Hybrid Professional Master's Degree
Digital Transformation and Industry 4.0

tech technological university

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Hybrid Professional Master's Degree

Digital Transformation and Industry 4.0

Modality: **Hybrid (Online + Clinical Internship)**
Duration: **12 months**
Certificate: **TECH Technological University**
Teaching Hours: **1,620 h**
Website: **www.techtitute.com/pk/information-technology/hybrid-professional-master-degree/hybrid-professional-master-degree-digital-transformation-industry-40**

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01

Introduction

The era of digitalization and the advances that have occurred with technology have led to the development of the Fourth Industrial Revolution or Industry 4.0. This is characterized by the combination of complex, modern and sophisticated systems that allow companies to lower costs, increase production and obtain a higher profit margin compared to when traditional strategies were used. To this end, the entities must have a highly qualified professional specialized in the area, a distinction that the graduate will be able to obtain with the Postgraduate Certificate of this multidisciplinary program. Through a theoretical and practical academic experience, the computer scientist will be able to delve into the details and intricacies of digital transformation through the knowledge and use of its most innovative and effective tools and techniques.

TECH offers you the opportunity to take a theoretical and practical training course with which, in just 12 months, you will be able to define yourself as an expert specialist in Digital Transformation and Industry 4.0"

The emergence of the Internet of Things, the development of Artificial Intelligence and cognitive technologies, and the evolution of robotics have brought about the Fourth Industrial Revolution. This has forced companies to invest in IT systems adapted to their business, in order to increase productivity, reduce costs and boost profits, as well as to be able to compete in an increasingly aggressive, broad and specialized market. This digital transformation has enhanced the role of engineering professionals, who are now in great demand in the business workplace.

That is why TECH has considered it necessary to design this Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0. This is a program developed over a year that includes 1,500 hours of the best theoretical training, as well as 3 weeks of practical training in a prestigious company in the IT sector. Thanks to this, the graduate will have the opportunity to specialize in this sector in a guaranteed way, acquiring the skills required by the current labor demand.

For this purpose, you will have an online classroom 100% accessible from any device with an Internet connection, where you will find the syllabus, designed by experts in Computer Engineering, and hundreds of hours of additional high quality content in different formats. Once this period is over, you will become part of a team of specialists, actively participating in the projects that are being developed in the entity during the training. It is, therefore, the best academic you will find to improve your skills and adapt your profile, marking a before and after in your career.

This **Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0** contains the most complete and updated program on the market. It's most outstanding features are:

- Development of more than 100 case studies presented by IT professionals who are experts in digital transformation in Industry 4.0
- Their graphic, schematic and eminently practical contents provide precise information on those computer disciplines that are essential for professional practice
- Comprehensive knowledge of different automation systems
- Develop action plans based on services and sectorial solutions applicable to agriculture, livestock, energy, construction, mining, transportation, logistics, etc
- All this will be complemented with theoretical lessons, questions to the expert, discussion forums on controversial issues and individual reflection papers
- Content that is accessible from any fixed or portable device with an Internet connection
- In addition, you will be able to do an internship in one of the best IT companies

You will be able to delve into IoT, from the main existing wearable devices, to the development of Digital Twin integrated in a network"

A program that combines theory and practice to offer you training that meets your needs and the demands of today's job market"

In this Hybrid Professional Master's Degree proposal, of a professionalizing nature and blended learning modality, the program is aimed at updating nursing professionals. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge in nursing practice, and the theoretical-practical elements will facilitate the updating of knowledge and will allow decision making in patient management.

Thanks to the multimedia content, developed with the latest educational technology, nursing professionals will benefit from situated and contextual learning, i.e., a simulated environment that will provide immersive learning programmed to train in real situations. This program is designed around Problem-Based Learning, whereby the physician must try to solve the different professional practice situations that arise during the course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

Industry 4.0 is just taking off, but it is advancing at a very high pace. If you are interested in it, enroll now in this Hybrid Professional Master's Degree and do not be left behind.

You will be able to convert by yourself the facilities of the production process of any entity into an authentic and modern Smart Factory.

02

Why Study this Hybrid Professional Master's Degree?

In a market saturated with information, getting training that brings together the most specific and useful content for daily professional practice is essential for today's worker. For this reason, TECH has designed this new model of Hybrid Professional Master's Degree through which the student can combine the theoretical part 100% online with a final practical training of 3 weeks. In this way, you will apply everything you have learned and experience real cases of Digital Transformation in Industry 4.0. You will see firsthand the advantages of these procedures, as well as the possibility of participating in them.

You will experience multiple advantages after completing this Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0. You will get up to date on the most effective and cutting-edge methods and tools to provide solutions in each sector"

