Hybrid Master's Degree
Aviation Engineering

tech global university

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HybridMaster's Degree
Aviation Engineering

Modality: **Hybrid (Online + Internship)**
Duration: **12 months.**
Certificate: **TECH Global University**
Credits: **60 + 4 ECTS**
Website: **www.techtitute.com/us/engineering/hybrid-master/hybrid-master-aviation-engineering**

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01

Introduction to the Program

Aviation Engineering has evolved significantly in recent decades, driven by the integration of digital technologies, composite materials, and automation systems. Given this reality, professionals must frequently update their knowledge to incorporate the most modern tools into their practice, particularly to optimize tasks such as predictive maintenance. In this regard, they must adopt a strategic approach focused on performance optimization, environmental impact reduction, and operational safety. Only by doing so will they be able to adapt to the latest trends in the aerospace sector and provide efficient solutions. With this in mind, TECH presents an innovative university degree focused on the latest advancements in Aviation Engineering.

Thanks to this Hybrid Master's Degree, you will master the most modern tools in Aviation Engineering to design highly safe and efficient aeronautical systems"

According to a recent report from the International Air Transport Association, this sector is responsible for approximately 12% of global CO2 emissions. In this context, the need to reduce carbon emissions and improve energy efficiency has positioned sustainability as the core focus of Aviation Engineering. As a result, experts have the responsibility to handle the most modern strategies aimed at designing lighter aircraft, using biofuels, and incorporating hybrid propulsion systems. In doing so, they will actively contribute to the transition towards a cleaner, more efficient model aligned with global decarbonization goals for transport.

To address this, TECH has created an innovative Hybrid Master's Degree in Aviation Engineering. Designed by leading experts in the field, the academic itinerary will dive into topics ranging from the fundamentals of sustainable development and the basics of aviation law to the use of navigation systems. At the same time, the syllabus will focus on the use of cutting-edge technological tools such as artificial intelligence, automated border control stations, and zero-emission handling vehicles. In line with this, the educational materials will offer various strategies to optimize operational safety and air traffic management. Thanks to this, students will gain advanced skills to design and implement innovative solutions that increase the efficiency of aeronautical operations.

Moreover, the first stage of the program is based on a flexible 100% online format. This way, students will have the freedom to set their own schedules and pace of study. Additionally, TECH uses its disruptive Relearning methodology to ensure progressive, natural, and long-lasting learning. Furthermore, graduates will have the opportunity to undertake a 3-week practical internship at a prestigious institution highly specialized in the Aviation Engineering sector.

This **Hybrid Master's Degree in Aviation Engineering** contains the most complete and up-to-date university program on the market. Its most notable features are:

- Development of over 100 practical cases presented by professionals in Aviation Engineering
- Its graphic, schematic and practical contents provide essential information on those disciplines that are indispensable for professional practice
- All of this will be complemented by 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
- Furthermore, you will be able to carry out an internship in one of the best companies

You will lead innovation projects in areas such as airport infrastructure, urban mobility, and the integration of unmanned aircraft systems"

You will enjoy an Internship Program at a renowned entity focused on air transport and logistics operations management"

This Hybrid Master's Degree, with a professionalizing approach and hybrid format, is designed for the continuous development of professionals in Aviation Engineering. The content is based on the latest scientific evidence and is presented in a didactic manner to integrate theoretical knowledge into daily engineering practice. The theoretical and practical elements will facilitate knowledge updating and allow for strategic decision making.

Thanks to its multimedia content developed with the latest educational technology, the program will provide Aviation Engineering professionals with a situated and contextual learning environment, meaning a simulated setting that will offer immersive learning, preparing them for real-life situations. The design of this program is based on Problem-Based Learning, by means of which the student must try to solve the different professional practice situations that arise during the program. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts.

You will delve into the technical and operational principles that govern the management of aeronautical systems.

You will foster critical analysis and strategic decision-making in technological initiatives related to Aviation.

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Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs, available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it has a huge faculty of more than 6,000 professors of the highest international prestige.

Study at the largest online university in the world and ensure your professional success. The future begins at TECH"

The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future".

The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.

The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.

Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.

The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.

03
Syllabus

The educational materials that make up this university program have been developed by a group of experts with extensive experience in the aeronautical sector. As a result, the syllabus will explore key aspects ranging from the comprehensive sustainability of air transport to aircraft maintenance. Additionally, the syllabus will offer a variety of cutting-edge strategies to optimize operational safety of structures through modern air navigation systems. The educational materials will also dive into the handling of emerging technologies such as hybrid propulsion, anti-intrusion devices, and even applied artificial intelligence.

You will delve into the management of air navigation and propulsion systems, enabling you to significantly optimize air traffic safety"

Module 1. Comprehensive Sustainability in Aviation

1.1. The Cross-Border Nature of Aviation Development
 1.1.1. Development and Evolution of Civil Aviation
 1.1.2. ICAO: Regulatory Actor in Internationalization
 1.1.3. IATA: Coordination Actor for Airlines
1.2. Flag Carriers and Air Transport Agreements Between Countries
 1.2.1. From General Aviation to National Strategic Operators
 1.2.2. International Agreements for Commercial Air Transport
 1.2.3. Air Freedoms
1.3. 20th Century: Domestic Aircraft, Western or Eastern
 1.3.1. From National Manufacturers to Duopolies and State 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 Route Sharing to Competition and/or Integration
 1.4.2. Airline Alliances in Europe Favored by Supranational Integration
 1.4.3. From National Airport Networks to Groups with International Concessions
1.5. Physical Globalization: Navigating the Sea and the Network
 1.5.1. The Adventure of Navigating the Earth in Both Directions
 1.5.2. Magellan and Elcano
 1.5.3. The Global Village
1.6. From Green to Comprehensive Sustainable Development
 1.6.1. Ecologism
 1.6.2. Comprehensive Sustainable Development
 1.6.3. SDGs and Agenda 2030
1.7. Global and Sustainable Aviation in a Comprehensive Manner
 1.7.1. Multinational and Global Aviation Bodies
 1.7.2. Positive and Negative Impacts of Aviation
 1.7.3. Airports as Hubs for All Aviation Stakeholders
1.8. Economic-Technical Sustainability of Aviation
 1.8.1. Everyone is "Low Cost," Some Are "Low Price"
 1.8.2. Economic and Social Revenue for "Public" Entities
 1.8.3. ICAO (International Civil Aviation Organization). Generator of Global Technical Standards
1.9. Social Sustainability of Aviation
 1.9.1. Generators of Connectivity, Wealth, and Employment
 1.9.2. Access for Tourism and Emergency Assistance
 1.9.3. Publicizing Positive Impacts Unknown to Society
1.10. Environmental Sustainability of Aviation
 1.10.1. Efficiency in Consumption and Reduction of Acoustic and Gas Emissions
 1.10.2. Suppression, Mitigation, and Compensation of Negative Impacts
 1.10.3. Aviation's Commitment to Reducing the Carbon Footprint

