

# Postgraduate Certificate Aircraft Manufacturing and Maintenance





## Postgraduate Certificate Aircraft Manufacturing and Maintenance

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

Website: [www.techtute.com/pk/engineering/postgraduate-certificate/aircraft-manufacturing-maintenance](http://www.techtute.com/pk/engineering/postgraduate-certificate/aircraft-manufacturing-maintenance)

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# 01

# Introduction

The aviation industry is one of the most important sectors worldwide and its growth is unstoppable. Currently, there are more than 23,000 aircraft worldwide and the demand for new aircraft is expected to continue to increase in the coming years. Therefore, it is necessary to have highly qualified professionals in Aircraft Manufacturing and Maintenance. Thus, TECH offers an advanced syllabus to respond to the current needs of the engineers. Throughout the program, the students will be introduced to all phases of production, as well as design and certification specifications. All this taught in a 100% online format allows students to comfortably access academic resources and adapt the pace of study to their needs.





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*Enroll now in a university program that provides you with the most complete and current program on Aircraft Manufacturing and Maintenance”*

The aircraft manufacturing and maintenance sector is a key area where having highly qualified specialists in this sector is crucial to ensure the safety and efficiency of aircraft, as well as to remain competitive in the global market. According to data from the International Air Transport Association (IATA), the demand for air transport is expected to continue to grow by at least 3.5% annually, which translates into a growing need for aircraft and, therefore, for professionals trained in their manufacture and maintenance.

TECH's Postgraduate Certificate in Aircraft Manufacturing and Maintenance responds to the current needs of the engineers in this field, providing a rigorous and up-to-date syllabus that adapts to the demands of the industry and the needs of the students. This program provides the students with the necessary tools to master continuous and operational airworthiness, covering from design engineering to production supervision and aircraft maintenance.

In addition, this program is developed in a 100% online format, which allows students to access academic resources from anywhere and at any time, thus adapting to their needs and schedules. The effective *Relearning* pedagogical methodology that TECH employs in all its programs is used to help students integrate knowledge in a natural and progressive way, through explanatory videos, specialized readings, case study simulations and other didactic resources. This makes this program an unparalleled academic option for professionals seeking to improve their skills and competencies in this field.

This **Postgraduate Certificate in Aircraft Manufacturing and Maintenance** 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



*You will master the organization of continuing airworthiness maintenance with the most innovative teaching materials”*



“

*Enroll now in a flexible university education, which you can access whenever you want, from your device with an Internet connection”*

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 Postgraduate Certificate that in only 6 weeks will allow you to deepen in the maintenance of systems and components.*

*You have before you the unique opportunity to become an updated and specialized professional in the adequacy of specific approvals of the air operation.*



# 02

# Objectives

TECH has created a Postgraduate Certificate in Aircraft Manufacturing and Maintenance for engineers to obtain the necessary skills to excel in the highly competitive and specialized field of the aeronautical industry. Thus, this program is taught 100% online and with the most efficient teaching methodology, *Relearning*, allowing access to academic resources at any time and place, which is especially useful for those who seek to improve their training and combine it with other tasks. Through the most rigorous and up-to-date teaching, this academic program adapts to the needs of students and helps them achieve their professional goals.







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*Through 150 hours of the best contents, you will be able to identify the risks and uncertainties that may arise and make better decisions”*