1. Updating from the latest technology available

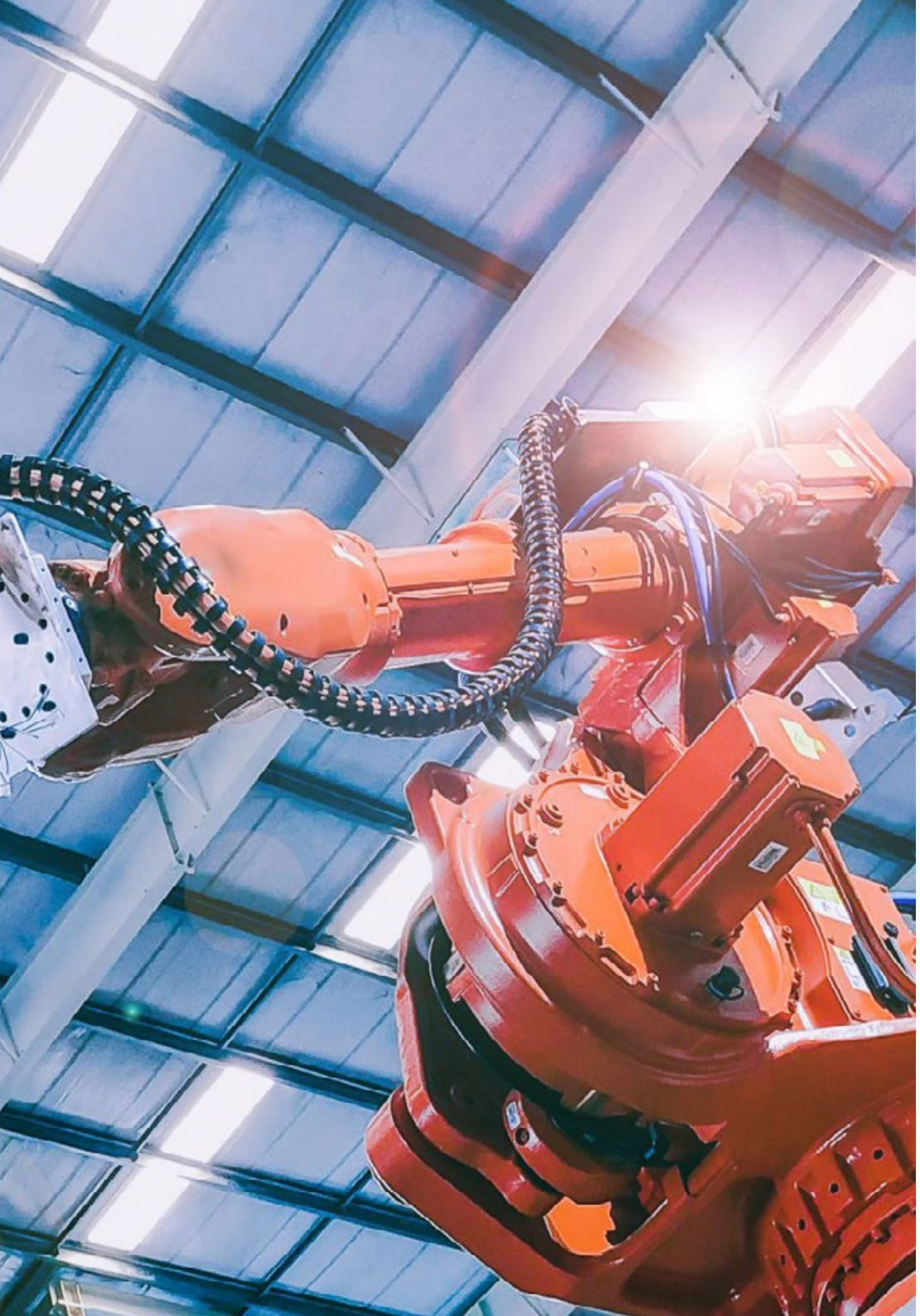
When it comes to state-of-the-art technology, this program contains everything that Industry 4.0 is all about. The student will be in charge of digital transformation activities within the company, with the use of new tools and automated systems, as well as the design of new proposals according to their perspective and adapting them to be useful within the environment where they develop their work.

2. Gaining In-Depth Knowledge from the Experience of Top Specialists

The student will always be guided by the team of experienced workers where the internship will take place and a designated tutor who will accompany them throughout the entire period within the company. This is a first-rate endorsement and an unprecedented guarantee of updating. Not to mention the theoretical part that has been completely designed by specialized professionals active in the labor market, so that each section is supported by the reality of the current industry.

3. Entering first-class Management environments

With the intention that the student develops this 100% practical learning process during 3 weeks in a comfortable way and with ample possibility of expansion, TECH has carefully selected the available centers suitable to the Digital and Industrial Transformation 4.0 process to be studied. As a result, the specialist will have guaranteed access to a prestigious working environment with the most exemplary real cases.



4. Combining the Best Theory with State-of-the-Art Practice

This program combines the theoretical part with practical training in line with each other. Each activity to be carried out within the business environment during the 3 weeks of internships has been designed by the team of teachers who have designed this program to achieve optimal results in a total of 12 months of study. Because of this, the curricular profile will be enhanced with new skills and competencies in line with the demands of today's labor market.

5. Expanding the Boundaries of Knowledge

TECH has established agreements with companies in different parts of the world, so the professional will have the possibility of choosing their preferred practical training center. In this way, the specialist will be able to expand their frontiers and catch up with the best professionals, who practice in cutting-edge business centers and on different continents. An exclusive training opportunity that only TECH can offer.

You will have full practical immersion at the center of your choice"

03

Objectives

The vast future possibilities revolving around Industry 4.0 and Digital Transformation that millions of companies around the world need to keep up with, is what gave TECH the idea to shape this program. The objective of this program is to provide graduates with the most specialized and in-depth knowledge that will enable them to perfect their professional skills and abilities, making them experts in the area and adapting their profile to the current labor demand.