Module 2. Aviation Law: Regulation, Stakeholders, and Control Systems

2.1. International Aviation Regulation
 2.1.1. International Aviation Law Regulation. Description and General Characteristics
 2.1.2. ICAO as a Source of Aviation Law: Types of Sources and Their Value: International Conventions, Technical Instructions, and Recommendations
 2.1.3. Content of the ICAO Normative Framework: Description of the International Framework, Airspace Structure, Service Management, Aircrew, Environment, and Safety
2.2. European Development of Aviation Law
 2.2.1. European Aviation Regulatory Framework. Development Process: Liberalization of Services, Market Competition, and the Single European Sky (1987)
 2.2.2. Main Directives and Their Content: Market Access, Airlines, Ground Handling, Slot Allocation, and Airport Charges
 2.2.3. The Current "European Aviation Strategy" (2017)
2.3. European Regulation of Airport Economic Management: Directive 2009/12/EC
 2.3.1. European Price Directive: Content, Development, and Revision
 2.3.2. Actors' Positions in the System Concerning a Possible Review of the Directive 2.3.3. Air Traffic Systems Fees
 2.3.3. Air Traffic Systems Fees
2.4. Fundamentals and Topics of National Aviation Law Regulations
 2.4.1. Aviation as the Basis for State Sovereignty
 2.4.2. Aeronautical Development in States

2.4.3. Control of Aviation Safety

2.5. Different Stakeholders in the Air Transport Services Market. Management Model

2.5.1. Subjects of the Air Transport System: Institutional Actors and Mercantile Companies Influencing Actions: Coexistence of Regimes and Methods of Action

2.5.2. General and Sector Regulations, Impact of Competition Law, and Private Law in a Public Sector-Oriented Industry

2.5.3. Features of the European Airport Management Model. Management of Airport Networks. Other Aeronautical Services and Their Managers

2.6. Concession as a General Framework for Airport Management

2.6.1. Foundation of the Entry of Non-Institutional Managers: Concession Contracts, Agreements, or Management Mandates

2.6.2. Detailed Analysis of Airport Concessions: Topics, Forms, and Obligations of the Parties

2.6.3. Management Through Program Contracts: Content and Limits

2.7. Economic Activities at Airports: Revenue and Management Indicators

2.7.1. Economic Activities at Airports: System Self-Sufficiency

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 Supervision Areas

2.8.1. Forms of Control Surpassing the Interventionist System. Operation and Investment Control. Security Controls. Economic Control Through Program Contracts

2.8.2. Control Through Independent Agencies: The European ISA System. Its Relationship with Competition Supervision Mechanisms. A European Example

2.8.3. Alternatives to Intervention: Self-Regulation Through Bilateral Airport Service Contracts

2.9. Airlines and System Resources

2.9.1. Economic Resources of the System and How They Are Managed. The Role of Airlines as Controllers

2.9.2. Positions and Debates IATA-ACI (2016) on Airport Competition

2.9.3. Planning, Development, and Investment Financing Processes

2.10. Current Situation and Challenges in Airport Economic Management

2.10.1. Reconsideration of the Regulated Economic System in European Airports

2.10.2. Current Situation of the Airport Services Market

2.10.3. Current Challenges in Post-Pandemic Airport Management

Module 3. Air Transport: Economy and Management in the Global Market

3.1. Framework of Transport Economics, Principles, Efficiency, and Productivity

3.1.1. Transport as a Large System. Evolution and Typologies

3.1.2. Principles in Transport Economics

3.1.3. Intermodal Transport: Weaknesses, Strengths, Time Value

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 Features of Commercial Aviation

3.3. Air Transport Company

3.3.1. Company Concepts, the Value Chain in Air Transport

3.3.2. Types of Airlines

3.3.2.1. Regional Airlines, Network, Charter, Operators, and Integrators

3.3.3. Air Cargo, Operational Modalities

3.4. Management of Costs, Revenues, and Results in a Transport Company

3.4.1. Description, Measurement, and Allocation of Costs for Producers and Users

3.4.2. Revenues

3.4.2.1. Price Setting and Tariffs

3.4.2.2. Management Results

3.4.3. Value Chain of the Industry and Geographical 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 Its Impact on Society

3.6. Management of Infrastructure

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 vs. Regional Economy
- 3.7.2. Scope of the Air Transport "Footprint," Consequences on Other Sectors
- 3.7.3. Congestion and Safety in Air Transport

3.8. Elements Integrating the Transport System, Necessary Cooperation
- 3.8.1. Logistics Operators
- 3.8.2. International Air Safety Agencies
  - 3.8.2.1. Commercial Air Transport Operations
- 3.8.3. Integration of Elements
  - 3.8.3.1. Airlines, Administrators, Air Navigation Service Providers

3.9. Trends and Perspectives
- 3.9.1. Air Transport in the 21st Century. Liberalizing Trends
- 3.9.2. Evolution of Low-Cost and Alliances
- 3.9.3. Future Analysis: Short and Medium-Term Forecasts

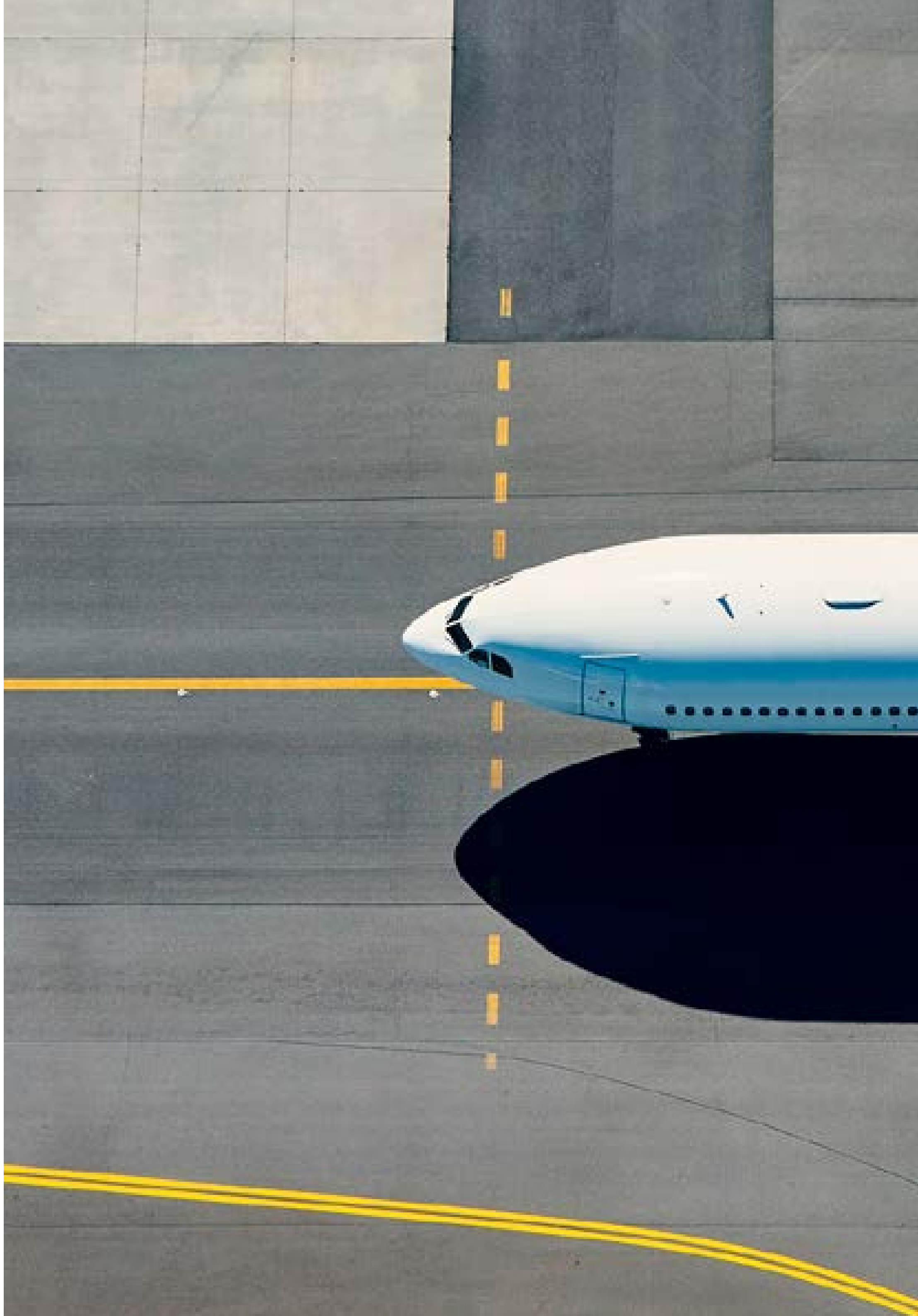
3.10. Configuration of the Global Market
- 3.10.1. International Air Navigation Service Providers: Eurocontrol, COCESNA, Canso
- 3.10.2. Agents in the Global Market: ICAO, OMA, UPU, UNDOC, IATA, ACI, Large Operators
- 3.10.3. Cargo Aircraft vs. *Belly Freight*

