Postgraduate Certificate

Heritage Preservation and Restoration with Artificial Intelligence

tech global university

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Postgraduate Certificate
Heritage Preservation and Restoration with Artificial Intelligence

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Accreditation: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/artificial-intelligence/postgraduate-certificate/heritage-preservation-restoration-artificial-intelligence**

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01

Introduction

In a global environment where Cultural Heritage faces both natural and anthropogenic threats, the need to innovate in Preservation and Restoration techniques becomes essential. Faced with this situation, Artificial Intelligence is emerging as a key tool in this field due to its ability to identify risks and optimize decision making. Therefore, experts need to adopt this cutting-edge approach to safeguard architectural heritage in the long term. In this scenario, TECH launches a pioneering university program focused on Heritage Preservation and Restoration with Artificial Intelligence. In addition, it is taught in a flexible online format that gives graduates the opportunity to plan their own schedules individually.

Through this Relearning-based Postgraduate Certificate, you will master the most innovative techniques of Artificial Intelligence in Heritage Preservation and Restoration"

A new report published by the United Nations shows that 40% of World Heritage sites are at risk due to factors such as climate change or scarcity of resources. Faced with this reality, the organization urges architects to use Artificial Intelligence to address these challenges, implementing predictive analytics and modeling techniques that optimize both Preservation and Restoration processes. To this end, professionals need advanced skills to get the most out of these instruments.

In order to facilitate this task, TECH presents a revolutionary program in Heritage Preservation and Restoration with Artificial Intelligence. Designed by authentic references in this field, the academic itinerary will delve into the use of photogrammetry for the accurate documentation of historic buildings. Likewise, the syllabus will delve into the use of Artificial Intelligence to prevent deterioration in structures and will offer numerous examples of how this technology has improved accuracy in conservation. The didactic materials will also focus on ethical considerations in the application of Artificial Intelligence in Heritage Restoration, as well as future perspectives on emerging technologies in this field. Therefore, graduates will develop advanced skills to use Artificial Intelligence for data analysis, modeling and decision making in Heritage Preservation projects.

As for the methodology of the program, it is based on a 100% online modality that allows architects to plan their own schedules. Likewise, TECH uses its disruptive Relearning method to consolidate the contents. This system promotes natural and progressive learning, so students will not have to resort to traditional techniques such as memorization. The only thing they will need is an electronic device with an Internet connection to access the Virtual Campus, where they will find a variety of multimedia resources such as explanatory videos.

The **Postgraduate Certificate in Heritage Preservation and Restoration with Artificial Intelligence** contains the most complete and up-to-date program on the market. The most important features include:

- Development of practical cases presented by experts in Artificial Intelligence
- 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 the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

You will have access to the didactic contents from any device with an Internet connection. Even from your mobile!"

With the best rated means of study of online teaching, this university program will allow you to advance unstoppably in your professional growth as an architect"

Are you looking to master the most advanced digital documentation techniques to improve the management of architectural heritage? Get it with this program.

You will delve into the implementation of laser scanning and predictive analysis in heritage conservation.

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

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

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the course. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts in the field of educational coaching with extensive experience.

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Objectives

Through this program, architects will implement Artificial Intelligence tools in the restoration of heritage works, improving the efficiency of these processes. At the same time, graduates will develop advanced skills to analyze data related to the history, culture and context of heritage assets using digital technologies. In this sense, professionals will promote a sustainable approach in the restoration of buildings, considering the use of materials that minimize the environmental impact and respect the integrity of the heritage.