Let yourself be guided by a center where tens of thousands of students have found the answer to all their questions thanks to the specialty of its programs"

General Objective

- This program has been designed with the objective of providing graduates with the necessary knowledge to enable them to carry out an exhaustive analysis of the profound transformation and radical paradigm shift that is being experienced in the current process of global digitalization. In addition, it aims to provide all the information and technological tools necessary to face and lead the technological leap and the challenges currently present in companies. As a result, TECH believes t will be able to master the digitization procedures of companies and the automation of their processes to create new areas of wealth in areas such as creativity, innovation and technological efficiency, as well as to lead the digital change

Specific Objectives

Module 1. Internet of Things (IoT)

- Know in detail the functioning of IoT and Industry 4.0 and its combinations with other technologies, its current situation, its main devices and uses and how hyperconnectivity gives rise to new business models where all products and systems are connected and in permanent communication
- Delve into the knowledge of an IoT platform and the elements that compose it, the challenges and opportunities to implement IoT platforms in factories and companies, the main business areas related to IoT platforms and the relationship between platforms, robotics and other emerging technologies
- Know the main existing Wearable devices, their usefulness, the security systems to be applied in any IoT model and its variant in the industrial world, called IIoT
- Develop, from all available data, the (Digital Twin) of the facilities/systems/assets integrated in an IoT network

Module 2. Industry 4.0 Automation Systems

- Better understanding of the main automation and control systems, their connectivity, the types of industrial communications and the type of data they exchange
- Convert the production process facilities into a true Smart Factory
- Be able to deal with large amounts of data, define their analysis and derive value from them
- Define continuous monitoring, predictive and prescriptive maintenance models

Module 3. Blockchain and quantum computing

- Acquire in-depth knowledge of the fundamentals of Blockchain technology and its value propositions
- Lead the creation of Blockchain-based projects and apply this technology to different business models and the use of tools such as Smart Contracts
- Acquire important knowledge about one of the technologies that will revolutionize the future, such as quantum computing

Module 4. Big Data and artificial intelligence

- Deepen the knowledge of the fundamental principles of artificial intelligence
- Master the techniques and tools of this technology (Machine Learning/Deep Learning)
- Obtain a practical knowledge of one of the most widespread applications such as Chatbots and virtual assistants
- Acquire specialized knowledge on the different transversal applications that this technology has in all fields

Module 5. Virtual, Augmented and Mixed Reality

- Acquire expert knowledge on the characteristics and fundamentals of virtual reality, augmented reality and mixed reality, as well as their differences
- Use the applications of each of these technologies to develop solutions individually and in an integrated manner, combining them to define immersive experiences

Module 6. Industry 4.0

- Analyze the origins of the so-called Fourth Industrial Revolution and the Industry 4.0 concept
- In-depth study of the key principles of Industry 4.0, the technologies on which they are based and the potential of all of them in their application to the different productive sectors
- Convert any manufacturing facility into a Smart Factory and be prepared for the challenges and challenges that come with it

Module 7. Leading Industry 4.0

- Understand the current online era and its leadership capacity, on which will depend the success and survival of the digital transformation processes in which any type of industry is involved

Module 8. Robotics, drones and Augmented Workers

- Entering the world of robotics and automation
- Choose a robotic platform, prototype and know in detail simulators and robot operating system (ROS)
- Delve into the applications of artificial intelligence to robotics oriented to predict behaviors and optimize processes
- Study robotics concepts and tools, as well as use cases, real examples and integration with other systems and demonstration
- Analyze the most intelligent robots that will be around in the next few years and how humanoid machines will be trained to perform in complex and challenging environments

Module 9. Industry 4.0. Services and Sectorial Solutions I

- Conduct an exhaustive analysis of the practical application that emerging technologies are having in the different economic sectors and in the value chain of their main industries
- In-depth knowledge of the primary and secondary economic sectors, as well as the technological impact they are experiencing
- Find out how technologies are revolutionizing the agricultural, livestock, industrial, energy and construction sectors

Module 10. Industry 4.0. Services and Sectorial Solutions II

- Possess a thorough understanding of the technological impact and how technologies are revolutionizing the tertiary economic sector in the fields of transportation and logistics, healthcare (E-Health and Smart Hospitals), smart cities, the financial sector (Fintech) and mobility solutions
- Knowing the technological trends of the future

If you are clear that you want to specialize in Industry 4.0, this Hybrid Professional Master's Degree will prepare you to be able to achieve even your most ambitious and demanding professional goals"

04

Skills

Over the course of this Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0, the graduate will work on perfecting their professional competencies and skills through specialized knowledge of their tools and strategies. Thanks to this, you will be able to expand your skills catalog and include in your resume a series of professional skills that will help you stand out in any personnel selection process, allowing you to apply for prestigious jobs in large companies in the IT sector.