Module 4. Airport Protection and Its Environment: Integration of Evolving Models

4.1. The Airport System. Global Conception
- 4.1.1. Evolution of the Airport System Concept
- 4.1.2. Classification of Aerodromes Based on Their Environment
- 4.1.3. Feasibility of Adaptation to the Environment

4.2. Airport Design. Physical Factors Affecting the Design
- 4.2.1. Orography and Geology
- 4.2.2. Climatic Factors
- 4.2.3. Environmental factors

4.3. Regulatory Framework



4.3.1. Main Regulatory Bodies
4.3.2. Environmental Regulation
4.3.3. Regulation on Easements
4.4. Protection of Airport Operations
4.4.1. Radioelectrical Easements
4.4.2. Aerodrome Easements
4.4.3. Operational Easements
4.4.4. Obstacle-Free Zones
4.5. Protection of the Airport System's Environment
4.5.1. Environmental Protection
4.5.2. Noise Protection. Noise Maps and Acoustic Easements
4.5.3. Marine Airport Environments
4.5.4. Environmental Strategic Declarations/Documents
4.6. Characterization of Risks to Sustainable and Coordinated Development
4.6.1. Operational Risks
4.6.2. Environmental Risks
4.6.3. Economic Risks
4.7. Monitoring of Easements
4.7.1. Involved Agents and Their Functions
4.7.2. Monitoring Mechanisms
4.7.3. Activity Restrictions
4.7.4. Coordination Mechanisms
4.8. Intermodal Coordination
4.8.1. Evolution of Intermodality
4.8.2. Modal Spaces
4.8.3. Coordination with Ground Transportation
4.9. Socioeconomic Impact
4.9.1. Characterization of the Global Impact of Aviation on Society
4.9.2. The Role of International Associations in Global Development
4.9.3. Local Impact. Coordination Committees Between Airports and Surrounding Areas
4.10. Future Challenges in Airport Development

4.10.1. Operational Limitations and Traffic Growth
4.10.2. The Present and Rise of UAVs and Easement Monitoring
4.10.3. Risks of Urban and Aeronautical Innovations
4.10.4. Adaptation of the Regulatory Framework

Module 5. Security, Security Against Unlawful Acts in Civil Aviation, AVSEC

5.1. Security
5.1.1. Definition of Security (Security) according to Annex 17 of ICAO
5.1.2. History of Security
5.1.3. Evolution of Security Attacks/Measures
5.2. Regulations
5.2.1. Security Regulations
5.2.2. International Civil Aviation and EU Regulations
5.2.3. One-Stop Security and Other Agreements Between Countries
5.3. Facilitation vs. Security
5.3.1. Analysis of the Balance Between Security and Facilitation for the Proper Operation of Airport Operations
5.3.2. Existing Regulations
5.3.3. Necessary Equipment
5.4. Material Resources. Equipment
5.4.1. Available Equipment
5.4.2. Certification, Homologation
5.4.3. New Technologies
5.5. Material Resources. Facilities
5.5.1. Integrated Security Systems
5.5.2. Physical Means
5.5.3. Electronic Security Means
5.6. Infrastructure Planning
5.6.1. The Influence of Security on Airport Desig
5.6.2. Materials
5.6.3. Passenger Flows
5.6.4. Adequate Facilities for Security Systems
5.7. Human Resources
5.7.1. Training
5.7.2. Roles and Responsibilities
5.7.3. Management of Private Security Services
5.8. Security in Airlines
5.8.1. Aircraft
5.8.2. Facilities
5.8.3. Reference Regulations
5.8.4. Special Measures
5.9. Security in Air Cargo
5.9.1. Cargo
5.9.2. Mail
5.9.3. Onboard Supplies
5.9.4. Airport Supplies
5.10. Quality in Security
5.10.1. Quality Control Plan
5.10.2. Audits
5.10.3. Corrective Measures

Module 6. Airport Strategy and Commissioning of a New Airport

6.1. Airports within the Transport System
6.1.1. The Airport as a Key Node
6.1.2. Structure of the Airport Industry
6.1.3. The Operational Environment of Airports
6.2. Physical Characteristics of Infrastructure
6.2.1. The Movement Area of an Aerodrome
6.2.2. Passenger Terminal Buildings
6.2.3. Ancillary facilities for airport activities
6.3. Business Models and Airport Strategy
6.3.1. The Airport Business and Exploitation Models
6.3.2. Commercial Activity
6.3.3. Development of New Routes
6.4. Airport Demand Analysis

6.4.1. Air Transport Demand
6.4.2. Variables Involved in Demand Analysis
6.4.3. Fundamental Methodologies for Airport Traffic Forecasting

6.5. Airport Capacity Analysis
6.5.1. Airport Infrastructure Capacity
6.5.2. Variables Involved in Airport Capacity
6.5.3. Fundamental Methodologies for Calculating Airport Capacity

6.6. Congestion, Delay, and Capacity-Demand Management
6.6.1. Service Quality and Delay
6.6.2. Strategies for Managing Airport Capacity and Demand
6.6.3. Slot Coordination

6.7. Stakeholders in the Airport Environment
6.7.1. Identification of Stakeholders
6.7.2. Characterization of Stakeholders
6.7.3. Management and Handling of Stakeholders

6.8. Aerodrome Certification
6.8.1. The Importance of Aerodrome Certification
6.8.2. The Aerodrome Certification Process
6.8.3. Aeronautical Safety Studies

6.9. Airport Economic Regulation
6.9.1. Economic Regulation Models in Airports
6.9.2. Performance Measures and Airport Benchmarking
6.9.3. Airport Competition and the Role of Marketing

6.10. Commissioning a New Airport and Operational Transition
6.10.1. The Sequence of Actions in a New Airport Infrastructure
6.10.2. Commissioning a New Infrastructure
6.10.3. Operational Transition and System Integration

Module 7. Air Navigation Systems

7.1. Air Navigation Systems
7.1.1. Air Navigation. Key Concepts
7.1.2. CNS/ATM System. Key Concepts
7.1.3. Air Navigation Services

