Postgraduate Diploma
Digital Transformation

tech technological university

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Postgraduate Diploma
Digital Transformation

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

Website: **www.techtitute.com/us/engineering/postgraduate-diploma/postgraduate-diploma-digital-transformation**

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01

Introduction

Digital transformation has arrived in all sectors to revolutionize them and industry has not been left out. For almost all companies, it is essential to have prototyping, simulation and behavior prediction tools that allow the development of fast and error-free systems, such as Digital Twins. This program, completely online, provides the student with the necessary skills to apply them in their industrial projects. At the same time, it teaches the keys to a Smart City, a platform that will transform current cities into more efficient, sustainable and secure infrastructures. All of this means new business opportunities for the engineer, who will acquire the ability to have the specialized knowledge to design IoT architectures.

The completion of this program will place you as an engineering professional at the forefront of the latest developments in the sector"

One aspect that cannot go unnoticed in companies today is the digital transformation. The fact that there are new collaborative tools, and even new ways of managing projects, is proof of this. In an increasingly technological world, it is necessary to know the different options available on the market at this time. To do so, it is necessary to delve into the global structure of an industrial IoT project, which guarantees scalability and evolution.

This Postgraduate Diploma teaches the engineer the necessary skills to develop a global vision and specialized knowledge to design IoT architectures that guarantee, at any stage of the project, the harvesting and processing of data. The graduate acquires a technical-practical vision, approach and management of industrial IoT projects.

In addition, the Digital Twin, which has countless applications and radically changes the laboratory or test models, will be explored. By applying the implementation of a Digital Twin, engineers will be able to simulate and perform unlimited tests before taking their digital infrastructure into production and operation. In addition, during the operation phase, it will allow them to anticipate failures or anomalous behavior by implementing advanced predictive maintenance algorithms.

Since it is expected that by 2024, 90% of the electronic devices used by the inhabitants will be connected to the Internet, this program delves into the Smart City model. This program develops a model based on a neural system of sensors that collect and return data in real time, turning the city into an entity with a life of its own.

In the course of 6 months, the student will delve into the scope of application of each technology, understanding the competitive advantages they provide, so it will be positioned at the forefront of technology and can lead industrial projects. Furthermore, graduates have the best 100% online study methodology, which eliminates the need to attend classes in person or be constrained by a predetermined schedule.

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

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

Technological advances have made it possible to streamline industrial processes, shortening times. Don't wait any longer and specialize in this sector"

You will be technically immersed in the most relevant technologies that will play a major role in technological advances in engineering in the coming years"

With the implementation of a Digital Twin you will be able to simulate and perform unlimited tests before taking your project into production and operation.

Analyze the different options of Data Architecture, as well as the methodology to carry out a good development of your industrial project.

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

The multimedia content, developed with the latest educational technology, will provide professionals with situated and contextual learning, i.e., a simulated environment that will provide immersive training, designed for training oneself 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 academic year For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

The Postgraduate Diploma in Digital Transformation is oriented to address the Internet of Things (IoT), Digital Twins and Smart Cities, from a practical point of view. In this way, graduates will feel a sense of security, that will allow them to be more effective in their daily practice. This is precisely what makes this Postgraduate Diploma different in the market, since the engineers who take it will be unique professionals in their sector.

Our goal is for you to become the best professional in your sector and for this we have the best methodology and content"

General Objectives

- Establish the basis for a correct foundation in the IoT, EIoT and IIoT field
- Propose different IoT project development possibilities, in order to evaluate each situation with the knowledge acquired
- Acquire a global vision of the IoT project, as the project as a whole provides greater added value
- Analyze the current landscape of Digital Twins and associated technologies
- Determine the main applications of the Digital Twins
- Propose application scenarios for technologies derived from the Digital Twins
- Present the current landscape of the Smart City model in different countries
- Analyze the advantages of a hyperconnected Smart City model
- Establish different Big Data models and their prediction models
- Propose application scenarios in different city typologies

You will become a great engineer, an expert in the most advanced and most applicable technologies of today and the future"

Specific Objectives

Module 1. IoT. Service Applications and I 4.0 (4.0 Industries)