Investing your time in a program that guarantees you the acquisition of the skills of a true Digital Transformation professional is a guaranteed bet on the future"

General Skills

- Develop an Industry 4.0 oriented strategy
- Have a thorough knowledge of the fundamental elements to successfully carry out a digital transformation process adapted to the new market rules
- Develop an advanced knowledge of the new emerging and exponential technologies that are affecting the vast majority of industrial and business processes in the market
- Adapt to the current market situation governed by automation, robotization and IoT platforms
- Apply the necessary tools to lead technological innovation and digital transformation processes

You will make a difference with multiple cutting-edge skills that will shape your profile specialized in Digital Transformation and Industry 4.0"

Specific Skills

- Secure an existing IoT ecosystem or creating a secure one by deploying intelligent security systems
- Automate production systems with the integration of robots and industrial robotics systems
- Maximize value creation for the customer by applying Lean Manufacturing to the digitalization of our production process
- Know how the Blockchain works and the characteristics of the so-called networks
- Use the main techniques of artificial intelligence such as Machine Learning and Deep Learning, Neural Networks, and the applicability and use of Natural Language Recognition
- Face the great challenges related to artificial intelligence, such as providing it with emotions, creativity and personality, even considering how ethical and moral connotations may be affected in its use
- Create useful Chatbots and virtual assistants
- Create virtual worlds and elevate User Experience (UX) enhancement
- Integrate the benefits and main advantages of Industry 4.0
- Learn more about the key factors of the digital transformation of industry and the industrial internet
- Lead the new business models derived from Industry 4.0
- Develop future production models
- Face the challenges of Industry 4.0 and understanding its effects
- Master the essential technologies of Industry 4.0
- Lead manufacturing digitization processes and identify and define digital capabilities in an organization
- Define the architecture behind a Smart Factory
- Reflect on technological markers in the post-covid era and in the era of absolute virtualization
- Learn more about the current situation in the digital transformation
- Use RPA (Robotic Process Automation) to automate processes in companies, gain efficiency and reduce costs
- Address the major challenges facing robotics and automation, such as transparency and ethics
- Know the business strategies derived from Industry 4.0, its value chain and the factors of digitalization of its processes

05

Course Management

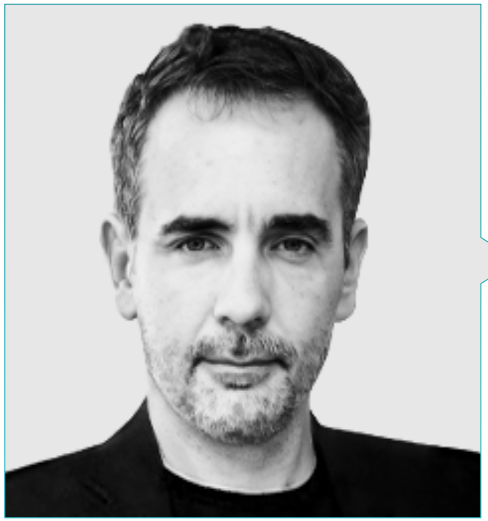
For the formation of the teaching team of this Hybrid Professional Master's Degree, TECH has chosen a group of experts from different branches of Engineering, but with a broad and extensive professional experience in common. They are specialists who have worked for years in different Industry 4.0 projects, so they know in detail its ins and outs, as well as the keys to master it. The faculty will make their experience available to the graduates so that they can learn from it and get the most out of this academic experience.

The teaching team will be at your disposal to answer any questions you may have during the course of this academic experience"

Management

Mr. Segovia Escobar, Pablo

- Chief Executive of the Defense Sector in the La company TECNOBIT of the Oesía Group
- Project La Manager at Indra
- Master's Degree in Business Administration and Management from the National University of Distance Education
- Postgraduate in Strategic Management Function
- Spanish Association of People with High Intellectual Quotient



Mr. Diezma López, Pedro

- Chief Innovation Officer and CEO of Zerintia Technologies
- Founder of the technology company Acuilae
- Member of the Kebala Group for the incubation and promotion of businesses
- Consultant for technology companies such as Endesa, Airbus or Telefónica
- "Best Initiative" Wearable Award in eHealth 2017 and "Best Technological Solution" 2018 for Occupational Safety

Professors

Mr. Asenjo Sanz, Álvaro

- IT Consultant for Capitole Consulting
- Project Manager for Kolokium Blockchain Technologies
- IT Engineer for Aubay, Tecnocom, Humantech, Ibermatica and Acens Technologies
- Degree from Computer Engineering of Systems at the Complutense University of Madrid

Mr. Castellano Nieto, Francisco

- Head of the Maintenance Area of Indra Company
- Consultant for Siemens AG, Allen-Bradley, Rockwell Automation and other companies
- Industrial Electronic Engineer from Comillas Pontifical University

Mr. Montes, Armando

- Expert in drones, robots and electronics, and 3D printers
- EMERTECH collaborator developing technological products such as Smart Vest
- Customer Ordering and Fulfillment Specialist for GE Renewable Energy
- CEO of the School of Superheroes Foundation related to 3D Printing and the Implementation of Intelligent Robots

Ms. Sánchez López, Cristina

- CEO and founder of Acuilae
- Artificial Intelligence Consultant at ANHELA IT
- Developer of Ethyka Software for Computer Systems Security
- Software Engineer for Acceture Group, serving clients such as Banco Santander, BBVA and Endesa
- Master's Degree in Data Science at KSchool
- Degree in Statistics from the Complutense University Madrid

Mr. González Cano, José Luis

- Lighting Designer
- Vocational training teacher in electronic systems, telematics (CISCO certified instructor), radio communications, IoT
- Degree in Optics and Optometry from the Complutense University of Madrid
- Industrial Electronics Technician by Netecad Academy
- The Professional Association of Lighting Designers (Technical Consultant), Member of the Spanish Lighting Committee

Professionals with decades of experience and senior positions have designed this program from the latest insight on Digital Transformation and Industry 4.0"

06

Educational Plan

Part of TECH's success lies in the pioneering use of the Relearning pedagogical methodology, which consists mainly in the reiteration of the most important concepts throughout the syllabus, favoring a natural and progressive acquisition of knowledge. In addition, this strategy also includes the resolution of real cases, so that the graduate will have to apply what they have learned during the theoretical training period, fixing the information and ensuring a more prepared and argued participation in the practical stay.

