Postgraduate Certificate
Digital Twins

tech global university

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Postgraduate Certificate
Digital Twins

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

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/digital-twins**

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01

Introduction

The consolidation of the Internet of Things (IoT) in Industry 4.0, coupled with new advances in high-volume storage techniques and machine learning through Big Data Analytics, has enabled the development of new concepts within the industry, an example of which is the case of Digital Twins. Having a model identical to the physical model but fully digitized gives the engineer full control of the system. The student of this program, through the implementation of a Digital Twin, will be able to simulate and perform unlimited tests before taking a project into production and operation. All this under a 100% online modality with no presential classes or fixed schedules.

Gain detailed insight into the influence of the Digital Twins on the future of product and service developments in Engineering"

Digital Twins is a field with increasing demand and for which there is a very high shortage of qualified profiles. These are presented as a disruptive technology in the simulation and analysis of industrial processes, capable of maximizing the benefits of digital transformation.

Controlling and monitoring the status of production plants from a Digital Twin offers a countless number of advantages and the opportunities for integration with other IT systems multiplies its exploitation possibilities. This program analyzes real cases of Digital Twins in different fields in order for the engineer to acquire a detailed vision of their influence on the future development of products and services.

Over the course of 6 weeks, students will deepen their understanding of the scope of Digital Twins, understanding the competitive advantages they bring, so they will be positioned at the forefront of technology and will be able to lead ambitious projects in the present and in the future. Additionally, this program has the best 100% online study methodology, which eliminates the need to attend classes in person or have to comply with a predetermined schedule.

This **Postgraduate Certificate in Digital Twins** contains the most complete and up-to-date program on the market. The most important features include:

- The development of case studies presented by experts in Digital Twins
- The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

With the application of Machine Learning techniques, you will obtain a highly accurate model whose behavior closely resembles that of the real system"

One of the best examples of disruptive technology is Digital Twins, capable of using data to increase the efficiency of production processes"

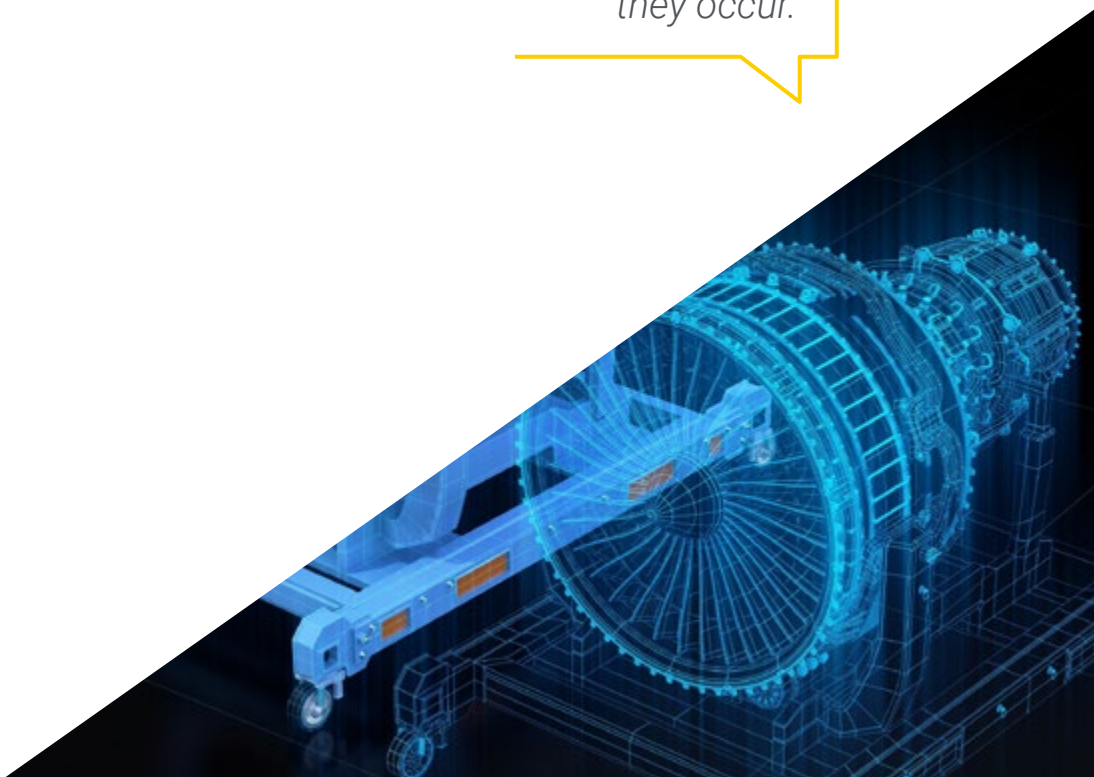
Half of all major industrial companies will be using Digital Twins by 2023, increasing their effectiveness by more than 60%.