- Establish the appropriate criteria to start and manage a project in an IoT environment
- Analyze the most relevant IoT architecture techniques
- Develop thinking skills from start to finish Methodology (CRISP-DM)
- Examine, in-depth, the existing free software options
- Delve into all areas where technology can be added to connected objects
- Monitor projects through a dashboard
- Acquire the ability to quantify not only the IoT value contribution to society, but also to quantify economically this type of technology

Module 2. Digital Twins. Innovative Solutions

- 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 the implementation of models

Module 3. Smart Cities as innovation tools

- Analyze the technological platform
- Determine what a City Digital Twin is (Virtual Model)
- Establish which are the monitoring layers: density, movement, consumptions, water, wind, solar radiation, etc.
- Carry out a comparative analysis of the following variables
- Integrate the different sensor networks (IoT/M2M), as well as the behavioral parameters of the inhabitants of the city (treated as human sensors)
- Develop a detailed vision of how Smart Cities will influence the future of people
- Generate interest in the implementation of smart city models

03

Course Management

Having been prepared by accredited engineers who work on a daily basis, the professional who successfully completes this program will have a global vision of the application of the different technologies, protagonists of global digitalization, and will have the ability to apply them. This Postgraduate Diploma inDigital Transformation has a team of highly qualified engineers with extensive experience in Industry, who will offer the best content for the specialization of the Students during the program.

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

- He is currently leading several relevant projects in the field of Artificial Intelligence
- AI Engineer & Software Architect. NASSAT - Internet Satellite in Motion
- Sr. Consultant at Hexa Ingenieros
- Expert in Artificial Intelligence based solutions
- He is currently leading several relevant projects in the field of Artificial Intelligence
- Computer Engineer (Alicante University)
- Expert in Business Creation and Development (Bancaixa - FUNDEUN Alicante)
- Executive MBA (European Business Campus Forum)
- Master in Artificial Intelligence (Avila Catholic University)

Professors

Mr. Viguera Gallego, Ander

- Graduate in Industrial Organization Engineering from ETSI Bilbao
- Master's Degree in Industrial Organization Engineering by ETSI Bilbao
- Master's degree in Industrial Strategy and Organization, ESTIA Institute of technology, Bidart
- Master's Degree in Artificial Intelligence from the Catholic University of Avila
- VSM Engineer in the Small Spans line for Safran ITP Aero Castings
- VSM Engineer in the structural rings line for PWA & RR RR ITPAero Castings
- Industry 4.0 & IIoT Focal Point at ITPA (Sestao)