In the Online Classroom you will find hundreds of hours of additional high quality material to go deeper into aspects such as Blockchain or quantum computing in a dynamic and entertaining way"

Module 1. Internet of Things (IoT)

1.1. Cyber-Physical Systems (CPS) in the Industry 4.0 Vision
- 1.1.1. Internet of Things (IoT)
- 1.1.2. Components Involved in IoT
- 1.1.3. Cases and Applications of IoT

1.2. Internet of Things and Cyber-Physical Systems
- 1.2.1. Computing and Communication Capabilities to Physical Objects
- 1.2.2. Sensors, Data and Elements in Cyber-Physical Systems

1.3. Device Ecosystem
- 1.3.1. Typologies, Examples and Uses
- 1.3.2. Applications of the Different Devices

1.4. IoT Platforms and their Architecture
- 1.4.1. IoT Market Typologies and Platforms
- 1.4.2. Operation of an IoT Platform

1.5. Digital Twins
- 1.5.1. Digital Twin
- 1.5.2. Uses and Applications of the Digital Twin

1.6. Indoor & outdoor Geolocation (Real Time Geospatial)
- 1.6.1. Indoor and Outdoor Geolocation Platforms
- 1.6.2. Implications and Challenges of Geolocation in an IoT Project

1.7. Security Intelligence Systems
- 1.7.1. Typologies and Platforms for Security Systems Implementation
- 1.7.2. Components and Architectures in Intelligent Safety Systems

1.8. IoT and IIoT Platform Security
- 1.8.1. Security Components in an IoT System
- 1.8.2. IoT Security Implementation Strategies

1.9. Wearables at Work
- 1.9.1. Types of Wearables in Industrial Environments
- 1.9.2. Lessons Learned and Challenges in Implementing Wearables in the Workplace

1.10. Implementing an API to Interact with a Platform
- 1.10.1. Types of APIs Involved in an IoT Platform
- 1.10.2. API Market
- 1.10.3. Strategies and Systems to Implement API Integrations

Module 2. Industry 4.0 Automation Systems

2.1. Industrial Automation
- 2.1.1. Automatization
- 2.1.2. Architecture and Components
- 2.1.3. Safety

2.2. Industrial Robotics
- 2.2.1. Fundamentals of Industrial Robotics
- 2.2.2. Models and Impact on Industrial Processes

2.3. PLC Systems and Industrial Control
- 2.3.1. PLC Evolution and Status
- 2.3.2. Evolution of Programming Languages
- 2.3.3. Computer Integrated Automation CIM

2.4. Sensors and Actuators
- 2.4.1. Classification of Transducers
- 2.4.2. Types of Sensors
- 2.4.3. Standardization of Signals

2.5. Monitor and Manage
- 2.5.1. Types of Actuators
- 2.5.2. Feedback Control Systems

2.6. Industrial Connectivity
- 2.6.1. Standardized Fieldbuses
- 2.6.2. Connectivity

2.7. Proactive / Predictive Maintenance
- 2.7.1. Predictive Maintenance
- 2.7.2. Fault Identification and Analysis
- 2.7.3. Proactive Actions Based on Predictive Maintenance

2.8. Continuous Monitoring and Prescriptive Maintenance
- 2.8.1. Prescriptive Maintenance Concept in Industrial Environments
- 2.8.2. Selection and Exploitation of Data for Self-Diagnostics

2.9. Lean Manufacturing
- 2.9.1. Lean Manufacturing
- 2.9.2. Benefits of Lean Implementation in Industrial Processes

2.10. Industrialized Processes in Industry 4.0. Use Case
- 2.10.1. Project definition
- 2.10.2. Technological Selection
- 2.10.3. Connectivity
- 2.10.4. Data Exploitation

Module 3. Blockchain and Quantum Computing

3.1. Aspects of Decentralization
- 3.1.1. Market Size, Growth, Companies and Ecosystem
- 3.1.2. Fundamentals of Blockchain

3.2. Background: Bitcoin, Ethereum, etc
- 3.2.1. Popularity of Decentralized Systems
- 3.2.2. Evolution of Decentralized Systems

3.3. Blockchain Operation and Examples
- 3.3.1. Types of Blockchain and Protocols
- 3.3.2. Wallets, Mining and More

3.4. Characteristics of Blockchain Networks
- 3.4.1. Functions and Properties of Blockchain Networks
- 3.4.2. Applications: Cryptocurrencies, Reliability, Chain of Custody, etc

3.5. Types of Blockchain
- 3.5.1. Public and Private Blockchains
- 3.5.2. Hard and Soft Forks

3.6. Smart Contracts
- 3.6.1. Intelligent Contracts and Their Potential
- 3.6.2. Smart Contract Applications

3.7. Industry Use Models
- 3.7.1. Blockchain Applications by Industry
- 3.7.2. Blockchain Success Stories by Industry

3.8. Security and Cryptography
- 3.8.1. Objectives of Cryptography
- 3.8.2. Digital Signatures and Hash Functions

3.9. Cryptocurrencies and Uses
- 3.9.1. Types of Cryptocurrencies Bitcoin, HyperLedger, Ethereum, Litecoin, etc
- 3.9.2. Current and Future Impact of Cryptocurrencies
- 3.9.3. Risks and Regulations