You get a safe and secure environment for experimentation and can detect problems before they occur.

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

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

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



02

Objectives

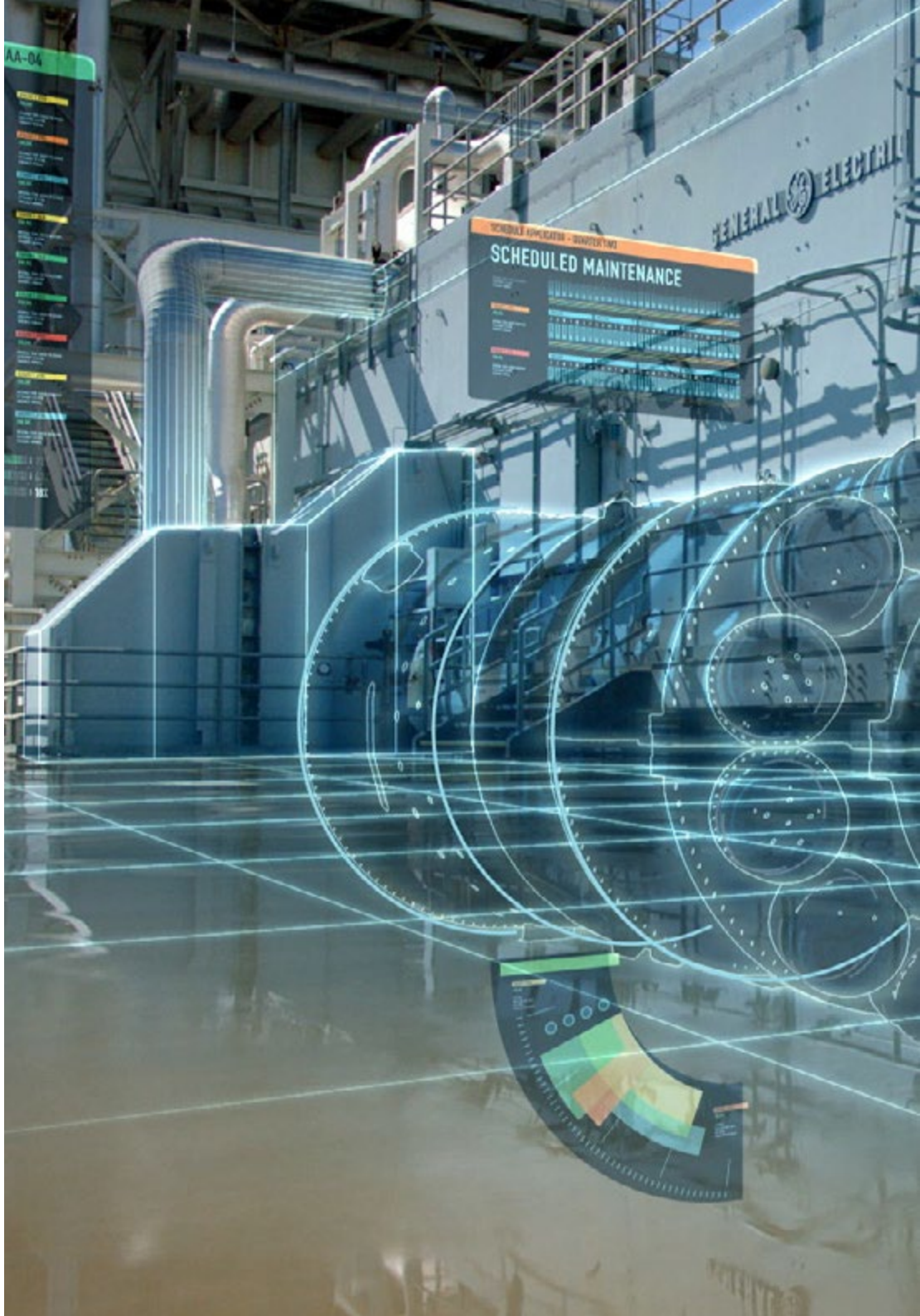
This Postgraduate Certificate focuses on Digital Twins in order to propose scenarios for the application of the derived technologies in the industry. Everything from a practical point of view to generate in the engineer a sense of security that will allow them to be more effective in their daily practice. The direct application of the acquired knowledge is an added professional value that very few experts specialized in Information and Communication Technologies can offer.