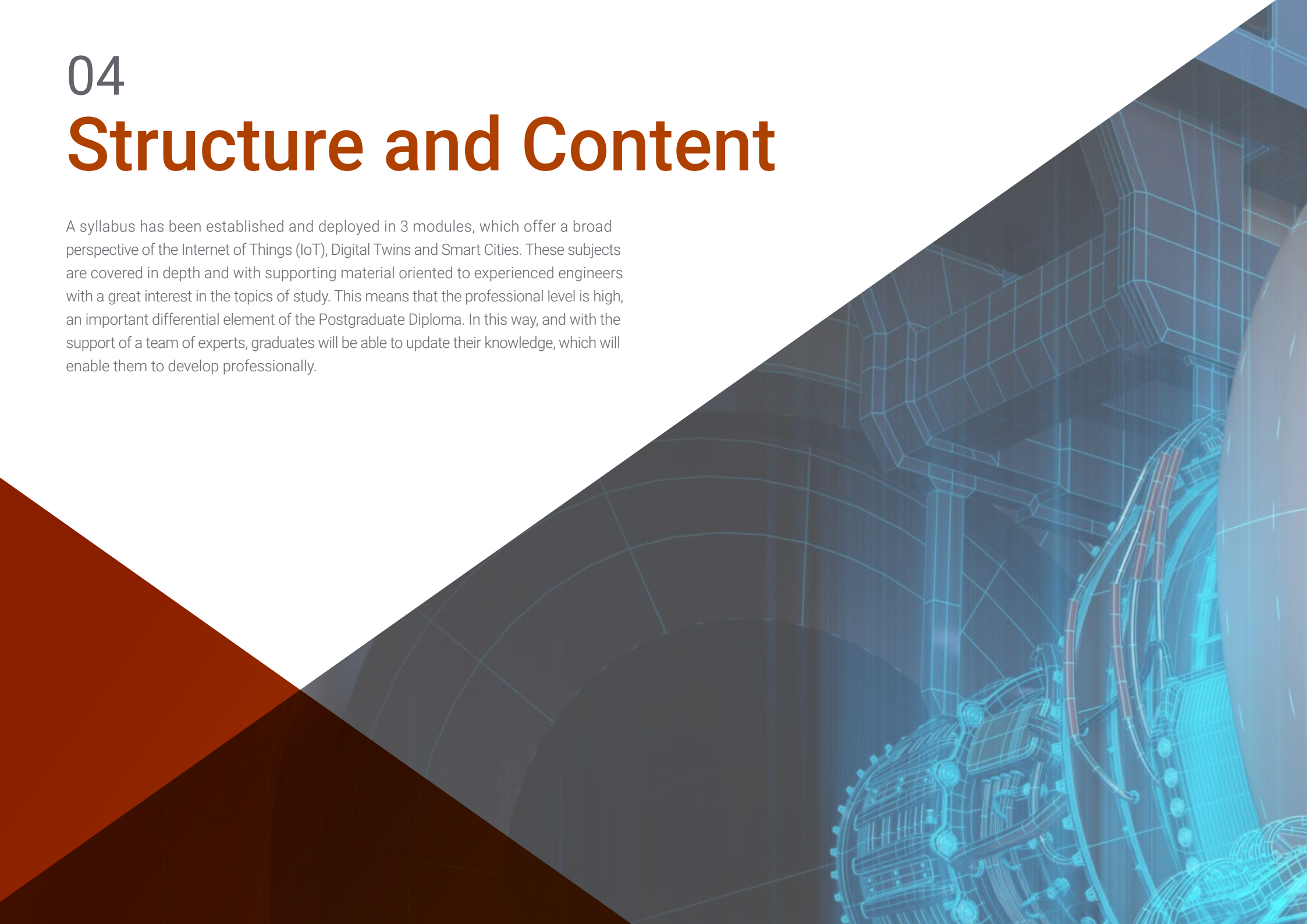
Dr. Villalba García, Alfredo

- Professor of Domotics at CEDOM
- Design Engineer at ITT Standard Electric and ALCATEL
- Industrial Engineer from the School of Industrial Engineering of the Polytechnic University of Madrid
- Specialist in Robotics and Automation
- Master's Degree in Retail Technology
- Master's Degree in Industrial Automation
- Master's Degree in Domotics and Inmotics
- Ph.D. in Computer Science from the University of Fontainebleau
- CEO and Founding Partner of INMOMATICA and CQUENT

04

Structure and Content

A syllabus has been established and deployed in 3 modules, which offer a broad perspective of the Internet of Things (IoT), Digital Twins and Smart Cities. These subjects are 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 Diploma. In this way, and with the support of a team of experts, graduates will be able to update their knowledge, which will enable them to develop professionally.



Specializing in the field of digital transformation will allow you to be more competitive. Continue your education and give your career a boost"

Module 1. IoT. Service Applications and I 4.0 (Industrias 4.0)

1.1. IoT. Internet of Things
- 1.1.1. IoT
- 1.1.2. Internet 0 & IoT
- 1.1.3. Privacy and Object Control

1.2. Applications of IoT
- 1.2.1. IoT Applications Consumption
- 1.2.2. EIoT & IIoT
- 1.2.3. IoT Administration

1.3. IoT & IIoT. Differences
- 1.3.1. IIoT. IoT Differences
- 1.3.2. IIot. Application
- 1.3.3. Industries

1.4. Industry 4.0, Big Data & Business Analytics
- 1.4.1. Industry 4.0, Big Data & Business Analytics
- 1.4.2. Industry 4.0, Big Data& Business Analytics. Contextualization
- 1.4.3. CRISP-DM Decisions and Methodology

1.5. Predictive Maintenance
- 1.5.1. Predictive Maintenance Application
- 1.5.2. Predictive Maintenance Model Development Approach

1.6. IoT.eclipse.org (I). IoT Solutions Implementation Tool
- 1.6.1. Ethos Micro NPU
- 1.6.2. End-to-End Products
- 1.6.3. IoTeclipse. Examples of Use