3.10. Quantum Computing
- 3.10.1. Definition and Keys
- 3.10.2. Uses of Quantum Computing

Module 4. Big Data and artificial intelligence

4.1. Fundamental Principles of Big Data
- 4.1.1. Big Data
- 4.1.2. Tools to Work With Big Data

4.2. Data Mining and Warehousing
- 4.2.1. Data Mining Cleaning and Standardization
- 4.2.2. Information Extraction, Machine Translation, Sentiment Analysis, etc
- 4.2.3. Types of Data Storage

4.3. Data Intake Applications
- 4.3.1. Principles of Data intake
- 4.3.2. Data Ingestion Technologies to Serve Business Needs

4.4. Data Visualization
- 4.4.1. The Importance of Data Visualization
- 4.4.2. Tools to Carry It Out Tableau, D3, matplotlib (Python), Shiny®

4.5. Machine Learning
- 4.5.1. Understanding Machine Learning
- 4.5.2. Supervised and Unsupervised Learning
- 4.5.3. Types of Algorithms

4.6. Neural Networks (Deep Learning)
- 4.6.1. Neural Network: Parts and Operation
- 4.6.2. Types of Networks CNN, RNN
- 4.6.3. Applications of Neural Networks; Image Recognition and Natural Language Interpretation
- 4.6.4. Generative Text Networks: LSTM

4.7. Natural Language Recognition
- 4.7.1. PLN (Processing Natural Language)
- 4.7.2. Advanced PLN Techniques: Word2vec, Doc2vec

4.8. Chatbots and Virtual Assistants
- 4.8.1. Types of Assistants: Voice and Text Assistants
- 4.8.2. Fundamental Parts for the Development of an Assistant: Intents, Entities and Dialog Flow
- 4.8.3. Integrations: Web, Slack, Whatsapp, Facebook, etc
- 4.8.4. Assistant Development Tools: Dialog Flow, Watson Assistant

4.9. Emotions, Creativity and Personality in IA
- 4.9.1. Understand How to Detect Emotions Using Algorithms
- 4.9.2. Creating a Personality: Language, Expressions and Content

4.10. Future of Artificial Intelligence

4.11. Reflections

Module 5. Virtual, Augmented and Mixed Reality

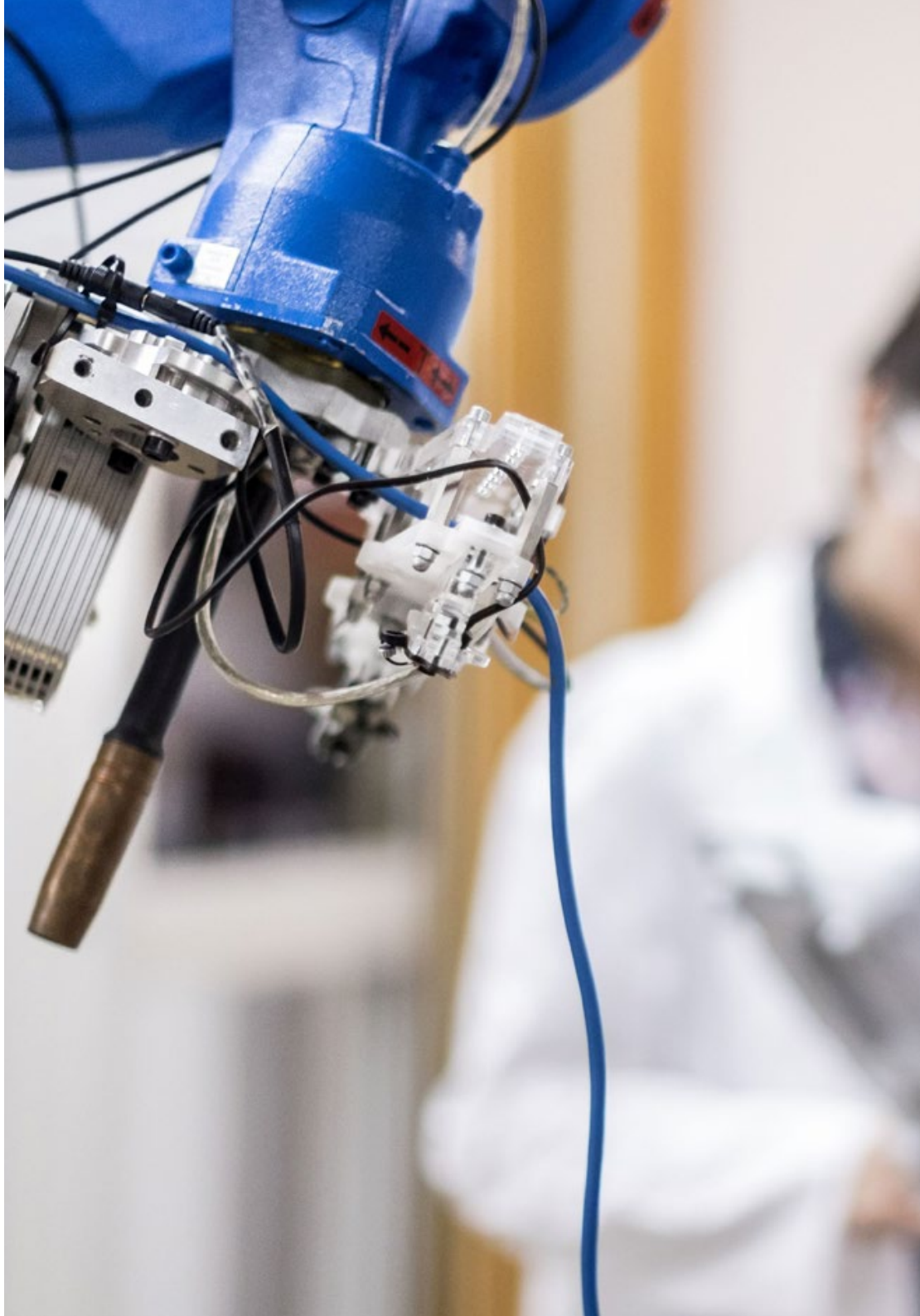
5.1. Market and Tendencies
- 5.1.1. Current Market Situation
- 5.1.2. Reports and Growth by Different Industries