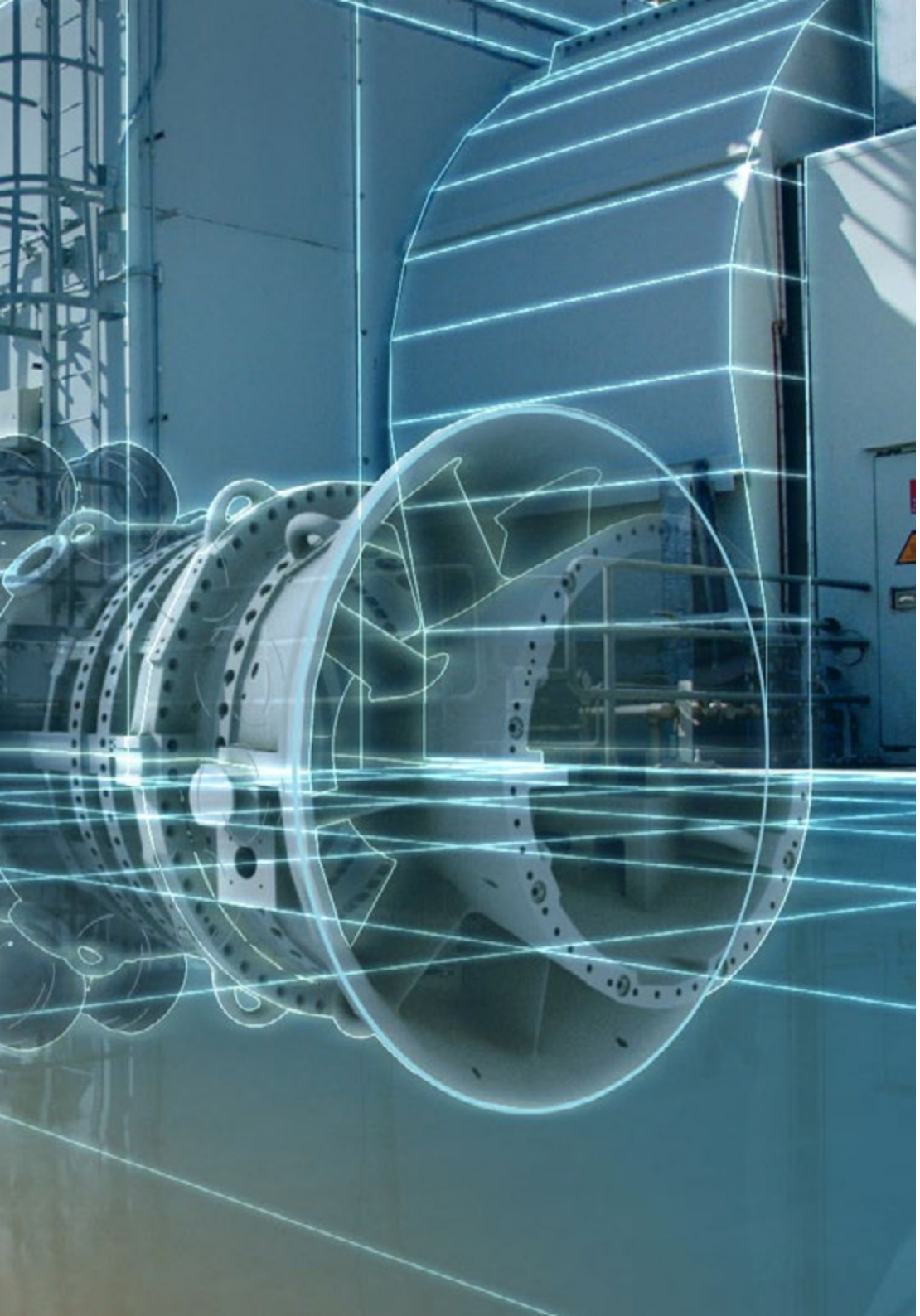
You will be able to experiment without any risk and at a much more affordable cost than having to test physical products"