1.7. IoT.eclipse.org (II) Advanced
- 1.7.1. Architecture
- 1.7.2. End-to-End
- 1.7.3. Environment Analytics

1.8. IIoT Arquitecture
- 1.8.1. Sensors and Actuators
- 1.8.2. Internet Ports and Data Acquisition Systems
- 1.8.3. Data Pre-Processing
- 1.8.4. Cloud Data Analysis and Modeling

1.9. End-to-End Open and Modular Arquitecture
- 1.9.1. End-to-End Open and Modular Arquitecture
- 1.9.2. Modular Architecture. Key Components
- 1.9.3. Modular Architecture. Benefits

1.10. Machine Learning at the Core and Edge
- 1.10.1. PoC
- 1.10.2. Data Pipeline
- 1.10.3. Edge to Core & Demo

Module 2. Digital Twins. Innovative Solutions

2.1. Digital Twins
- 2.1.1. Digital Twins
- 2.1.2. Digital Twins Technological Evolution
- 2.1.3. Digital Twins Typology

2.2. Digital Twins Applicable Technologies
- 2.2.1. Digital Twins Platforms
- 2.2.2. Digital Twins Interfaces
- 2.2.3. Digital Twins Typology

2.3. Digital Twins Applications. Sectors and Examples of Use
- 2.3.1. Digital Twins Techniques and Uses
- 2.3.2. Industries
- 2.3.3. Architecture and Cities

2.4. Industry 4.0. Digital Twin Applications
- 2.4.1. Industry 4.0
- 2.4.2. Environment
- 2.4.3. Digital Twin Applications in Industry 4.0

2.5. Smart Cities based on Digital Twins
- 2.5.1. Models
- 2.5.2. Categories
- 2.5.3. Future of Smart Cities based on Digital Twins

2.6. IoT Applied to Digital Twins
- 2.6.1. IoT. Link with Digital Twins
- 2.6.2. IoT. Relationship with Digital Twins
- 2.6.3. IoT. Problems and Possible Solutions

2.7. Digital Twin Environment
- 2.7.1. Companies
- 2.7.2. Organisation
- 2.7.3. Implications

2.8. Digital Twin Market
- 2.8.1. Platforms
- 2.8.2. Suppliers
- 2.8.3. Associated Services

2.9. Future of Digital Twins
- 2.9.1. Immersiveness
- 2.9.2. Augmented Reality
- 2.9.3. Biointerfaces

2.10. Digital Twins Present and future results
- 2.10.1. Platform
- 2.10.2. Technologies
- 2.10.3. Sectors

Module 3. Smart Cities as innovation tools

3.1. From Cities to Smart Cities
- 3.1.1. From Cities to Smart Cities
- 3.1.2. Cities Over Time and Cultures in Cities
- 3.1.3. Evolution of City Models

3.2. Technologies
- 3.2.1. Technological Application Platforms
- 3.2.2. Services/Citizen Interfaces
- 3.2.3. Technological Typologies

3.3. City as a Complex System
- 3.3.1. Components of a City
- 3.3.2. Interactions between Components
- 3.3.3. Applications: Products and Services in the City

3.4. Intelligent Safety Management
- 3.4.1. Current State
- 3.4.2. Technological Management Environments in the City
- 3.4.3. Future: Smart Cities in the Future

3.5. Intelligent Cleaning Management
- 3.5.1. Application Models in Intelligent Cleaning Services
- 3.5.2. Systems: Application of Intelligent Cleaning Services
- 3.5.3. Future of Intelligent Cleaning Services