5.2. Differences Between Virtual, Augmented and Mixed Reality
- 5.2.1. Differences Between Immersive Realities
- 5.2.2. Immersive Reality Typology

5.3. Online reality: cases and uses
- 5.3.1. Origin and Fundamentals of Virtual Reality
- 5.3.2. Cases Applied to Different Sectors and Industries

5.4. Augmented Reality: cases and uses
- 5.4.1. Origin and Fundamentals of Augmented Reality
- 5.4.2. Cases Applied to Different Sectors and Industries

5.5. Mixed and Holographic Reality
- 5.5.1. Origin, History and Fundamentals of Mixed and Holographic Reality
- 5.5.2. Cases Applied to Different Sectors and Industries



5.6. 360º Photography and Video
- 5.6.1. Camera Typology
- 5.6.2. Uses of 360 Images
- 5.6.3. Creating a Virtual Space in 360 Degrees

5.7. Virtual World Creation
- 5.7.1. Platforms for the Creation of Virtual Environments
- 5.7.2. Strategies for the Creation of Virtual Environments

5.8. User Experience (UX)
- 5.8.1. Components in the User Experience
- 5.8.2. Tools for the Creation of User Experiences

5.9. Devices and Glasses for Immersive Technologies
- 5.9.1. Device Typology on the Market
- 5.9.2. Glasses and Wearables: Operation, Models and Uses
- 5.9.3. Smart Glasses Applications and Evolution

5.10. Future Immersive Technologies
- 5.10.1. Tendencies and Evolution
- 5.10.2. Challenges and Opportunities

Module 6. Industry 4.0

6.1. Definition of 4.0 Industry
- 6.1.1. Features

6.2. Benefits of the 4.0 Industry
- 6.2.1. Key Factors
- 6.2.2. Main Advantages

6.3. Industrial Revolutions and Vision of the Future
- 6.3.1. Industrial Revolutions
- 6.3.2. Keys Factors in Each Revolution
- 6.3.3. Technological Principles as a Basis for Possible New Revolutions

6.4. The Digital Transformation of the Industry
- 6.4.1. Characteristics of the Digitization of the Industry
- 6.4.2. Disruptive Technologies
- 6.4.3. Applications in the Industry

6.5. Forth Industrial Revolution Key Principles of Industry 4.0
- 6.5.1. Definitions
- 6.5.2. Key Principles and Applications

6.6. 4.0 Industry and Industrial Internet
- 6.6.1. Origin of IIoT
- 6.6.2. Operation
- 6.6.3. Steps to Follow for its Implementation
- 6.6.4. Benefits

6.7. Smart Factory Principles
- 6.7.1. Smart Factory
- 6.7.2. Elements that Define a Smart Factory
- 6.7.3. Steps to Deploy a Smart Factory

6.8. Status of the 4.0 Industry
- 6.8.1. Status of the 4.0 Industry in Different Sectors
- 6.8.2. Barriers to the Implementation of 4.0 Industry

6.9. Challenges and Risks
- 6.9.1. SWOT Analysis
- 6.9.2. Challenges

6.10. Role of Technological Capabilities and the Human Factor
- 6.10.1. Disruptive Technologies in Industry 4.0
- 6.10.2. The Importance of the Human Factor Key Factor

Module 7. Leading Industry 4.0

7.1. Leadership Abilities
- 7.1.1. Leadership Factors in the Human Factor
- 7.2.2. Leadership and Technology

7.2. Industry 4.0 and the Future of Production
- 7.2.1. Definitions
- 7.2.2. Production Systems
- 7.2.3. Future of Digital Production Systems

7.3. Effects of Industry 4.0
- 7.3.1. Effects and Challenges

7.4. Essential Technologies in Industry 4.0
- 7.4.1. Definition of Technologies
- 7.4.2. Characteristics of Technologies
- 7.4.3. Applications and Impacts

7.5. Digitization of Manufacturing
- 7.2.1. Definitions
- 7.5.2. Benefits of the Digitization of Manufacturing
- 7.5.3. Digital Twins

7.6. Digital Capabilities in an Organization
- 7.6.1. Development Digital Capabilities
- 7.6.2. Understanding the Digital Ecosystem
- 7.6.3. Digital Vision of the Business

7.7. Architecture Behind a Smart Factory
- 7.7.1. Areas and Operations
- 7.7.2. Connectivity and Security
- 7.7.3. Case Uses

7.8. Technology Markers in the Post-Covid Era
- 7.8.1. Technological Challenges in the Post-Covid Era
- 7.8.2. New Case Uses