General Objectives

- Analyze the current landscape of Digital Twins and associated technologies
- Determine the main applications of the Digital Twins
- Establish a framework for the study of its use
- Propose application scenarios for technologies derived from the Digital Twins

In a few years, using Digital Twins will be fundamental in 4.0 factories"





Specific Objectives

- Acquire a detailed view of the influence of the Digital Twins on the future of product and service development
- Pinpoint the applications of the Digital Twins
- Demonstrate the utility of Digital Twins in the value chain
- Determine specific uses of Digital Twins
- Assess the feasibility of implementing a Digital Twin
- Identify concrete cases of application of the Digital Twins
- Justify uses and models of the Digital Twins
- Generate interest in implementation of models

03

Course Management

Having been trained by accredited professionals who use them in their daily work, the professional who successfully completes this program will have a global vision of the application of the Digital Twins, protagonists of Industry 4.0 in global digitization. The student will be an expert in mapping physical asset models on a digital platform, where a virtual replica of any physical process or object is created. For this purpose, this Postgraduate Certificate brings together a highly qualified team with extensive experience in the sector.

You will have the guarantee of specializing at an international level in a booming sector that will catapult you to professional success"

Management

Mr. Molina Molina, Jerónimo

- Head of Artificial Intelligence at Helphone
- AI Engineer & Software Architect at NASSAT, Internet Satellite in Motion
- Senior Consultant at Hexa Engineer
- Artificial Intelligence Introducer (ML and CV)
- Expert in Artificial Intelligence Based Solutions in the fields of Computer Vision, ML/DL and NLP
- Postgraduate Diploma in Business Creation and Development at Bancaixa and Fundeun
- Computer Engineer by the University of Alicante
- Professional Master's Degree in Artificial Intelligence from the Catholic University of Avila
- MBA Executive at the European Business Campus Forum