You will use Geographic Information Systems to promote public awareness of Cultural Heritage, encouraging the protection of these resources"

General Objectives

- Understand the theoretical foundations of Artificial Intelligence
- Study the different types of data and understand the data lifecycle
- Evaluate the crucial role of data in the development and implementation of AI solutions
- Delve into algorithms and complexity to solve specific problems
- Explore the theoretical basis of neural networks for Deep Learning development
- Explore bio-inspired computing and its relevance in the development of intelligent systems
- Manage advanced Artificial Intelligence tools to optimize architectural processes such as parametric design
- Apply Generative Modeling techniques to maximize efficiency in infrastructure planning and improve the energy performance of buildings

Specific Objectives

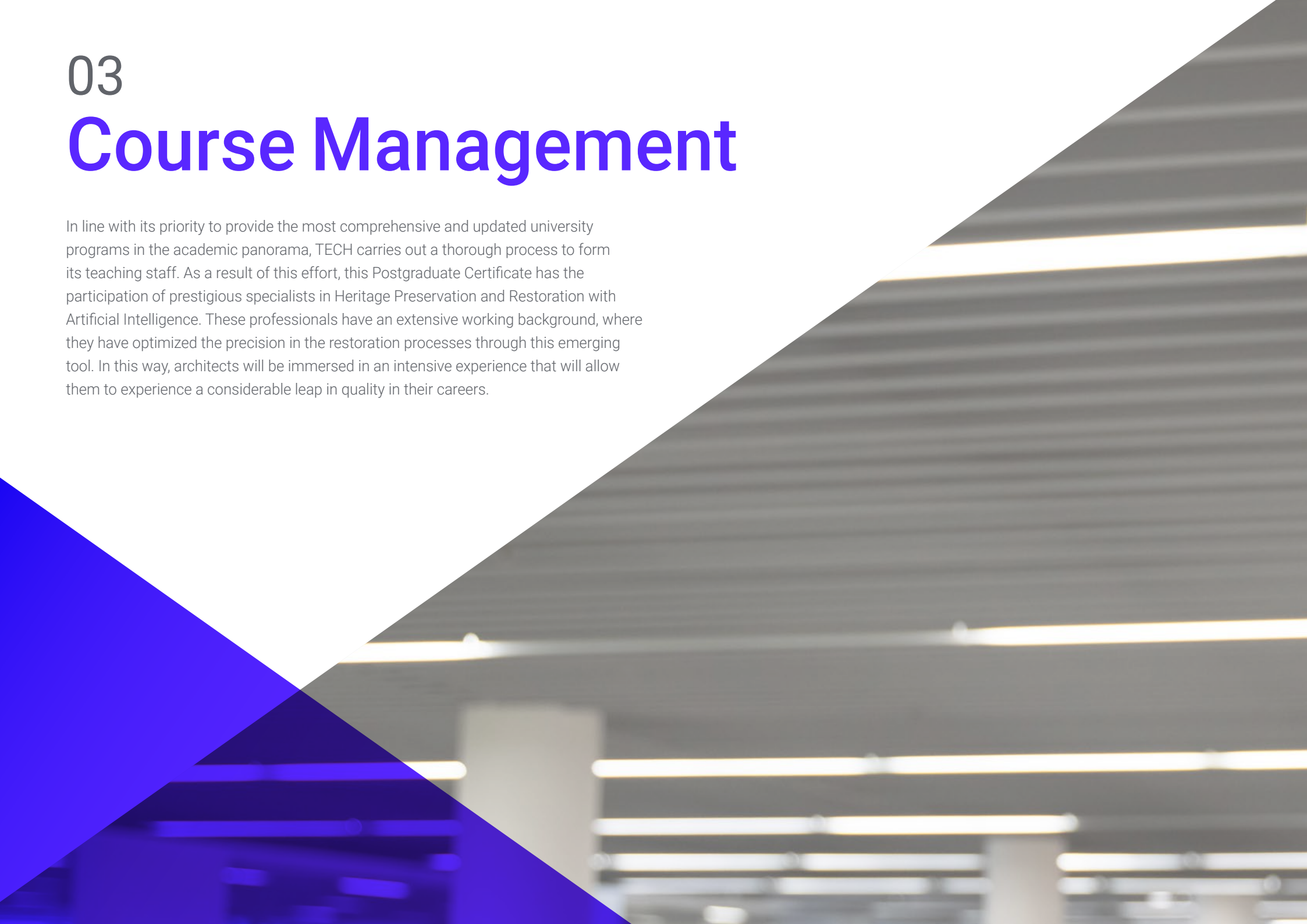
- Master the use of photogrammetry and laser scanning for both documentation and conservation of architectural heritage
- Develop skills to manage cultural heritage preservation projects, considering the ethical implications and responsible use of AI