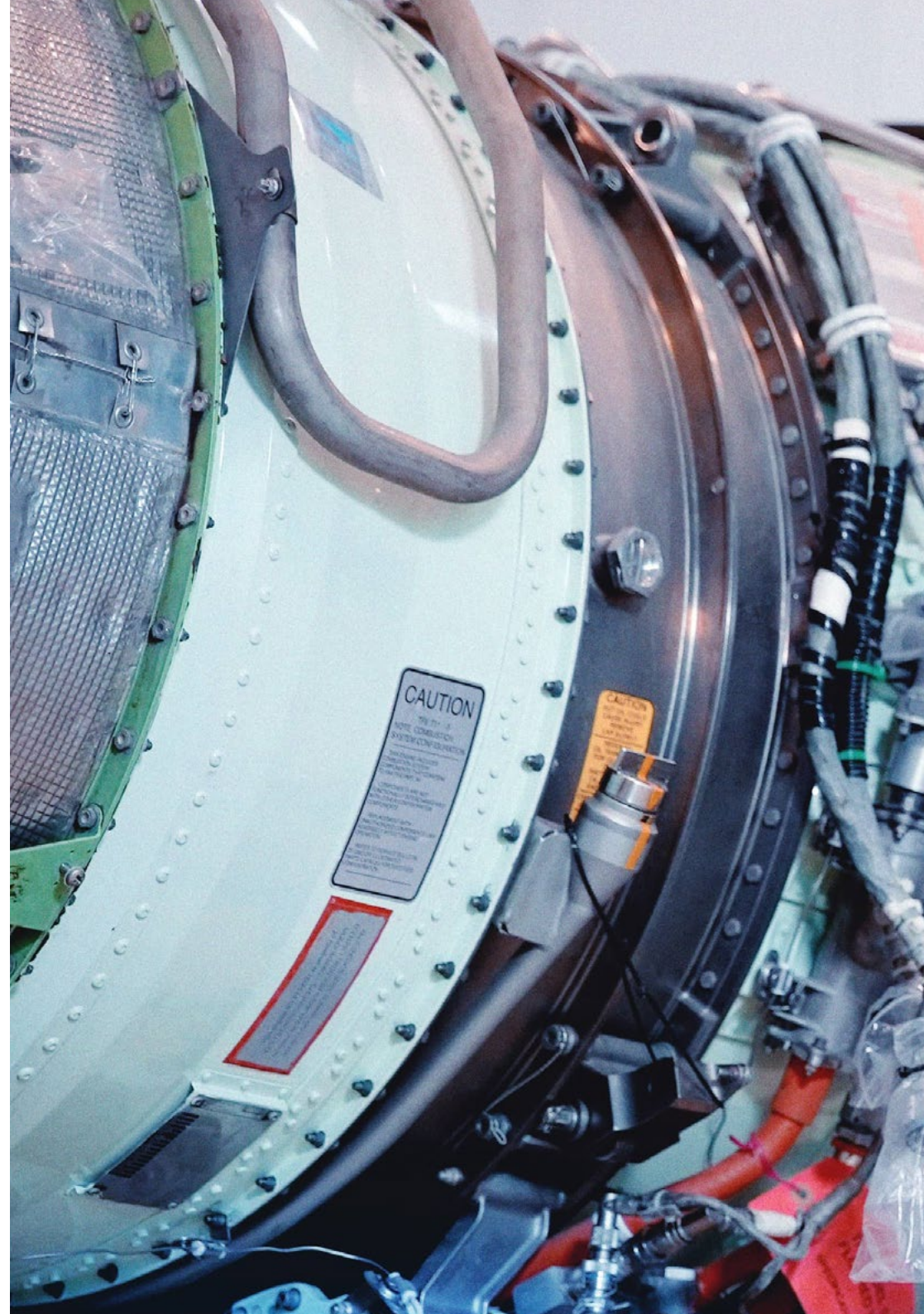




## General Objectives

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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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- ◆ Fundamentals of the industry concepts applied in these processes
- ◆ Establish a chronogram of events and decisions
- ◆ Substantiate the actions and decisions taken in each step of the production process
- ◆ Compile data of interest and particularities that occur throughout the process
- ◆ Identify the risks and uncertainties that arise in the different decision making processes
- ◆ Propose to the students the initiative to try to model alternative actions in order to evaluate possible outcomes
- ◆ Analyze whether there is room for substantial improvement in the phases presented

“

*Documentary bases, maintenance contracts, critical tasks...Everything you need to get up to date in this branch of Aeronautical Engineering is at your fingertips with this online program”*

# 03

# Course Management

The syllabus of this Postgraduate Certificate has been developed by recognized professionals in the aeronautical sector, which guarantees that the student will have access to updated and quality information on Aircraft Maintenance. The presence of a highly qualified faculty with extensive experience in the sector is a great advantage for the students who seeks to acquire the best knowledge with the best experts. In addition, the professional background of the teachers will be reflected in the completeness of the syllabus that will be made available to the students, offering a complete and rigorous didactic experience in this highly specialized field.