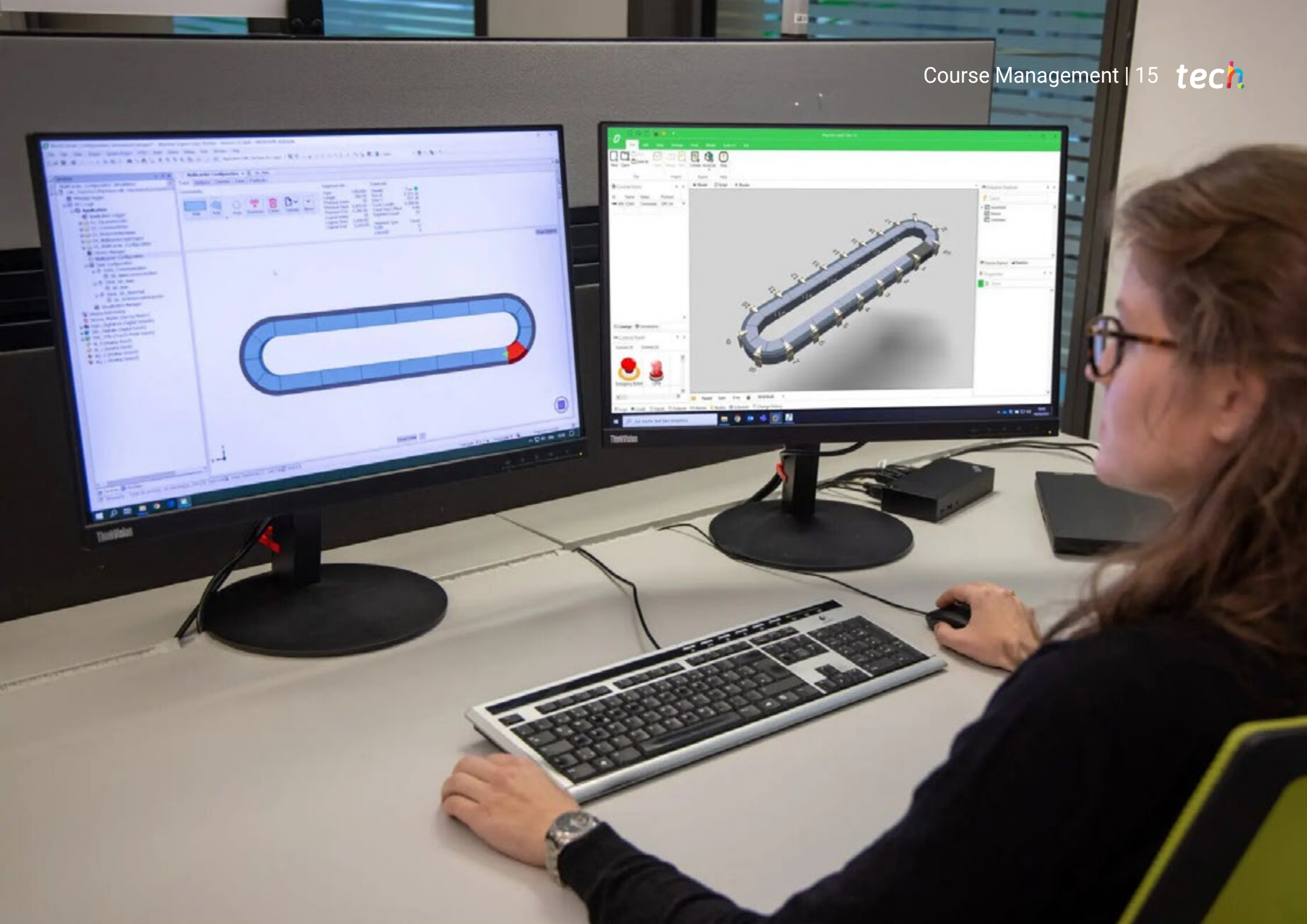
Professors

Mr. Guerrero Serrano, Manuel María

- Scientific Software Analyst at Eli Lilly and Company
- Full Stack Developer and Data Engineer at GMV
- Junior Full Stack Developer at Testra GmbH
- Data Visualization Ambassador at the University of Leeds
- Master's Degree in Artificial Intelligence at the Polytechnic University of Madrid
- Degree in Computer Engineering from Complutense University of Madrid