By studying through multimedia resources such as interactive summaries or explanatory videos you will assimilate all the knowledge in a fast and enjoyable way"

03

Course Management

In line with its priority to provide the most comprehensive and updated university programs in the academic panorama, TECH carries out a thorough process to form its teaching staff. As a result of this effort, this Postgraduate Certificate has the participation of prestigious specialists in Heritage Preservation and Restoration with Artificial Intelligence. These professionals have an extensive working background, where they have optimized the precision in the restoration processes through this emerging tool. In this way, architects will be immersed in an intensive experience that will allow them to experience a considerable leap in quality in their careers.

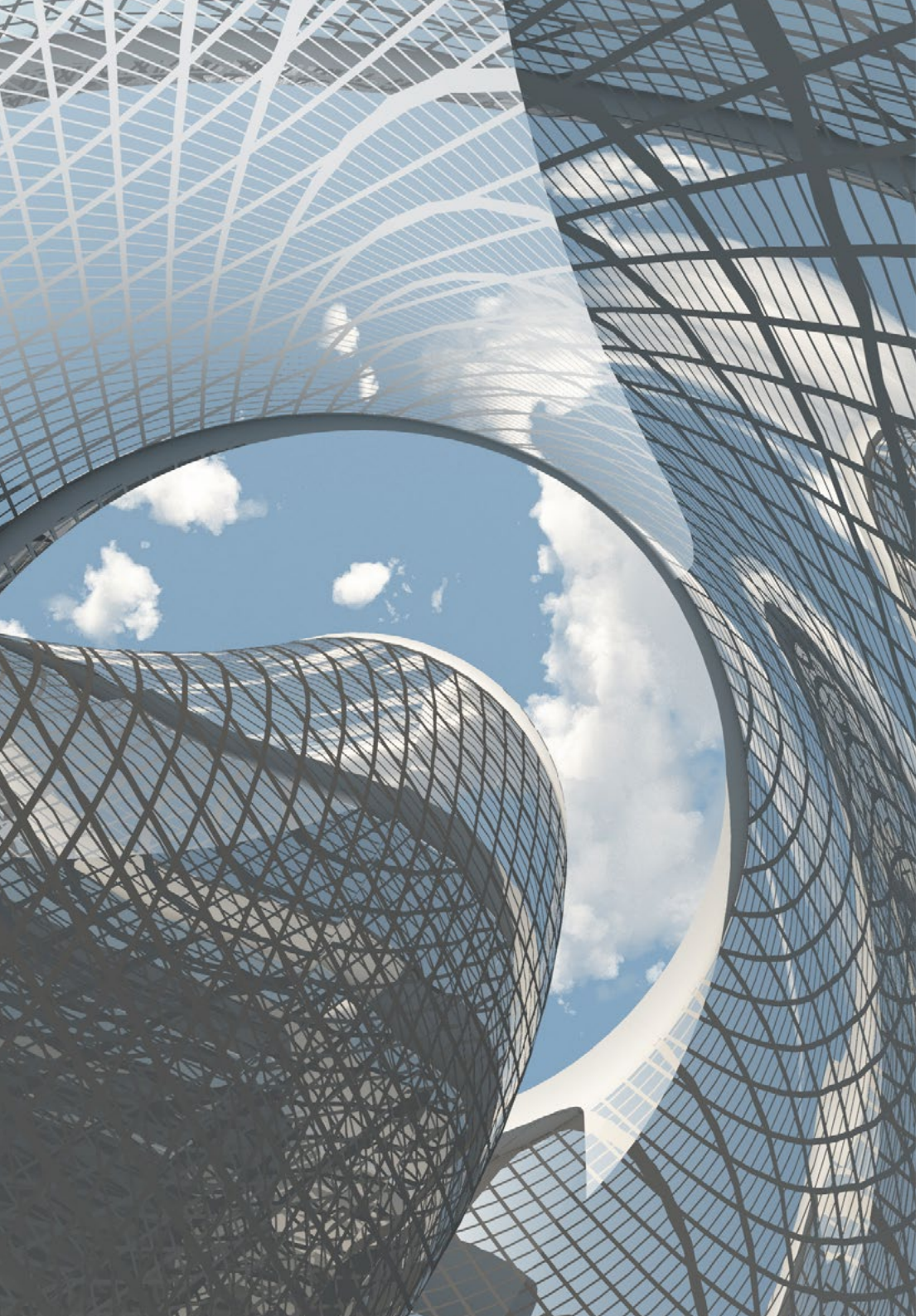


You will have the support of the teaching team, made up of recognized experts in Heritage Preservation and Restoration with Artificial Intelligence"

Management

Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus Global Solutions
- CTO at Korporate Technologies
- CTO at AI Shepherds GmbH
- Consultant and Strategic Business Advisor at Alliance Medical
- Director of Design and Development at DocPath
- PhD in Psychology from the University of Castilla La Mancha
- PhD in Economics, Business and Finance from the Camilo José Cela University
- PhD in Psychology from University of Castilla La Mancha
- Master's Degree in Executive MBA from the Isabel I University
- Master's Degree in Sales and Marketing Management, Isabel I University
- Expert Master's Degree in Big Data by Hadoop Training
- Master's Degree in Advanced Information Technologies from the University of Castilla La Mancha
- Member of: SMILE Research Group



Professors

Mr. Peralta Vide, Javier

- Technological Coordinator and Content Developer at Aranzadi Laley Formación
- Collaborator at CanalCreativo
- Collaborator at Dentsu
- Collaborator at Ai2
- Collaborator at BoaMistura
- Freelance Architect at Editorial Nivola, Biogen Technologies, Releaf, etc.
- Specialization by Revit Architecture Metropa School
- Graduate in Architecture and Urbanism from the University of Alcalá

Ms. Martínez Cerrato, Yésica

- Responsible for Technical Training at Securitas Seguridad España
- Education, Business and Marketing Specialist
- Product Manager in Electronic Security at Securitas Seguridad España
- Business Intelligence Analyst at Ricopia Technologies
- Computer Technician and Responsible for OTEC computer classrooms at the University of Alcalá de Henares
- Collaborator in the ASALUMA Association
- Degree in Electronic Communications Engineering at the Polytechnic School, University of Alcalá de Henares