“

*Expand your skills with a teaching team specialized in the manufacture and maintenance of aircraft and with great professional experience”*

## 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. Morante Argibay, Antonio

- ◆ Airport Services Technician at Madrid Barajas Airport
- ◆ Responsible for operations and maintenance of telescopic fingers gangways at Madrid Barajas Airport
- ◆ Responsible for maintenance production of complex civil aircraft for air parcels: Aircraft: Boeing, Convair, Embarer, Cessna, Fairchild
- ◆ Responsible for maintenance of civil aircraft. Turbine, turboprop and propeller-driven internal combustion engines. Multi-turbine turbine and internal combustion engine helicopters. Aircraft: Cessna, Piper, Bell, Aeroespatale (now Airbus), Robinson
- ◆ Responsible for maintenance and repair of aircraft interiors
- ◆ Continuing Airworthiness Officer (CAMO) for civil aircraft (airplanes and helicopters)
- ◆ Project commissioner for the acquisition and maintenance of combat helicopters for the Spanish Army (FAMET)
- ◆ Responsible for landing gear overhaul maintenance for Airbus civil aircraft. Trains: Airbus A320 (family) and Airbus A330 / A340 fleets
- ◆ Manufacturing Engineer for military air refueling and multi role aircraft
- ◆ Professor of the Master's Degree in Aviation Safety and Aircraft Maintenance at the Colegio de Ingenieros Técnicos Aeronáuticos de España (Association of Aeronautical Technical Engineers of Spain)
- ◆ Graduate in Aeronautical Technical Engineering from the Polytechnic University of Madrid
- ◆ Graduate in Aerospace Engineering from the Polytechnic University of León



# 04

# Structure and Content

TECH, together with a team of renowned experts in Aeronautical Engineering have designed the syllabus of this program, which offers 150 hours of theoretical, practical and additional content in different audiovisual formats. TECH's exclusive methodology, *Relearning*, helps the students to integrate the information in a natural and progressive way, delving into topics of great relevance such as civil and military fleets. In addition, this program is taught in a fully online format, which allows the students to acquire the most advanced tools from any device with Internet connection and access the virtual campus 24 hours a day, making it a highly flexible academic option.







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*Learn through the revolutionary Relearning methodology and become a specialist in the legislation of a design organization”*

## Module 1. Aircraft Manufacturers and Maintenance

- 1.1. Market Analysis and Customer Conditions
  - 1.1.1. Request for Information (RFI)
  - 1.1.2. Manufacturer analysis
  - 1.1.3. Request for Purchase Order (RFP)
- 1.2. Design Organization
  - 1.2.1. Structure of a design organization. Legislation
  - 1.2.2. Design phases and certification specifications
  - 1.2.3. Systems Analysis
- 1.3. System Concurrency
  - 1.3.1. Motors and stand-alone power unit
  - 1.3.2. Landing gears
  - 1.3.3. Other on-board systems
- 1.4. Industrialization
  - 1.4.1. Structure of a production organization.. Legislation
  - 1.4.2. Phases of production
    - 1.4.2.1. Drawings and assembly instructions
    - 1.4.2.2. Installation and assembly on aircraft
    - 1.4.2.3. Functional tests on land
    - 1.4.2.4. Flight tests
  - 1.4.3. Certification phase with the Authority
    - 1.4.3.1. Introduction of documentation and reviews
    - 1.4.3.2. Onshore testing
    - 1.4.3.3. Flight tests and certification flights
    - 1.4.3.4. Issuance of Aircraft Type Certificate (TC)
  - 1.4.4. Customer delivery phase and (ToT)
  - 1.4.5. Media design and subcontracting
- 1.5. Continuing Airworthiness and Operation
  - 1.5.1. Continuous airworthiness
  - 1.5.2. Manuals and technical assistance services
  - 1.5.3. Operation
    - 1.5.3.1. In-flight operations
    - 1.5.3.2. Ground operations. *Handling*







- 1.6. Continuing Airworthiness Management Organization
  - 1.6.1. Air Operators (AOC)
  - 1.6.2. Continuing Airworthiness Maintenance Organizations (CAMO)
    - 1.6.2.1. Structure and Legislation
    - 1.6.2.2. Responsibilities and Programs
  - 1.6.3. Maintenance contracts
- 1.7. Aircraft Maintenance Program
  - 1.7.1. Documentary Bases
  - 1.7.2. Approval and updating of programs
  - 1.7.3. Compliance with specific air operation approvals
- 1.8. Aircraft Maintenance Organizations
  - 1.8.1. Structure and Legislation
  - 1.8.2. Technical capabilities and approvals
  - 1.8.3. Capabilities and designations
    - 1.8.3.1. Boroscopic Inspections
    - 1.8.3.2. Non-destructive testing of materials and structures
- 1.9. Critical Tasks
  - 1.9.1. Scheduled maintenance
  - 1.9.2. Special approvals
  - 1.9.3. Unwanted Objects (FO) AND (FOD)
- 1.10. Maintenance of Systems and Components
  - 1.10.1. Verification of equipment on bench
  - 1.10.2. **Overhaul**
    - 1.10.2.1. Engine hot sections
    - 1.10.2.2. Spectrometry of oils
    - 1.10.2.3. Fuel contamination analysis
  - 1.10.3. Civilian and military fleets. Differentiated maintenance