Mr. Moreno Fernández de Leceta, Aitor

- Head of the Artificial Intelligence Department at Ibermática
- PeopleSoft Analyst at Cegasa International
- PhD in Artificial Intelligence from the University of the Basque Country
- Master's Degree in Advanced Artificial Intelligence from the Universidad Nacional de Educación a Distancia
- Degree in Computer Engineering from the University of Deusto
- Certificate in Computational Neurosciences from the University of Washington
- Certificate in Quantum Computing, Simulation Theory and Programming from the University of Washington



04

Structure and Content

A curriculum that offers a broad perspective of the Digital Twins has been established to generate specialized knowledge in the graduate. The syllabus is covered in depth and with supporting material oriented to experienced engineers with a great interest in the topics of study. This means that the professional level is high, an important differential element of the Postgraduate Certificate. In this way, and with the support of a team of experts, students will be able to update their knowledge, which will enable them to develop professionally.

By using Digital Twins you will see an improvement in your diagnostic and maintenance work on production equipment"

Module 1. Digital Twins. Innovative Solutions

1.1. Digital Twins
- 1.1.1. Digital Twins
- 1.1.2. Digital Twins Technological Evolution
- 1.1.3. Digital Twins Typology

1.2. Digital Twins Applicable Technologies
- 1.2.1. Digital Twins Platforms
- 1.2.2. Digital Twins Interfaces
- 1.2.3. Digital Twins Typology

1.3. Digital Twins Applications. Sectors and Examples of Use
- 1.3.1. Digital Twins Techniques and Uses
- 1.3.2. Industries
- 1.3.3. Architecture and Cities

1.4. Industry 4.0. Digital Twin Applications
- 1.4.1. Industry 4.0.
- 1.4.2. Environment
- 1.4.3. Digital Twin Applications in Industry 4.0.

1.5. Smart Cities based on Digital Twins
- 1.5.1. Models
- 1.5.2. Categories
- 1.5.3. Future of Smart Cities based on Digital Twins

1.6. IoT Applied to Digital Twins
- 1.6.1. IoT. Link with Digital Twins
- 1.6.2. IoT. Relationship with Digital Twins
- 1.6.3. IoT. Problems and Possible Solutions

1.7. Digital Twin Environment
- 1.7.1. Companies
- 1.7.2. Organization

1.7.3. Implications

1.8. Digital Twin Market
- 1.8.1. Platforms
- 1.8.2. Suppliers
- 1.8.3. Associated Services

1.9. Future of Digital Twins
- 1.9.1. Immersiveness
- 1.9.2. Augmented Reality
- 1.9.3. Biointerfaces

1.10. Digital Twins Results in Present and Future
- 1.10.1. Platform
- 1.10.2. Technologies
- 1.10.3. Sectors

Digital Twins represent the union of the physical world with the virtual one, which will allow you to obtain an in-depth analysis of any information"