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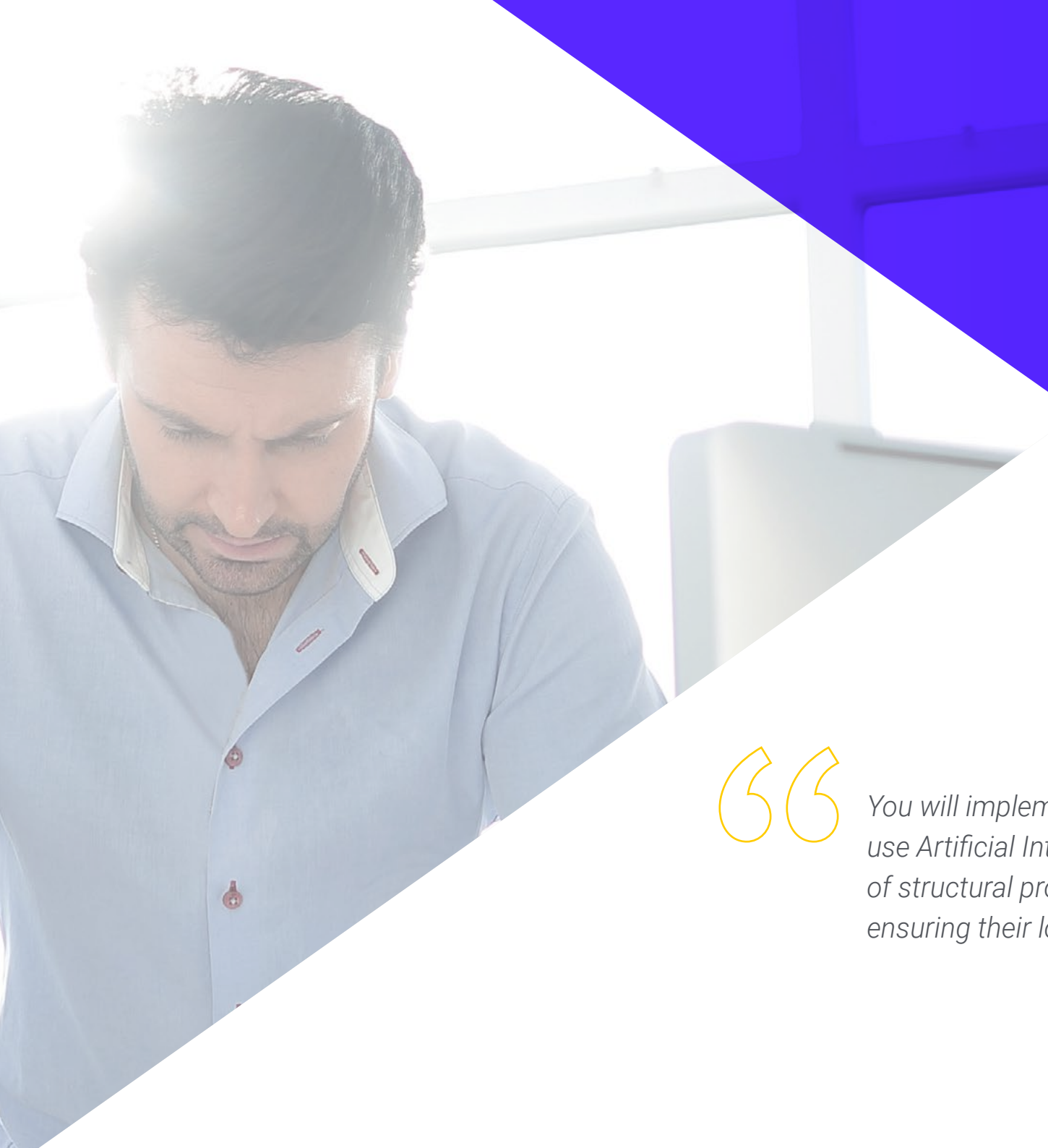
Structure and Content

The curriculum will delve into issues ranging from the implementation of laser scanning or predictive analysis in heritage conservation to the most innovative Artificial Intelligence-assisted virtual reconstruction techniques. In this sense, the syllabus will delve into the application of intelligent monitoring systems for the early detection of structural problems. Likewise, the didactic materials will analyze advanced strategies for integrating Artificial Intelligence in conservation-related decision making. In this way, students will acquire skills to use Artificial Intelligence tools for modeling in restoration projects.



You will implement monitoring systems that use Artificial Intelligence for the detection of structural problems in historic buildings, ensuring their long-term conservation"

Module 1. Heritage Preservation and Restoration with Artificial Intelligence

1.1. AI Technologies in Heritage Restoration with Photogrammetry
- 1.1.1. Using Photogrammetry and AI for Accurate Heritage Documentation and Restoration
- 1.1.2. Practical Applications in the Restoration of Historic Buildings
- 1.1.3. Outstanding Projects Combining Advanced Techniques and Respect for Authenticity

1.2. Predictive Analysis for Conservation with Laser Scanning
- 1.2.1. Implementing Laser Scanning and Predictive Analytics in Heritage Conservation
- 1.2.2. Using AI to Detect and Prevent Deterioration in Historic Structures
- 1.2.3. Examples of How These Technologies Have Improved Accuracy and Efficiency in Conservation