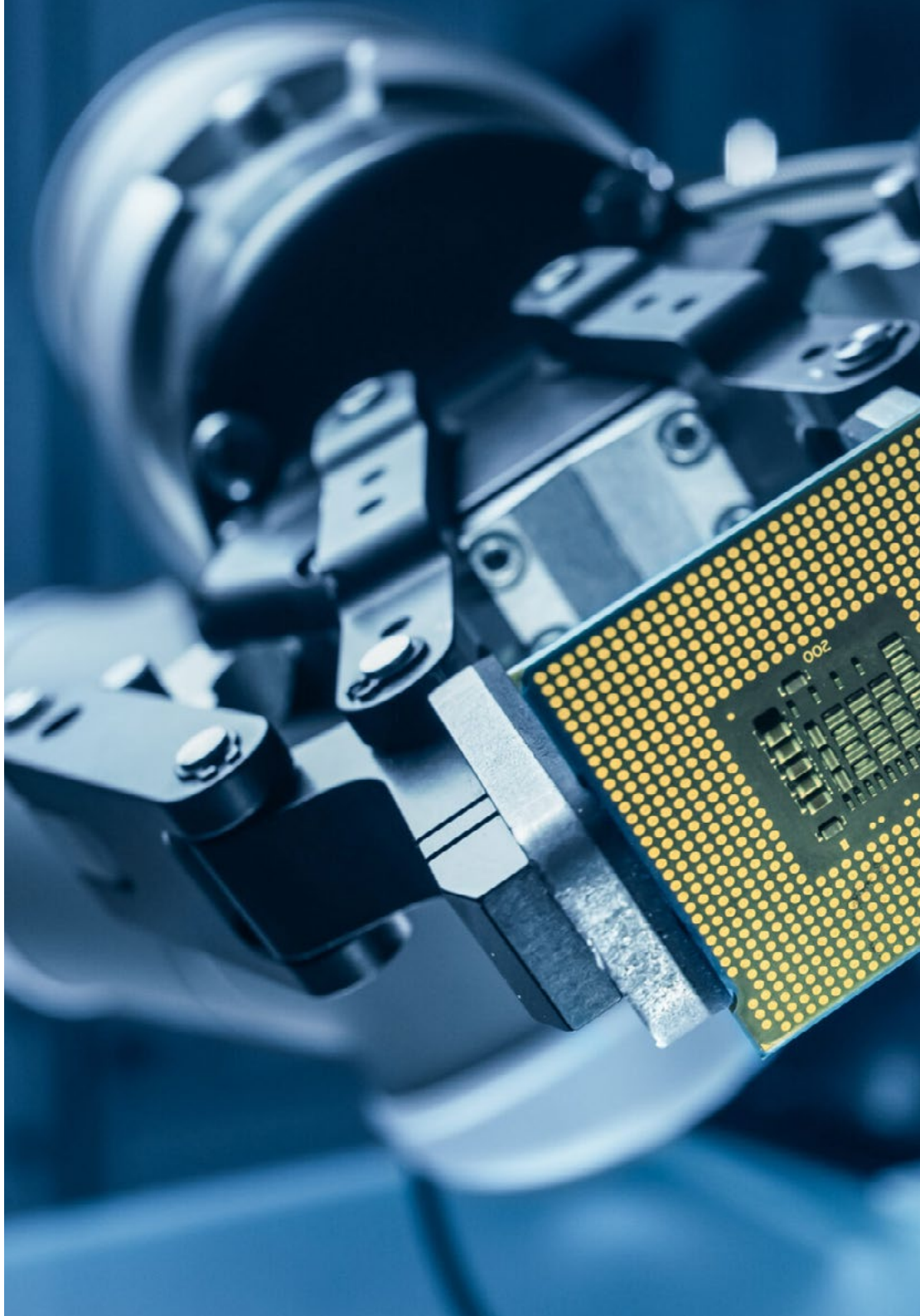
3.6. Intelligent Traffic Management
- 3.6.1. Traffic Evolution: Complexity and Factors Hindering Traffic Management
- 3.6.2. Problems
- 3.6.3. E-Mobility
- 3.6.4. Solutions