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

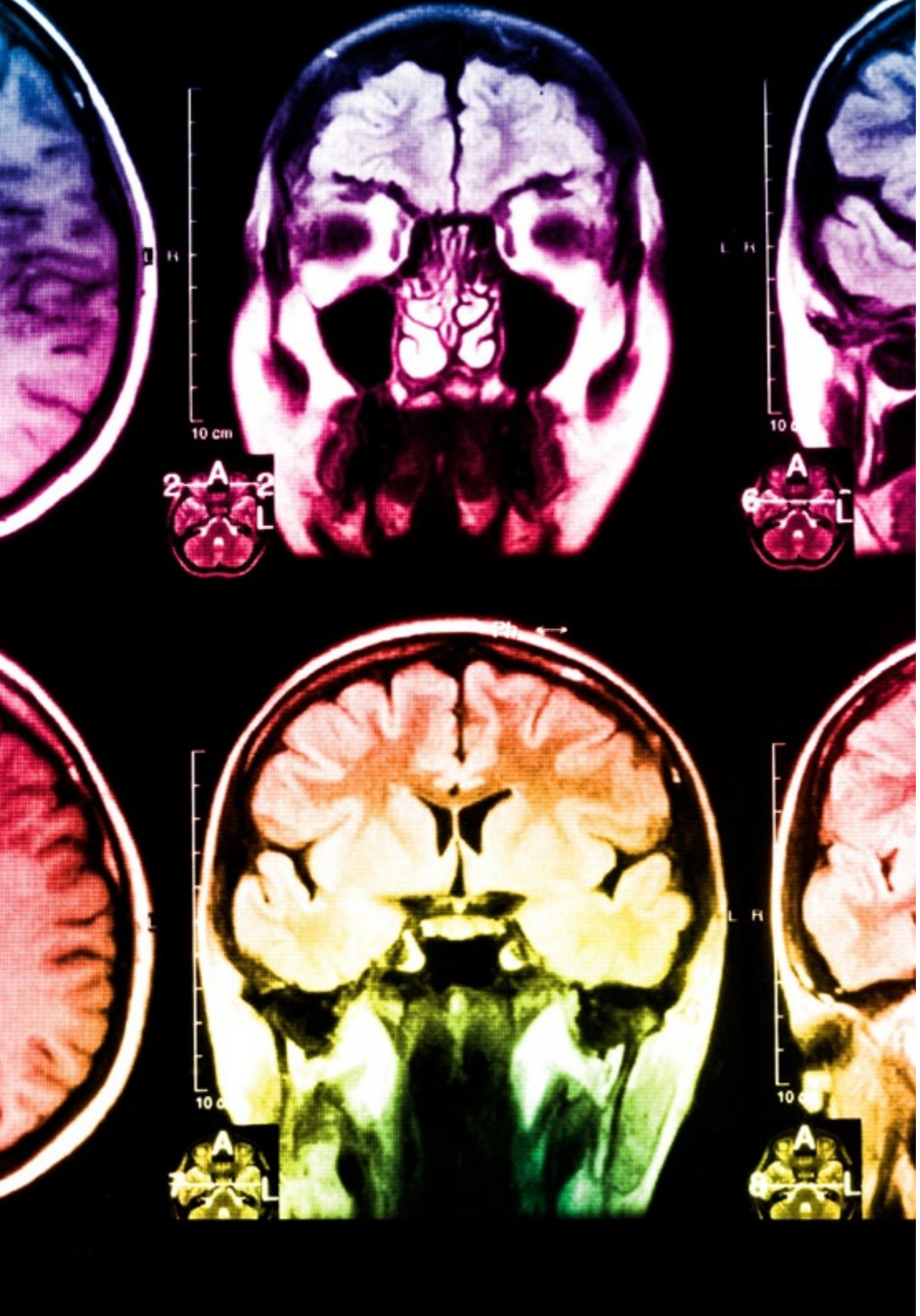
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