1.3. Cultural Heritage Management with Virtual Reconstruction
- 1.3.1. Applying AI-Assisted Virtual Reconstruction Techniques
- 1.3.2. Strategies for Digital Heritage Management and Preservation
- 1.3.3. Success Stories in the Use of Virtual Re-Enactment for Education and Preservation

1.4. Preventive Conservation and AI-Assisted Maintenance
- 1.4.1. Using AI Technologies to Develop Strategies for Preventive Conservation and Maintenance of Historic Buildings
- 1.4.2. Implementing AI-Based Monitoring Systems for Early Detection of Structural Problems
- 1.4.3. Examples of How AI Contributes to the Long-Term Conservation of Cultural Heritage

1.5. Digital Documentation and BIM in Heritage Preservation
- 1.5.1. Applying Advanced Digital Documentation Techniques, including BIM and Augmented Reality, Assisted by AI
- 1.5.2. Using BIM Models for Efficient Heritage Management and Restoration
- 1.5.3. Case Studies on the Integration of Digital Documentation in Restoration Projects

1.6. AI-Assisted Preservation Policies and Management
- 1.6.1. Using AI-Based Tools for Management and Policy Making in Heritage Preservation
- 1.6.2. Strategies for Integrating AI into Conservation-Related Decision-Making
- 1.6.3. Discussion of How AI Can Improve Collaboration Among Institutions for Heritage Preservation

1.7. Ethics and Responsibility in AI Restoration and Preservation
- 1.7.1. Ethical Considerations in the Application of AI in Heritage Restoration
- 1.7.2. Debate on the Balance between Technological Innovation and Respect for Historical Authenticity
- 1.7.3. Examples of How AI Can Be Used Responsibly in Heritage Restoration

1.8. Innovation and the Future of Heritage Preservation with AI
- 1.8.1. Perspectives on Emerging AI Technologies and Their Application in Heritage Preservation
- 1.8.2. Assessing the Potential of AI to Transform Restoration and Conservation
- 1.8.3. Discussion on the Future of Heritage Preservation in an Era of Rapid Technological Innovation

1.9. Cultural Heritage Education and Awareness with GIS
- 1.9.1. Importance of Public Education and Awareness in Cultural Heritage Preservation with GIS
- 1.9.2. Using Geographical Information Systems (GIS) to Promote the Valuation and Knowledge of Cultural Heritage
- 1.9.3. Successful Education and Outreach Initiatives Using Technology to Teach about Cultural Heritage

1.10. Challenges and the Future of Heritage Preservation and Restoration
- 1.10.1. Identification of Current Challenges in Cultural Heritage Preservation
- 1.10.2. Role of Technological Innovation and AI in Future Conservation and Restoration Practices
- 1.10.3. Perspectives on How Technology Will Transform Heritage Preservation in the Coming Decades

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 has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. 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 course, students 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