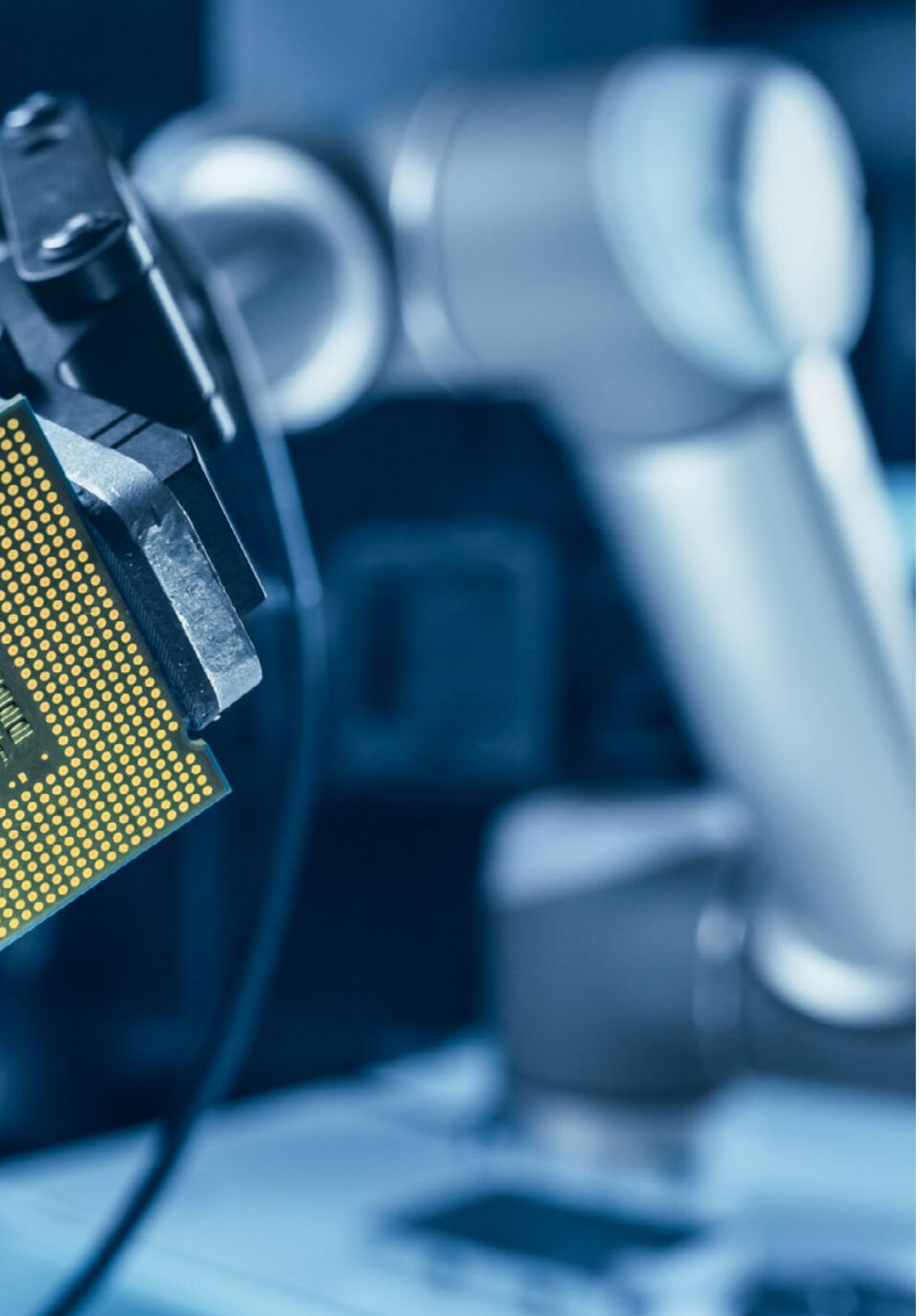
3.7. Sustainable City
- 3.7.1. Energy
- 3.7.2. The Water Cycle
- 3.7.3. Management Platform

3.8. Intelligent Leisure Management
- 3.8.1. Business Models
- 3.8.2. Urban Leisure Evolution
- 3.8.3. Associated Services

3.9. Large Social Event Management
- 3.9.1. Movement
- 3.9.2. Capacities
- 3.9.3. Health

3.10. Conclusions on the Present and Future of Smart Cities
- 3.10.1. Technology Platforms and Problems
- 3.10.2. Technologies, Integration in Heterogeneous Environments
- 3.10.3. Practical Applications in Different City Models





This Postgraduate Diploma is a highly qualified added value for any professional in the field of engineering"