7.2. Aeronautical Communication Systems: From Sea to Air
7.2.1. Communications Systems and Services
7.2.2. Aeronautical Fixed Service
7.2.3. Aeronautical Mobile Service
7.2.4. Future of Air Communications

7.3. Navigation Systems: Precision
7.3.1. Autonomous Systems
7.3.2. Non-Autonomous Systems
7.3.3. Augmentation Systems

7.4. Surveillance Systems. Traffic Monitoring Tool
7.4.1. Surveillance Functions and Systems
7.4.2. Contribution of Radar to the Development of Aviation
7.4.3. Dependent Surveillance (ADS): Justification and Application
7.4.4. Multilateration: Advantages and Applications

7.5. Extension of Flight Paths via Area Navigation
7.5.1. The PBN Concept
7.5.2. RNAV/RNP Relationship
7.5.3. Advantages of the PBN Concept

7.6. AFTM Management
7.6.1. AFTM Principles in Europe
7.6.2. Traffic Flow Management: Need for Centralization and Objectives
7.6.3. ATFCM-CFMU Systems and Their Phases

7.7. ASM Service: Airspace Management
7.7.1. ASM Service: FUA Concept (Flexible Use of Airspace)
7.7.2. Airspace Management Levels and Structure
7.7.3. Airspace Management Tools

7.8. ATS Services: Safety and Efficiency in Air Traffic
- 7.8.1. Air Traffic Control History
- 7.8.2. Air Traffic Control Service
- 7.8.3. FIS/AFIS Information Service
- 7.8.4. Flight Progression Sheet: From Bay of Sheets to OSF

7.9. Other ATS Services: MET and AIS
- 7.9.1. Meteorological Service: Products and Distribution
- 7.9.2. AIS Service
- 7.9.3. ATS Service Messages: Formats and Transmission

7.10. Current and Future Situation. Impact of New CNS/ATM Systems
- 7.10.1. New CNS Systems
- 7.10.2. Benefits and Implementation
- 7.10.3. Expected Future of Air Navigation Systems

Module 8. Aircraft Propulsion Systems

8.1. Principles of Aircraft Propulsion
- 8.1.1. History of Aircraft Propulsion
- 8.1.2. Conservation Equations. Definition of Thrust
- 8.1.3. Propulsive Efficiency

8.2. Aircraft Propulsion Systems
- 8.2.1. Types of Propulsion Systems
- 8.2.2. Comparative Analysis
- 8.2.3. Applications

8.3. Propeller Propulsion
- 8.3.1. Propeller Performances
- 8.3.2. Architecture of the Piston Engine
- 8.3.3. Turbocharging

8.4. Aircraft Piston Engines
- 8.4.1. Thermodynamic Analysis of the Engine
- 8.4.2. Power Control
- 8.4.3. Performance

8.5. Basic Elements of Jet Engines
- 8.5.1. Turbomachinery. Compressor and Turbine
- 8.5.2. Combustion Chambers
- 8.5.3. Air Intakes and Nozzles
- 8.5.4. Thermodynamic Analysis of Turbojets

8.6. Turbojets
- 8.6.1. Turbojet Operating Model
- 8.6.2. Performance
- 8.6.3. Afterburners

8.7. Turbofan
- 8.7.1. Why the Evolution from Turbojet to Turbofan
- 8.7.2. Turbofan Operating Model
- 8.7.3. Performance

8.8. Turboprop and Turboshafts
- 8.8.1. Architecture of Turboprops and Turboshafts
- 8.8.2. Turboshaft Operating Model
- 8.8.3. Performance

8.9. Rocket Engines and Other High-Speed Systems
- 8.9.1. Propulsion in Special Conditions
- 8.9.2. The Ideal Rocket Engine
- 8.9.3. Ramjets and Other Applications

8.10. Environmental Aspects of Aircraft Engines
- 8.10.1. Pollution from Aircraft Engines
- 8.10.2. Use of Alternative Fuels
- 8.10.3. Electric Propulsion

Module 9. Aircraft Manufacturers and Maintenance

9.1. Market Analysis and Customer Conditions
 9.1.1. Request for Information (RFI)
 9.1.2. Manufacturer Analysis
 9.1.3. Request for Proposal (RFP)
9.2. Design Organization
 9.2.1. Structure of a Design Organization. Legislation
 9.2.2. Design Phases and Certification Specifications
 9.2.3. Systems Analysis
9.3. System Compatibility
 9.3.1. Engines and Autonomous Power Units
 9.3.2. Landing Gear
 9.3.3. Other Embedded Systems
9.4. Industrialization
 9.4.1. Structure of a Production Organization. Legislation
 9.4.2. Production Phases
  9.4.2.1. Drawings and Assembly Instructions
  9.4.2.2. Installation and Assembly in Aircraft
  9.4.2.3. Ground Functional Tests
  9.4.2.4. Flight Tests
 9.4.3. Certification Phase with the Authority
  9.4.3.1. Submission of Documentation and Reviews
  9.4.3.2. Ground Tests
  9.4.3.3. Flight Tests and Certification Flights
  9.4.3.4. Issuance of Aircraft Type Certificate (TC)
 9.4.4. Customer Delivery Phase and (ToT)
 9.4.5. Design of Media and Subcontracting
9.5. Ongoing Airworthiness and Operation
 9.5.1. Ongoing Airworthiness
 9.5.2. Manuals and Technical Assistance Services
 9.5.3. Operation
  9.5.3.1. ight Operations
  9.5.3.2. Ground Operations *Handling*
9.6. Organization of Ongoing Airworthiness Maintenance
 9.6.1. Air Operators (AOC)
 9.6.2. Continuing Airworthiness Maintenance Organizations (CAMO)
  9.6.2.1. Structure and Legislation
  9.6.2.2. Responsibilities and Programs
 9.6.3. Maintenance Contracts
9.7. Aircraft Maintenance Program
 9.7.1. Document Base
 9.7.2. Program Approval and Updates
 9.7.3. Compliance with Specific Air Operations Approvals
9.8. Aircraft Maintenance Organizations
 9.8.1. Structure and Legislation
 9.8.2. Technical Capabilities and Approvals
 9.8.3. Capabilities and Designations
  9.8.3.1. Borescopic Inspections
  9.8.3.2. Non-Destructive Testing of Materials and Structures
9.9. Critical Tasks
 9.9.1. Scheduled Maintenance
 9.9.2. Special Approvals
 9.9.3. Foreign Objects (FO) and Foreign Object Damage (FOD)
9.10. Systems and Components Maintenance
 9.10.1. Equipment Bench Verification
 9.10.2. *Overhaul*
  9.10.2.1. Engine Hot Sections
  9.10.2.2. Oil Spectrometry
  9.10.2.3. Fuel Contamination Analysis
 9.10.3. Civil and Military Fleets. Differentiated Maintenance

Module 10. Technological Innovations and Aeronautical Operations

10.1. Unmanned Aircraft Systems (UAS)
- 10.1.1. Historical Evolution of Unmanned Aircraft Systems
- 10.1.2. Types of Unmanned Aircraft Systems
- 10.1.3. Industry and Leading Manufacturers of Unmanned Aircraft Systems

10.2. Urban Air Mobility (UAM)
- 10.2.1. The Future of Mobility in Cities
- 10.2.2. Integration of Unmanned Aircraft Systems into Conventional Airspace
- 10.2.3. Innovative Projects in Urban Air Mobility