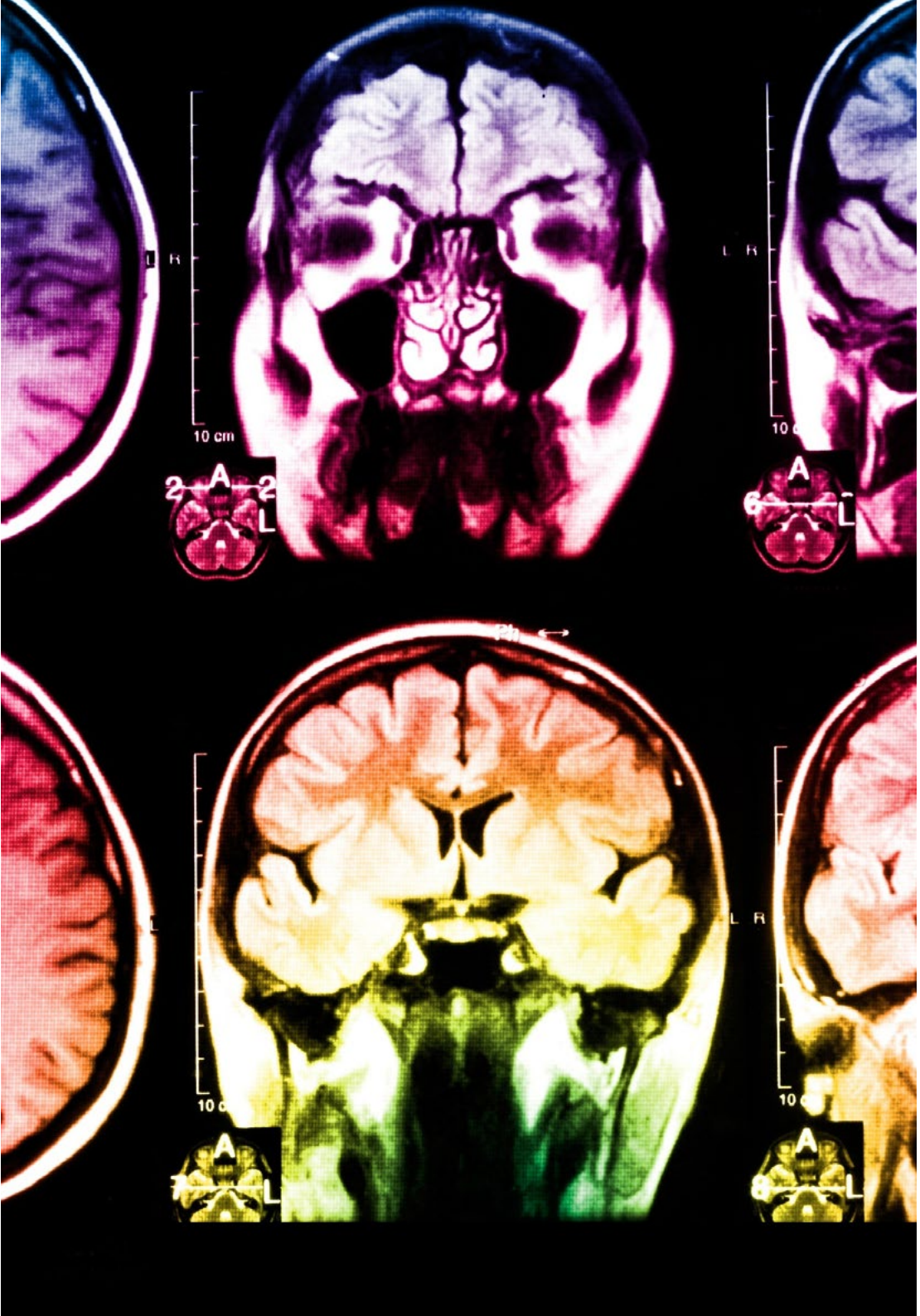
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