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

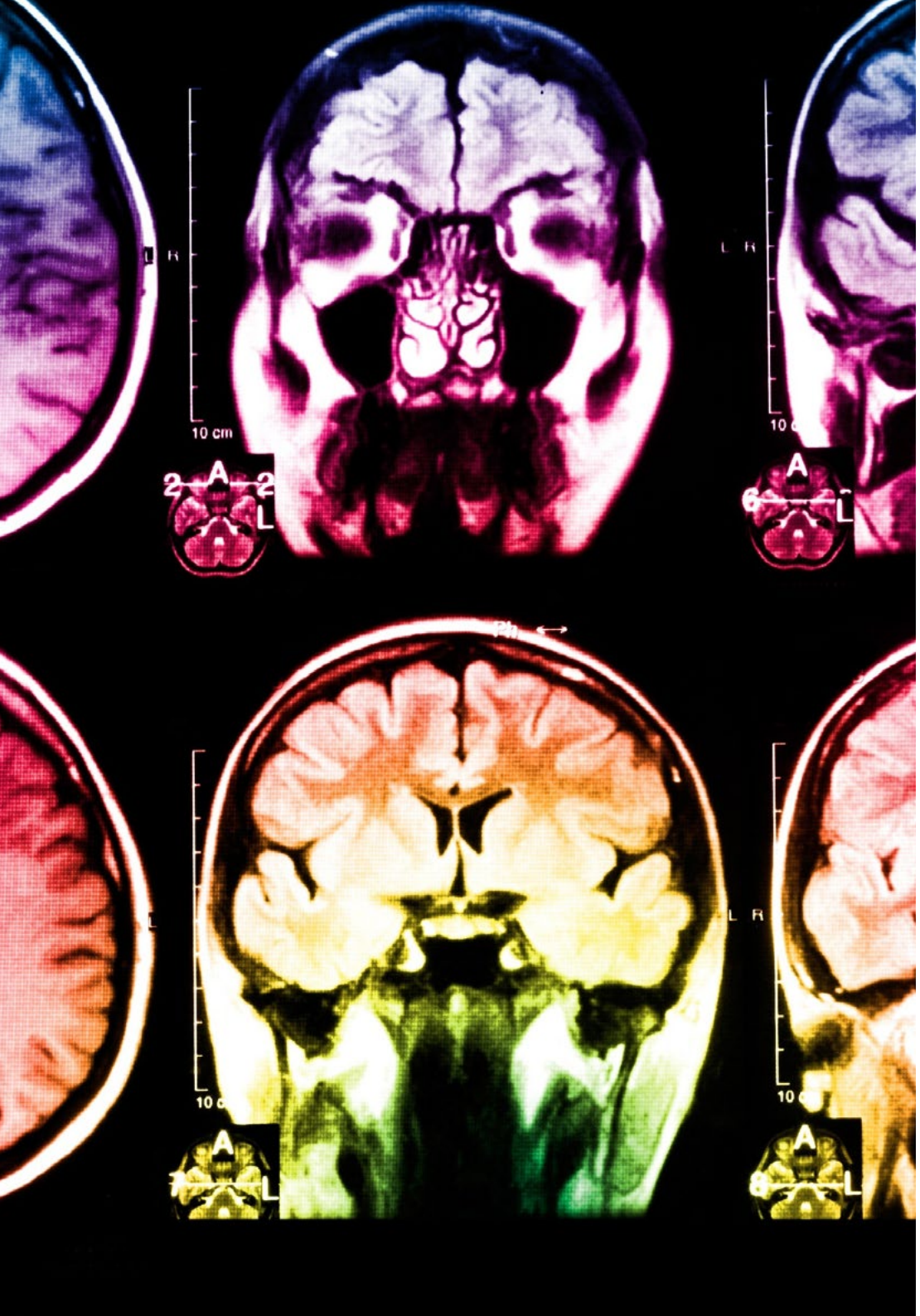
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