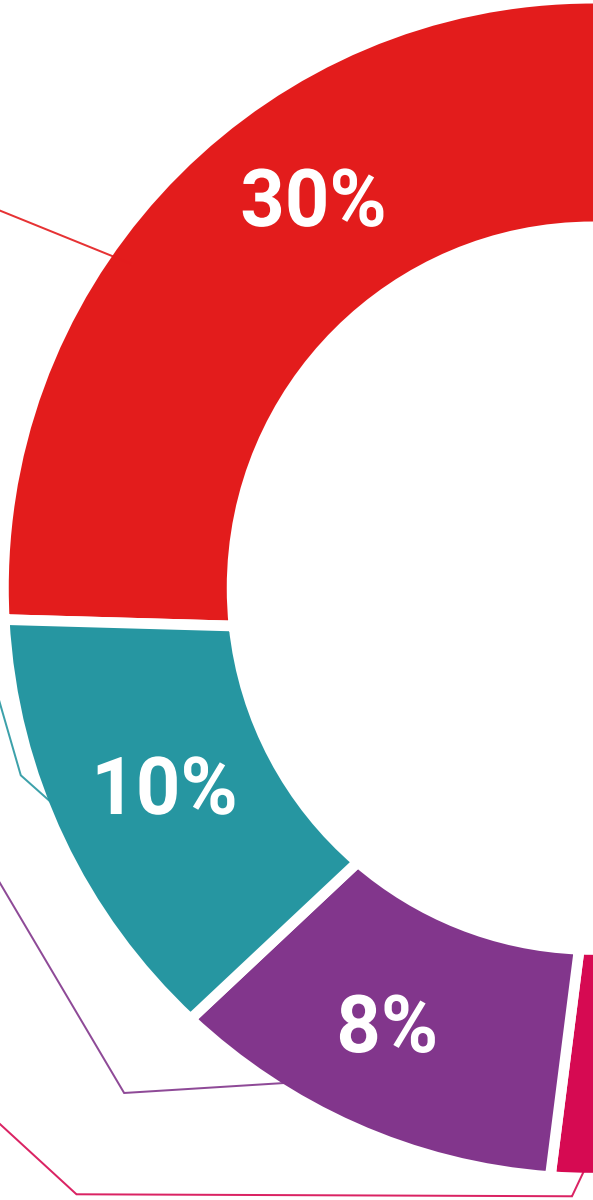
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

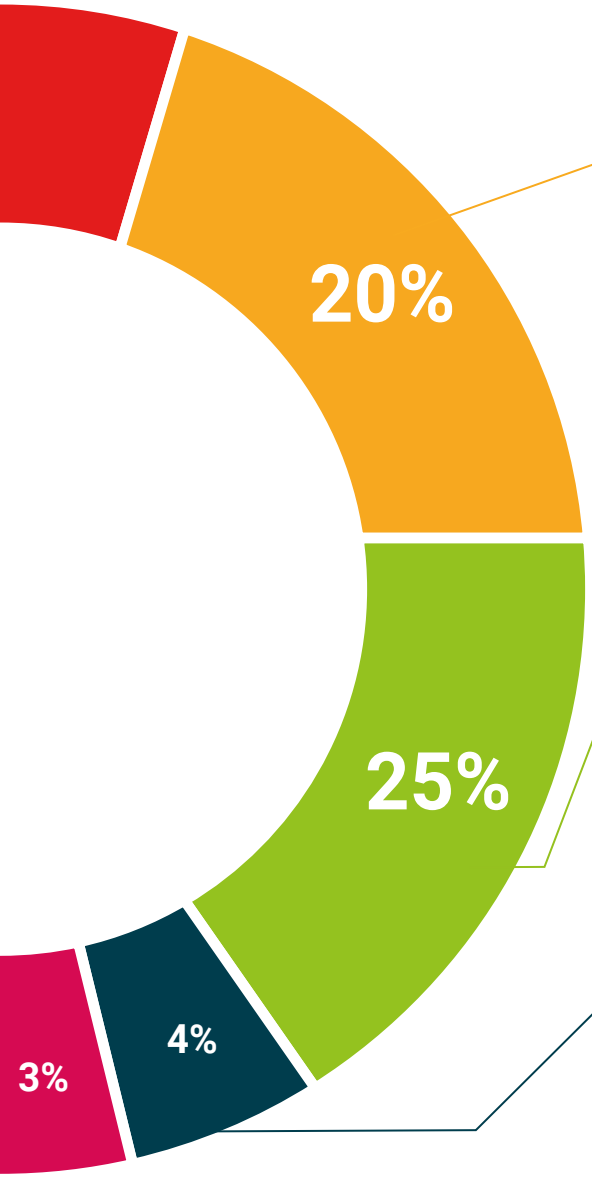
Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

06

Certificate

The Postgraduate Certificate in Digital Twins 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 program will allow you to obtain your **Postgraduate Certificate in Digital Twins** 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** title 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 Digital Twins**

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 Digital Twins

This is a program 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
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. 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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