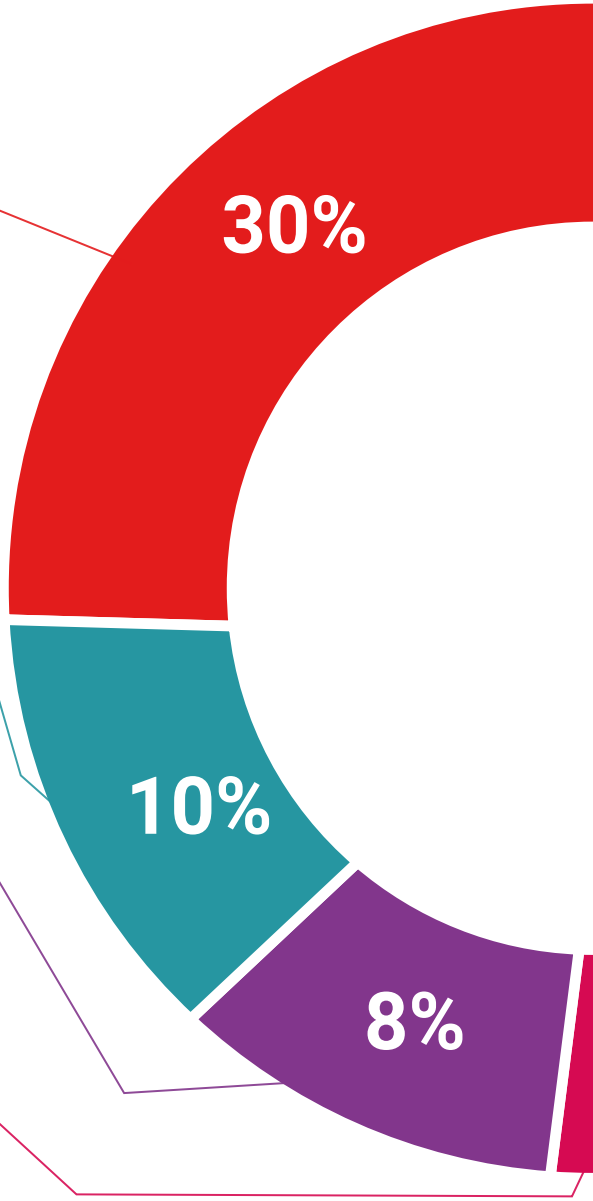
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