10.3. Innovative Infrastructure for Unmanned Aircraft Systems
- 10.3.1. Operating Infrastructures. Vertiports
- 10.3.2. Control Centers for Unmanned Aircraft Systems
- 10.3.3. Anti-intrusion Systems for Unmanned Aircraft Systems

10.4. New Air Traffic Control Systems
- 10.4.1. Remote Control Tower Technology
- 10.4.2. Leading Developers of Remote Tower Technologies
- 10.4.3. NA Service Providers Pioneering the Use of Remote Towers

10.5. New Propulsion Sources for Aircraft
- 10.5.1. Electric Propulsion Systems
- 10.5.2. Hydrogen Propulsion Systems
- 10.5.3. SAF Propulsion Systems

10.6. Innovation in Operational Procedures
- 10.6.1. Conventional Approach Procedures
- 10.6.2. Trombone Approach Procedures
- 10.6.3. Point Merge System Approach Procedure

10.7. Technologies Applicable to Airport Security
- 10.7.1. Automated Border Control Posts (ABC)
- 10.7.2. Implementation of Biometric Systems
- 10.7.3. Security Information Management Platforms (SIMP)

10.8. Innovations in Ground Support Equipment
- 10.8.1. Aircraft Services through Tunnels with Retractable Ports on the Platform
- 10.8.2. Zero-Emission Propulsion Ground Handling Vehicles
- 10.8.3. Artificial Intelligence in Improving Passenger and Aircraft Assistance Processes

10.9. Airports and Renewable Energy
- 10.9.1. Renewable Energy Applied to Airport Infrastructure
- 10.9.2. Sustainable Airport Management (Net-Zero 2050)
- 10.9.3. Airports as an Energy Solution for Their Environment

10.10. Innovations in the Use of Airport Infrastructure
- 10.10.1. Airports as Aircraft Parking Platforms
- 10.10.2. Airports for Aircraft Maintenance and Recycling
- 10.10.3. Airports as Platforms for Space Launches

You will be able to design airport infrastructures based on strict criteria of efficiency, protection, and long-term sustainability"

04

Teaching Objectives

The design of this Hybrid Professional Master's in Aviation Engineering will enable students to acquire advanced skills centered on the design, maintenance, and operation of aviation systems. In this regard, graduates will master the use of cutting-edge technological tools to optimize complex processes such as inspection, structural analysis, and operational management. Thanks to this, they will be highly prepared to take on strategic roles of greater relevance in a booming sector.

You will stand out for your ability to integrate environmental criteria into the planning and operation of air transport"

General Objective

- The main objective of this university degree is to help professionals perfect their technical skills in the design, maintenance, and operation of aviation systems. To achieve this, the academic syllabus includes a practical internship at a renowned institution within the aviation engineering sector. This will allow students to stay at the forefront of the latest advances in this field and enhance their ability to respond to the current challenges of the sector.

With the disruptive Relearning methodology applied by TECH, you will integrate all concepts in a natural and progressive manner. Forget about memorizing!

Specific Objectives

Module 1. Comprehensive Sustainability in Aviation
- Evaluate the environmental impact of the aviation sector and the most sophisticated strategies to reduce its carbon footprint
- Analyze the development and implementation of sustainable fuels in aviation systems

Module 2. Aviation Law: Regulation, Stakeholders, and Control Systems
- Identify the main regulatory bodies and their influence on global aviation
- Examine the legal framework applicable to aircraft safety and operations

Module 3. Air Transport: Economy and Management in the Global Market
- Analyze the economic factors that affect both airline profitability and airport operations.
- Develop strategies for optimizing costs and resources in the aviation industry

Module 4. Airport Protection and Its Environment: Integration of Evolutionary Models
- Design security and access control plans for airport infrastructures
- Evaluate strategies for integrating airports with their urban and environmental surroundings

Module 5. Security, Security Against Unlawful Acts in Civil Aviation, AVSEC
- Apply preventive measures and responses to aviation security threats
- Analyze crisis management protocols for events of unlawful interference

Module 6. Airport Strategy and Commissioning of a New Airport
- Design strategies for the planning, construction, and commissioning of airports
- Precisely evaluate the operational and financial feasibility of new airport infrastructures

Module 7. Air Navigation Systems
- Examine the operation of air navigation systems and their technological evolution
- Apply air traffic management tools to optimize safety and operational efficiency

Module 8. Aircraft Propulsion Systems
- Analyze the operation and maintenance of conventional aircraft engines
- Explore new propulsion technologies and their impact on sustainability.

Module 9. Aircraft Manufacturers and Maintenance
- Evaluate the manufacturing and assembly processes of commercial and military aircraft
- Apply preventive and corrective maintenance protocols to ensure operational safety

Module 10. Technological Innovations and Aeronautical Operations
- Identify the main technological trends in the aviation industry and their application in operations.
- Analyze the impact of digitalization and automation on the sector's efficiency and safety.

05

Internship

Once the online theoretical stage has been completed, this university program includes an internship at a leading company in the field of Aviation Engineering. During this immersive experience, graduates will receive support from an experienced tutor who will provide individualized guidance to ensure maximum benefit from the activities.

You will undertake an internship at a renowned entity in the aviation sector, where you will participate in tasks related to the design and maintenance of systems"

The practical internship phase of this Aviation Engineering program consists of a 3-week internship at a prestigious entity, with full-time Monday to Friday 8-hour workdays, alongside an experienced tutor. This internship will allow students to apply all the knowledge acquired in a real work environment. In this way, graduates will develop advanced competencies in the operation, maintenance, analysis, and improvement of aerospace systems.

It is worth noting that the activities focus on the development and optimization of the skills needed for technical performance in complex aviation environments. Additionally, the internship is aimed at specific professional training under real operational conditions, prioritizing safety in procedures, technical precision, and high-level performance in modern aviation systems.

Without a doubt, students are presented with an ideal opportunity to enhance their knowledge in an institution where real-time monitoring, performance optimization, and technological innovation are core aspects of its professional culture.

The practical phase will involve active participation, with the student performing the tasks and procedures of each area of competence (learning to learn and learning to do), supported by professors and other training colleagues who will foster teamwork and multidisciplinary integration as cross-cutting skills for the practice of Aviation Engineering (learning to be and learning to relate).

The procedures described below will be the basis of the practical part of the Internship Program, and its realization will be subject to the center's own availability and workload, being the proposed activities the following:

Module	Practical Activity
Environmental Management in Aviation	Design lighter and more efficient aeronautical components
	Handle cutting-edge technologies that reduce fuel consumption, including composite materials or hybrid systems
	Evaluate the carbon footprint of ground operations and propose cutting-edge mitigation plans
	Create comprehensive sustainability audits in compliance with current international regulations and report key indicators such as CO2 emissions
Strategic planning for airport growth	Analyze the interaction between airport growth and surrounding urban development
	Propose zoning and land-use models compatible with airport operations
	Develop and implement predictive models for urban growth and air traffic to anticipate long-term impacts
	Rigorously apply regulations protecting against incompatible activities such as unauthorized construction, light pollution, or drone usage
Advanced air navigation techniques	Supervise the technical operation of ground-based radio aids and satellite navigation systems
	Perform inspection, calibration, and preventive maintenance tasks on equipment to ensure operational continuity
	Early identification of potential risks associated with air navigation in different flight phases (departure, en-route, approach, and landing)
	Run simulations to validate new navigation procedures in controlled conditions
Aerospace design, assembly, and maintenance	Participate in the structural, aerodynamic, and functional design of both aircraft and their components
	Implement electrical, hydraulic, propulsion, and avionics systems in accordance with current international standards
	Ensure compliance with quality standards and tolerances in each phase of assembly
	Validate aircraft conformity before entering service or after major repairs

Civil Liability Insurance

The university's main concern is to guarantee the safety of the interns, other collaborating professionals involved in the internship process at the center. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, the university commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the stay at the internship center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the Internship Program period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.