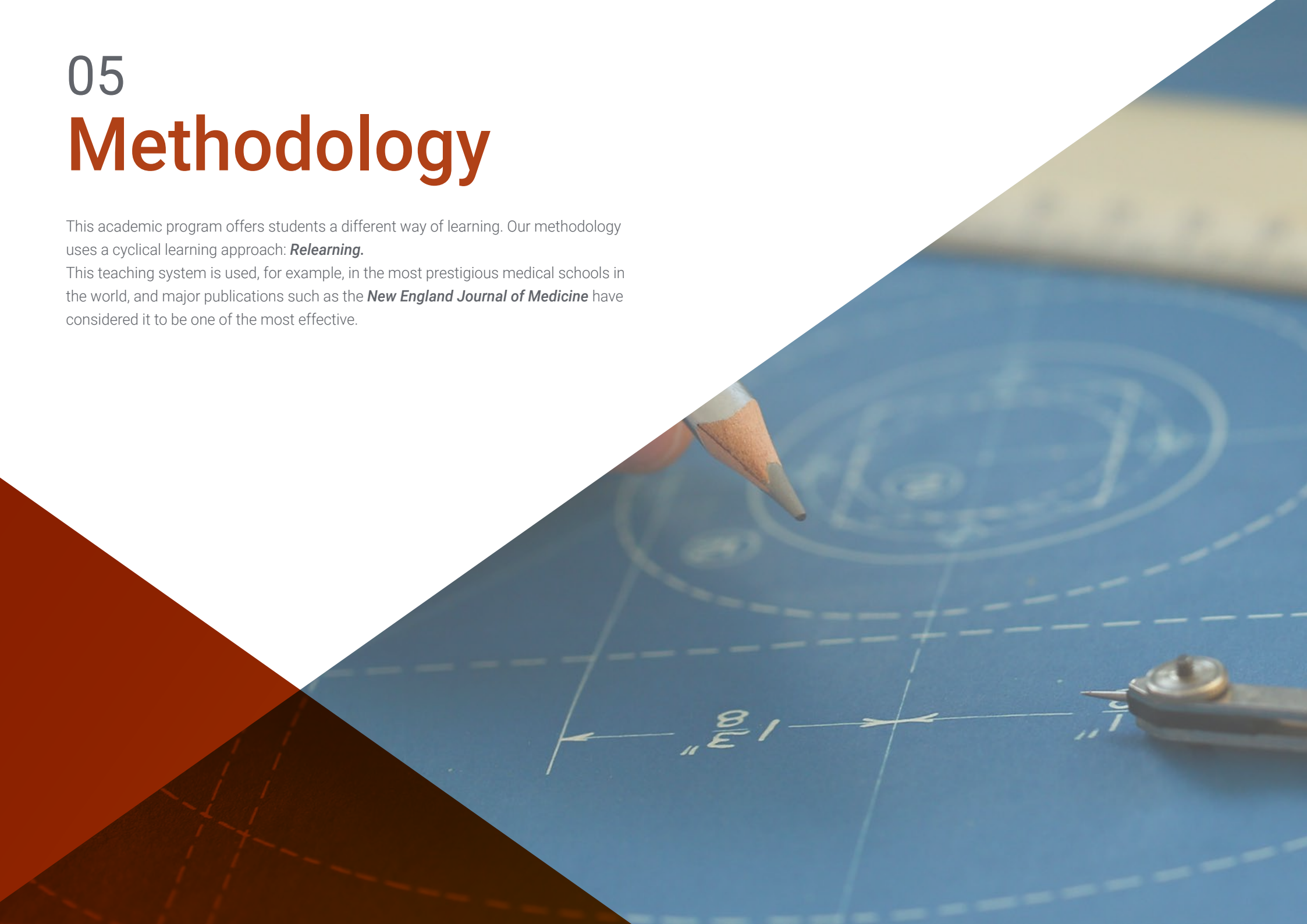
“ Incorporate advances in sustainable measures applied in aviation into your engineering projects ”

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.

“

*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 Aircraft Manufacturing and Maintenance guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





“

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

This **Postgraduate Certificate in Aircraft Manufacturing and Maintenance** 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 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 Aircraft Manufacturing and Maintenance**

Official N° of hours: **150 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.



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

**tech** technological  
university

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