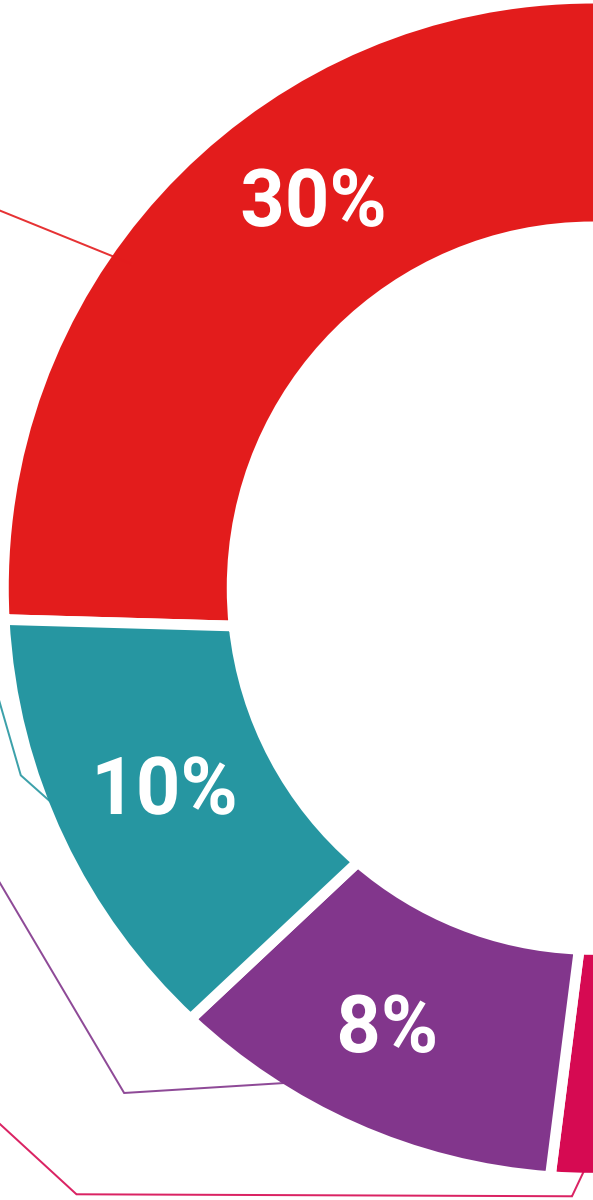
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

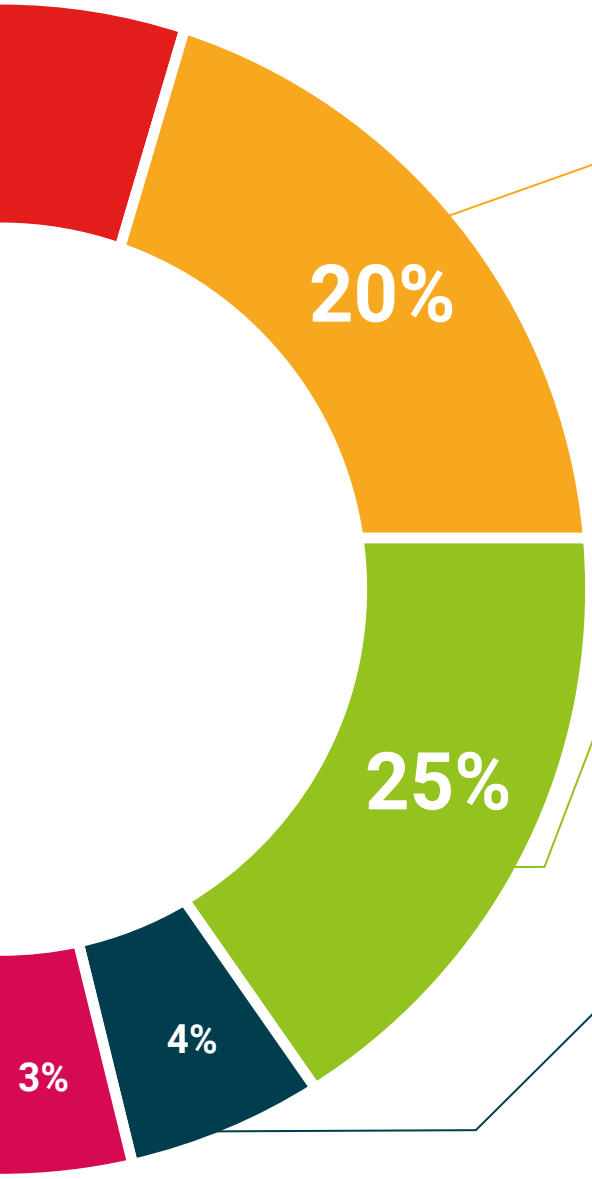
Practising Skills and Abilities

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 Diploma in Digital Transformation guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.

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

This **Postgraduate Diploma in Digital Transformation** contains the most complete and up-to-date program on the market.

After students have passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University via tracked delivery*.**

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

Title: **Postgraduate Diploma in Digital Transformation**

Official Nº of Hours: **450 h.**


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Digital Transformation

This is a qualification awarded by this University, equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

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 EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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