General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Hybrid Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, five days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who complete the Hybrid Master's Degree will receive a diploma accrediting their attendance at the institution.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

06

Internship Centers

Below are some of the internship centers selected by TECH for this program. However, if none of these meets your expectations or needs, TECH is committed to managing the formalization of an agreement with an entity that aligns with your preferences, thereby ensuring a fully personalized experience.

You will undertake an internship at a renowned institution in the Aviation Engineering sector"

The student will be able to complete the practical part of this Hybrid Master's Degree at the following centers:

Maxterdrone Calle Oslo

Country	City
Spain	Madrid

Address: Calle Oslo 20, Las rozas

Drone design company aimed at the commercialization of transportation vehicles

Related internship programs:

- Aviation Engineering

Engineering

Maxterdrone Calle Copenhague

Country
Spain

City
Madrid

Address: Calle Copenhague 6, oficina 5, Las rozas

Drone design company aimed at the commercialization of transportation vehicles

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Related internship programs:

- Aviation Engineering

Engineering

Avintair

Country
Spain

City
Barcelona

Address: Ctra. Bellaterra, sn Hangar 7B (Aeropuerto de Sabadell) 08205 Sabadell

Aerospace company specializing in diagnosing technical and administrative issues in aircraft

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Related internship programs:

- Aviation Engineering

07

Career Opportunities

This exclusive academic proposal from TECH is an unparalleled opportunity for all professionals who wish to stay at the forefront of Aviation Engineering applications. Upon completion, students will stand out for their comprehensive knowledge of the processes linked to the design, maintenance, and analysis of advanced aerospace systems. In addition, they will be fully equipped to apply emerging technologies such as computational simulation and automation in complex aviation environments. Moreover, they will remain at the forefront of the most modern techniques to optimize air operation flows and actively contribute to the development of both sustainable and safe solutions.

Do you want to work as an Aerospace Systems Technician? Achieve this through this comprehensive university degree in just 12 months"

Graduate Profile

Graduates of this Hybrid Master's Degree will be highly skilled specialists prepared to face the technological and operational challenges of today's aviation sector. At the same time, they will have advanced skills to analyze, design, maintain, and optimize aviation systems. All of this will be done rigorously applying current international standards and using the latest digital tools. Furthermore, students will be prepared to implement innovative solutions that enhance the efficiency and safety of air operations.

You will oversee the design and maintenance of various aerospace components to ensure their functionality under high operational safety standards.

- **Technological Integration in Aviation Environments:** Ability to integrate advanced technologies (such as computational simulation, data analysis, and automation) into key aviation engineering processes; thereby improving efficiency and operational safety.
- **Solving Complex Technical Problems:** Ability to apply critical thinking to identify and solve challenges related to the design, maintenance, and operation of aircraft.
- **Commitment to Aviation Safety and Standards:** Responsibility for strictly complying with current international regulations; ensuring the structural, operational, and environmental integrity of aerospace systems.
- **Multidisciplinary Collaboration in the Aerospace Sector:** Competence to work effectively in teams composed of engineers, technicians, and managers; promoting innovation and collaborative decision-making in complex aviation projects.

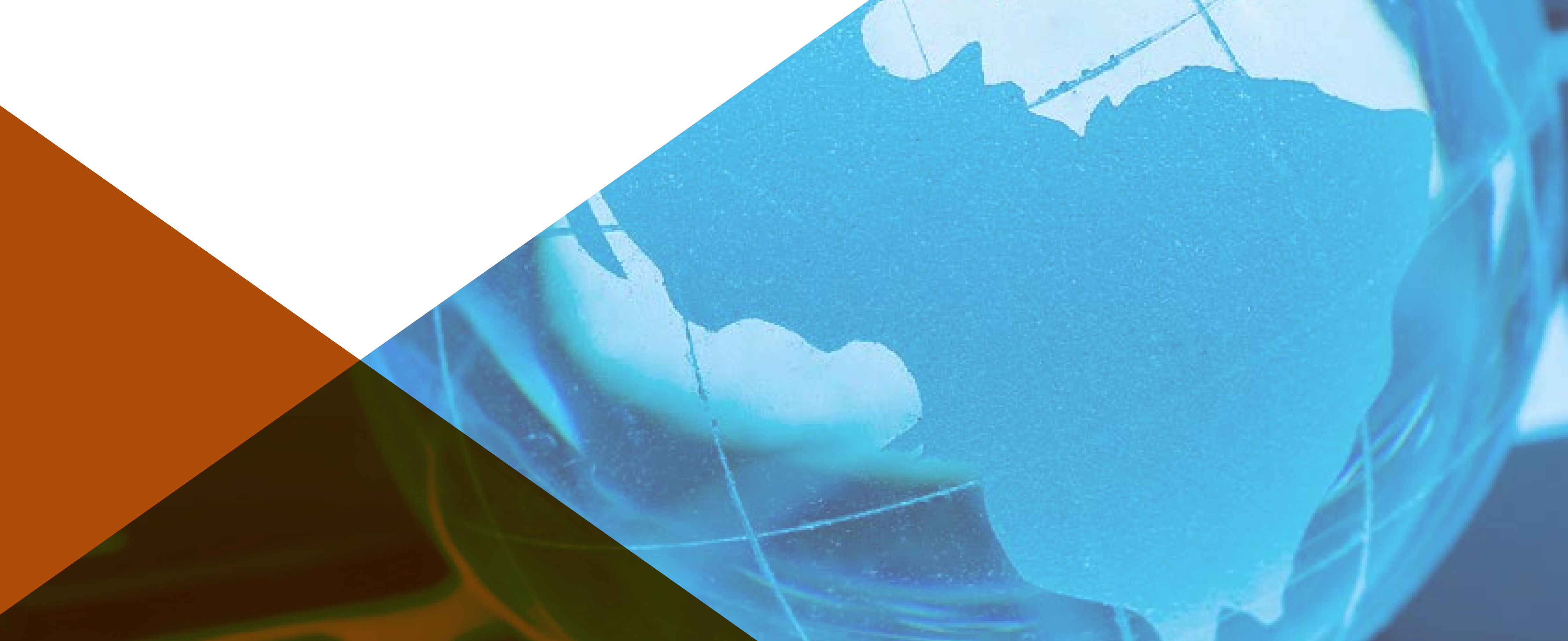
After completing the university program, you will be able to apply your knowledge and skills in the following positions:

1. **Specialized Aerospace Systems Technician:** Responsible for the design, supervision, and maintenance of complex aerospace components to ensure their functionality under the most demanding international standards.
   Responsibilities: Perform technical diagnostics, structural inspections, and performance tests on aircraft, documenting each intervention in accordance with current regulations.
2. **Advisor in Intelligent Aviation Technologies:** Responsible for guiding aerospace companies in adopting emerging technologies to optimize operational efficiency and sustainability of processes.
   Responsibilities: Evaluate the technical and economic feasibility of solutions such as hybrid propulsion, predictive maintenance, or automation, proposing strategic improvements based on data.
3. **Consultant in Airport Management and Operational Safety:** Dedicated to the analysis and optimization of airport operations with an emphasis on safety, air traffic management, and regulatory compliance.
   Responsibilities: Design process improvement plans, advise on current international regulations (such as ICAO), and coordinate both technical and operational audits.
4. **Aerospace Engineering Project Manager:** Leads multidisciplinary technical teams in the planning, execution, and evaluation of innovation, design, or maintenance projects in the aerospace sector.
   Responsibilities: Supervise schedules, assign technical and human resources, and ensure the achievement of objectives, quality, and budget compliance in complex aerospace environments.

