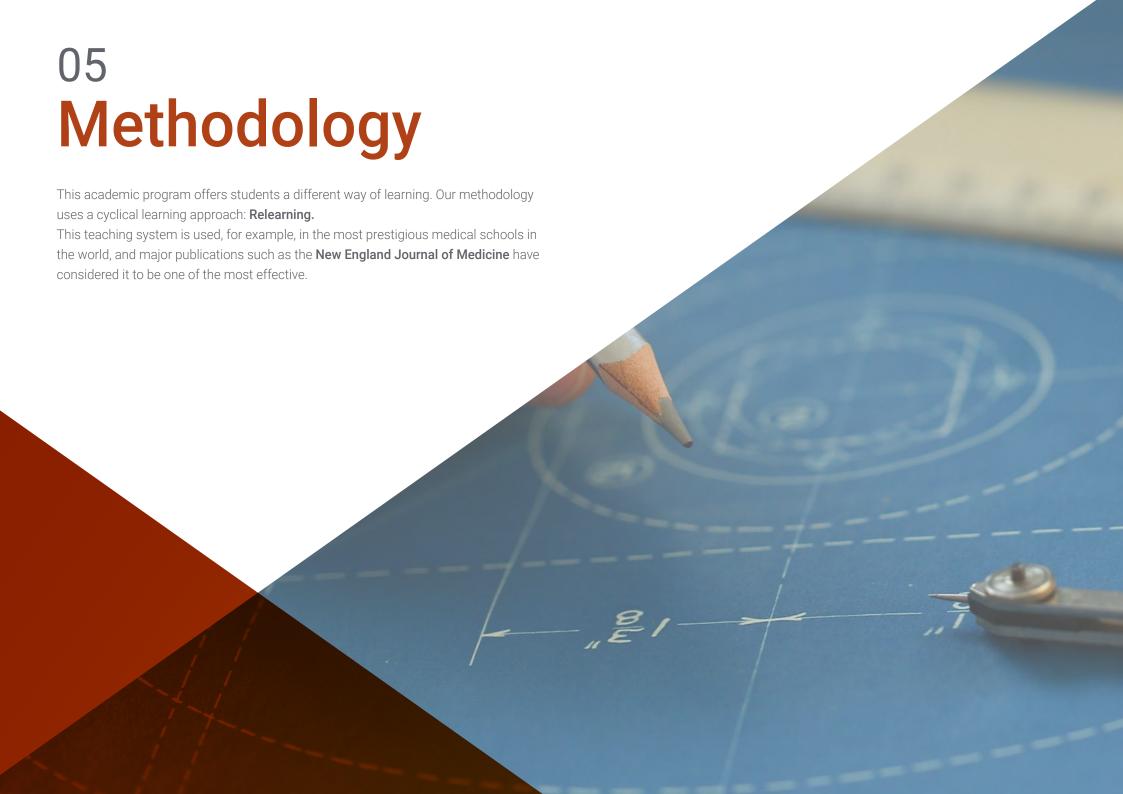
- 3.6.1. Investment in infrastructure. Investing in capacity
- 3.6.2. Economic factors in investment evaluation
- 3.6.3. Risk and cost-benefit analysis. Decision Making
- 3.7. Implications and consequences of air transport
  - 3.7.1. Effects on global development: global economy versus regional economy
  - 3.7.2. Extent of the "footprint" of air transport, consequences on other sectors
  - 3.7.3. Congestion and safety in air transport
- 3.8. Elements integrating the transport system, cooperation required
  - 3.8.1. Logistics Operators
  - 3.8.2. International Aviation Safety Agencies3.8.2.1. Commercial air transport operations
  - 3.8.3. Integration of the elements3.8.3.1. Airlines, administrators, air navigation service providers
- 3.9. Prospective trends
  - 3.9.1. Air transport in the 21st century. Liberalization trends
  - 3.9.2. Evolution of low cost and alliances
  - 3.9.3. Analysis of the future: short and medium term forecasts
- 3.10. Global market configuration
  - 3.10.1. International air navigation service providers: EUROCONTROL, COCESNA, CANSO
  - 3.10.2. Global market players: ICAO, WCO, UPU, UNDOC, IATA, ACI, Major operators
  - 3.10.3. Cargo Aircraft vs. Belly Freight







An academic option that will allow you to deepen your knowledge of existing international safety regulations in an agile way"





## tech 26 | Methodology

## 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.

## Methodology | 27 tech



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.

## tech 28 | Methodology

## 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.



## Methodology | 29 tech

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.





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.

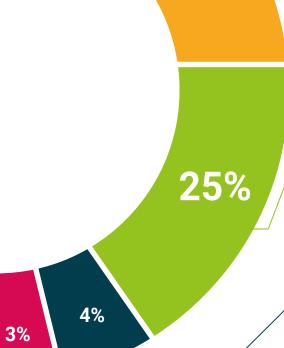


This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

## **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.





20%





## tech 34 | Certificate

This **Postgraduate Diploma in Integral Sustainability of Aeronautical Engineering** 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 Diploma** issued by **TECH Technological University** via tracked delivery\*.

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

Title: Postgraduate Diploma in Integral Sustainability of Aeronautical Engineering
Official N° of Hours: **450 h**.



<sup>\*</sup>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.

technological university



## Postgraduate Diploma Integral Sustainability of Aeronautical Engineering

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