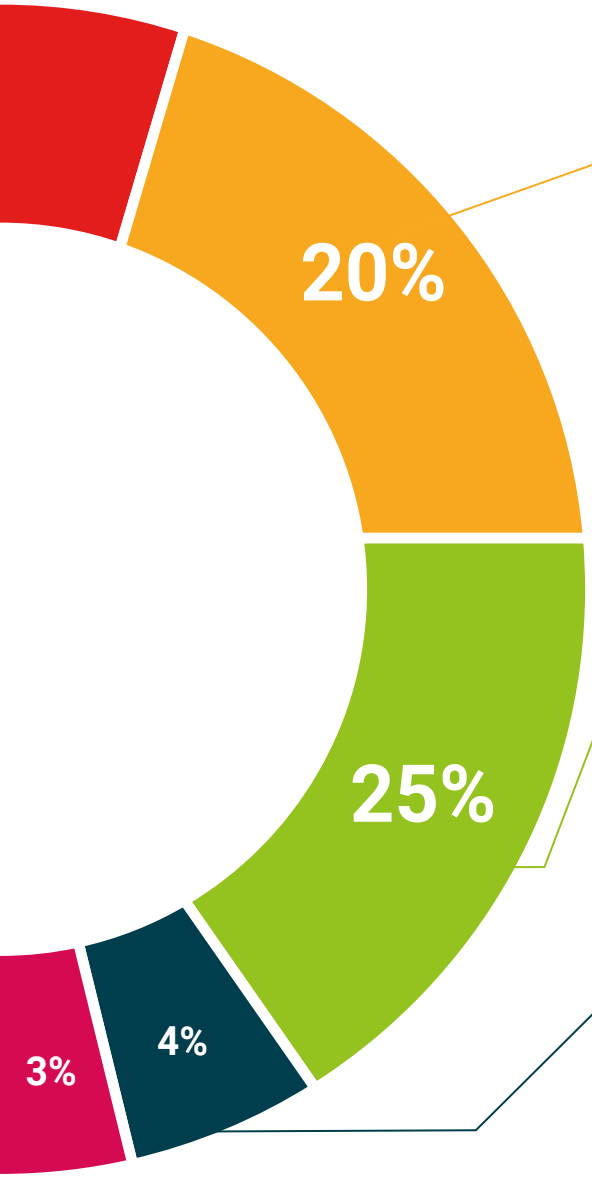
Practising Skills and Abilities

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 Heritage Preservation and Restoration with Artificial Intelligence guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 **Postgraduate Certificate in Heritage Preservation and Restoration with Artificial Intelligence** 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 **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Heritage Preservation and Restoration with Artificial Intelligence**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

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

Postgraduate Certificate in Heritage Preservation and Restoration with Artificial Intelligence

This is a private qualification of 180 hours of duration equivalent to 6 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

*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.

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