08
Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.



TECH will prepare you to face new challenges in uncertain environments and achieve success in your career"

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.
The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

"At TECH you will NOT have live classes (which you might not be able to attend)"

The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want"

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.

Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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

A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.

The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule”

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.

As such, the best educational materials, thoroughly prepared, will be available in this program:

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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.

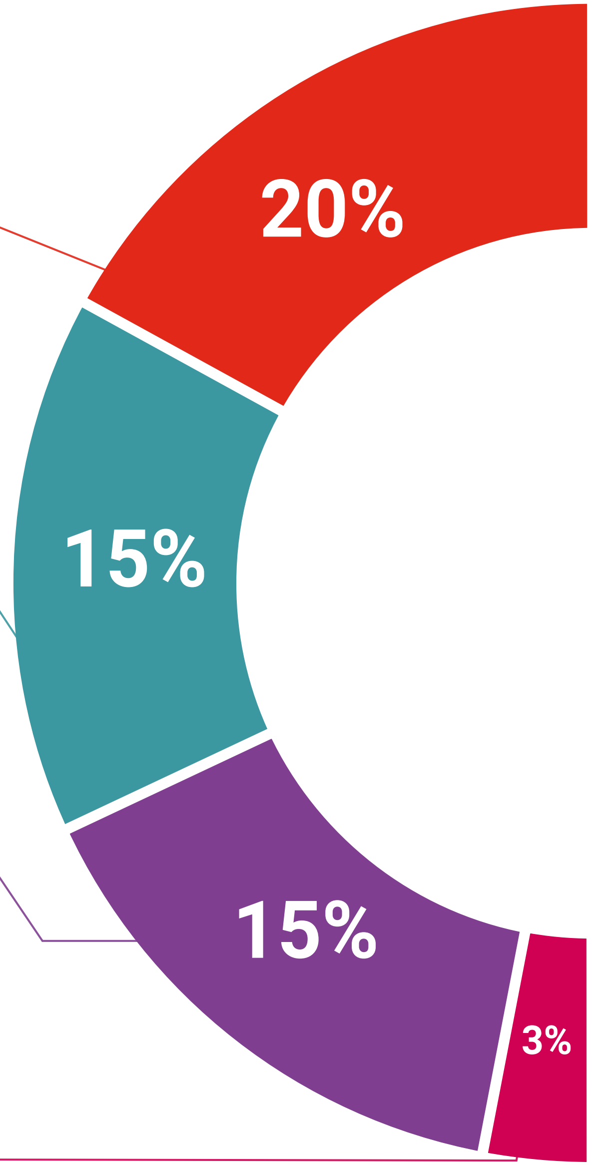
Interactive Summaries

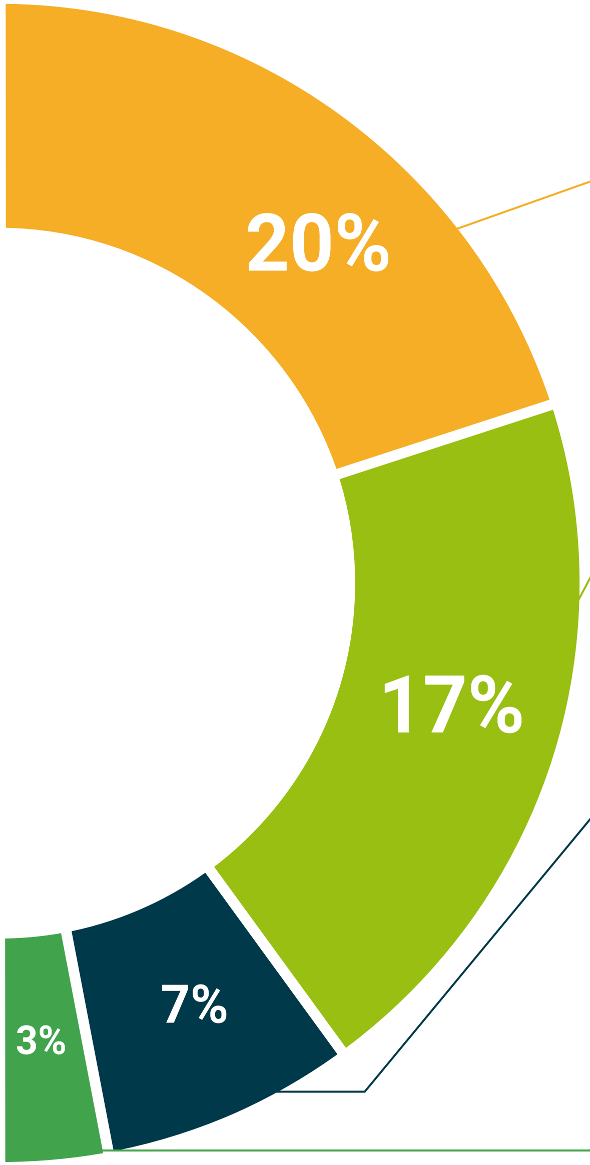
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

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 for future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.

09

Teaching Staff

The main principle of TECH is to offer the most up-to-date, practical, and comprehensive university degrees in the academic market. To achieve this, it conducts a thorough process to select its teaching staff. As a result, this Hybrid Master's Degree includes the participation of true leaders in the field of Aviation Engineering. These specialists have developed a variety of educational resources that stand out for both their exceptional quality and their adaptation to the demands of the current job market. As such, students will enjoy an immersive experience that will significantly broaden their professional horizons.

You will benefit from personalized guidance from the teaching team, made up of real experts in Aviation Engineering"

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 Polytechnic University of 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.

Teachers

Dr. Rodríguez Sanz, Álvaro

- Aeronautical Operations and Services Technician in the Direct and Special Plans Division of Aena's Airport Planning and Regulatory Control Directorate.
- Engineer and project manager at ENAIRE's air traffic management research and development subsidiary (CRIDA).
- Participant as researcher in European Union projects associated with the Horizon 2020 program.
- Strategic planning and route and market development analyst for LATAM airline.
- Consultant engineer for airport and air transport projects at INECO, a company attached to the Ministry of Transport, Mobility and Urban Agenda.
- Associate Professor in the Department of Aerospace Systems, Air Transport and Airports at the Polytechnic University of Madrid.
- PhD in Aerospace Engineering from the Polytechnic University of Madrid.
- Master's Degree in Airport Planning and Management, Cranfield University.
- Winner of the Madrid City Council Talent and Technology Award, 2022 edition, for the best doctoral thesis in the Research and Technological Development category.
- Winner of the Luis Azcárraga Award of the XXV edition of the ENAIRE Foundation Awards, call 2020, in recognition of research and technological innovation in aerospace matters.
- Winner of the Aeronautical Innovation Award 2020 of the Official College of Aeronautical Engineers of Spain (COIAE).

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: Spanish Association of Aeronautic 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.
- Bachelor's Degree in Economics and Business Administration, 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.

Mr. 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, Aeroespatiale (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.

Mr. Casas Guillén, David

- Head of Engineering and Maintenance Department of Fuerteventura Airport
- Head of the Airport Security Department at Fuerteventura Airport.
- Head of the Visual Aids Department in the Infrastructures Directorate at Aena Central Services.
- Head of the Electrical Engineering and Electronics Section in the Infrastructures Directorate at Aena Central Services.
- Director of Projects and Works in the Infrastructure Directorate at Aena Servicios Centrales.
- Team Leader for Aerial Delivery tests, A400M program (Airbus Military).
- Lecturer in the Master's Degree in Air and Airport Company Management.
- Degree in Aeronautical Engineering from the Polytechnic University of Madrid

Mr. 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.

Mr. Sanz Dodero, José

- Head of Aena's Safety Regulations Department
- Head of Aena's Safety Division
- Head of the Airline Service Division of the Adolfo Suarez Madrid-Barajas Airport.
- Head of the Management Office of the Adolfo Suarez Madrid-Barajas Airport.
- Head of the Services Division, Adolfo Suarez Madrid-Barajas Airport.
- Deputy Director of Adolfo Suarez Madrid-Barajas Airport
- Director of Security at the Ministry of the Interior
- Strategy Management and Planning at the University of Deusto
- International Consultant for New Slot Policy for El Salvador Airport; ORAT Project in Panama; DGAC Bolivia Transport Project or ACDM definition for Lima Airport, Peru.
- AVSEC, IATA, ICAO trainer.
- IATA courses in Emergency Management, Airport Certification, Airport Operations Management and Airport Facilitation.
- Aeronautical Engineer from the Polytechnic University of Madrid.
- Order of Merit of the Civil Guard with white badge.
- Cross of Police Merit with white badge.
- Commendation of Merit of Isabel la Catolica

Dr. Arias Pérez, Juan Ramón

- Aeronautical engineering researcher
- Principal investigator of public and private projects such as *Homogeneous Charge Compression Ignition for Aeronautical Engines (UPM), Development of advanced cooling systems for onboard electronics (Airbus EYY), GALOPE: Transversal Galoping effects to produce Electricity (Repsol) or Advanced Cooling Systems for onboard electronics* (Indra).
- Associate Professor in the Fluid Mechanics and Aerospace Propulsion Department of the ETSI Aeronautics and Space
- Associate Professor in the Department of Motopropulsion and Thermofluidodynamics of the ETSI Aeronautics and Space
- PhD in Aeronautical Engineering from the Polytechnic University of Madrid.
- Aeronautical Engineer from the Polytechnic University of Madrid.

Mr. Fernández Domínguez, Manuel

- Technician in ENAIRE E.P.E. in the CNS/ATM Operational Safety Area. ACC MADRID. Regional Directorate of Air Navigation Center-North
- Technician in the area of Short/Medium and Long-Range Fleet Maintenance and in the area of Aircraft Assistance for Iberia at Adolfo Suarez Madrid-Barajas Airport.
- Technician in the Operations Area at Palma de Mallorca Airport and Josep Tarradellas Barcelona-El Prat Airport.
- Lecturer in the Aeronautical Management Degree at the Autonomous University of Madrid.
- AVSAF Instructor certified by AESA
- Degree in Tourism from the Autonomous University of Madrid
- Master's Degree in Aeronautical Management from the Autonomous University of Barcelona.

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Certificate

The Hybrid Master's Degree in Aviation Engineering guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the Hybrid Master's Degree issued by TECH Global University.

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

This private qualification will allow you to obtain a diploma for the **Hybrid Master's Degree in Aviation Engineering** endorsed by **TECH Global University**, the world's largest online university.

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

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

Title: **Hybrid Master's Degree in Aviation Engineering**

Modality: **Hybrid (Online + Internship)**

Duration: **12 months.**

Credits: **60 + 4 ECTS**

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Mr./Ms. _________________, with identification document ____________
has successfully passed and obtained the title of:

Hybrid Master's Degree in Aviation Engineering

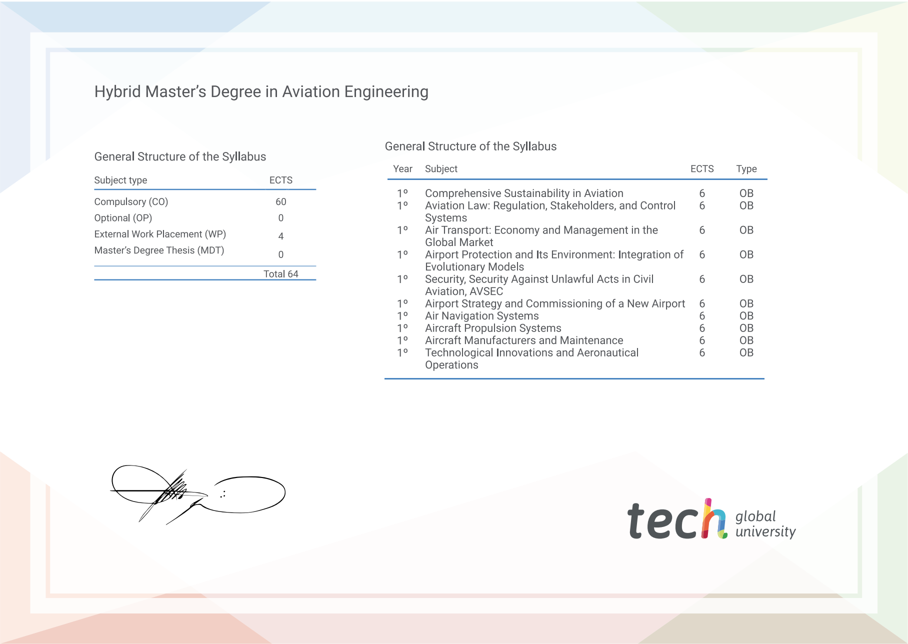
This is a private qualification of 1,920 hours of duration equivalent to 64 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates



Hybrid Master's Degree in Aviation Engineering

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	4
Master's Degree Thesis (MDT)	0
	Total 64

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Comprehensive Sustainability in Aviation	6	OB
1º	Aviation Law: Regulation, Stakeholders, and Control Systems	6	OB
1º	Air Transport: Economy and Management in the Global Market	6	OB
1º	Airport Protection and Its Environment: Integration of Evolutionary Models	6	OB
1º	Security, Security Against Unlawful Acts in Civil Aviation, AVSEC	6	OB
1º	Airport Strategy and Commissioning of a New Airport	6	OB
1º	Air Navigation Systems	6	OB
1º	Aircraft Propulsion Systems	6	OB
1º	Aircraft Manufacturers and Maintenance	6	OB
1º	Technological Innovations and Aeronautical Operations	6	OB

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

HybridMaster's Degree
Aviation Engineering

Modality: **Hybrid (Online + Internship)**
Duration: **12 months.**
Certificate: **TECH Global University**
Credits: **60 + 4 ECTS**

Hybrid Master's Degree
Aviation Engineering