7.9. The Era of Absolute Virtualization
- 7.9.1. Virtualization
- 7.9.2. The New Era of Virtualization
- 7.9.3. Advantages

7.10. Current Situation in Digital Transformation Gartner Hype
- 7.10.1. Gartner Hype
- 7.10.2. Analysis of Technologies and Their Status
- 7.10.3. Data Exploitation

Module 8. Robotics, Drones and Augmented Workers

8.1. Robotics
- 8.1.1. Robotics, Societies and Cinema
- 8.1.2. Components and Parts of Robot

8.2. Robotics and Advanced Automation: Simulators, Cobots
- 8.2.1. Transfer of Learning
- 8.2.2. Cobots and Case Uses

8.3. RPA (Robotic Process Automatization)
- 8.3.1. Understanding RPA and its Functioning
- 8.3.2. RPA Platforms, Projects and Roles

8.4. Robot as a Service (RaaS)
- 8.4.1. Challenges and Opportunities for Implementing RaaS Services and Robotics in Enterprises
- 8.4.2. Functioning of a RaaS system

8.5. Drones and Automated Vehicles
- 8.5.1. Components and Drones Operation
- 8.5.2. Uses, Types and Applications of Drones
- 8.5.3. Evolution of Drones and Autonomous Vehicles

8.6. The Impact of 5G
- 8.6.1. Evolution of Communications and Implications
- 8.6.2. Uses of 5G Technology

8.7. Augmented Workers
- 8.7.1. Human-Machine Integration in Industrial Environments
- 8.7.2. Challenges in Worker-Robot Collaboration

8.8. Transparency, Ethics and Traceability
- 8.8.1. Ethical Challenges in Robotics and Artificial Intelligence
- 8.8.2. Monitoring, Transparency and Traceability Methods

8.9. Prototyping, Components and Evolution
- 8.9.1. Prototyping Platforms
- 8.9.2. Phases to Make a Prototype

8.10. Future of Robotics
- 8.10.1. Trends in Robotization
- 8.10.2. New Types of Robots

Module 9. Industry 4.0. Services and Sectorial Solutions I

9.1. Industry 4.0 and Business Strategies
- 9.1.1. Factors of Business Digitalization
- 9.1.2. Roadmap for Business Digitalization

9.2. Digitalization of Processes and the Value Chain
- 9.2.1. Value Chain
- 9.2.2. Key Steps in the Digitization of Processes

9.3. Sectorial Solutions: Primary Sector
- 9.3.1. The Primary Economic Sector
- 9.3.2. Characteristics of Each Subsector

9.4. Digitization of the Primary Sector: Smart Farms
- 9.4.1. Main Characteristics
- 9.4.2. Keys Factors of Digitization

9.5. Digitization of the Primary Sector: Digital and Intelligent Agriculture
- 9.5.1. Main Characteristics
- 9.5.2. Keys Factors of Digitization

9.6. Sectorial Solutions: Secondary Sector
- 9.6.1. The Secondary Economic Sector
- 9.6.2. Characteristics of Each Subsector

9.7. Digitization of the Secondary Sector: Smart Factory
- 9.7.1. Main Characteristics
- 9.7.2. Keys Factors of Digitization

9.8. Digitization of the Secondary Sector: Energy
- 9.8.1. Main Characteristics
- 9.8.2. Keys Factors of Digitization

9.9. Digitization of the Secondary Sector: Construction
- 9.9.1. Main Characteristics
- 9.9.2. Keys Factors of Digitization

9.10. Digitization of the Secondary Sector: Mining
- 9.10.1. Main Characteristics
- 9.10.2. Keys Factors of Digitization

Module 10. Industry 4.0. Sector Services and Solutions II

10.1. Sectorial Solutions: Tertiary Sector
- 10.1.1. Tertiary Economic Sector
- 10.1.2. Characteristics of Each Subsector

10.2. Digitalization of the Tertiary Sector: Transportation
- 10.2.1. Main Characteristics
- 10.2.2. Keys Factors of Digitization

10.3. Digitization of the Tertiary Sector: e-Health
- 10.3.1. Main Characteristics
- 10.3.2. Keys Factors of Digitization

10.4. Digitization of the Tertiary Sector: Smart Hospitals
- 10.4.1. Main Characteristics
- 10.4.2. Keys Factors of Digitization

10.5. Digitization of the Tertiary Sector: Smart Cities
- 10.5.1. Main Characteristics
- 10.5.2. Keys Factors of Digitization

10.6. Digitalization of the Tertiary Sector: Logistics
- 10.6.1. Main Characteristics
- 10.6.2. Keys Factors of Digitization

10.7. Digitalization of the Tertiary Sector: Tourism
- 10.7.1. Main Characteristics
- 10.7.2. Keys Factors of Digitization

10.8. Digitization of the Tertiary Sector: Fintech
- 10.8.1. Main Characteristics
- 10.8.2. Keys Factors of Digitization

10.9. Digitalization of the Tertiary Sector: Mobility
- 10.9.1. Main Characteristics
- 10.9.2. Keys Factors of Digitization

10.10. Future Technological Tendencies
- 10.10.1. New Technological Innovations
- 10.10.2. Application Trends

07

Clinical Internship

Once the theoretical part has been passed, the most awaited moment for most graduates arrives: the practical period. TECH, in its commitment to offer all the opportunities within its reach so that students can progress academically and professionally, will offer them the possibility of working for 120 hours in a large company in the IT sector.

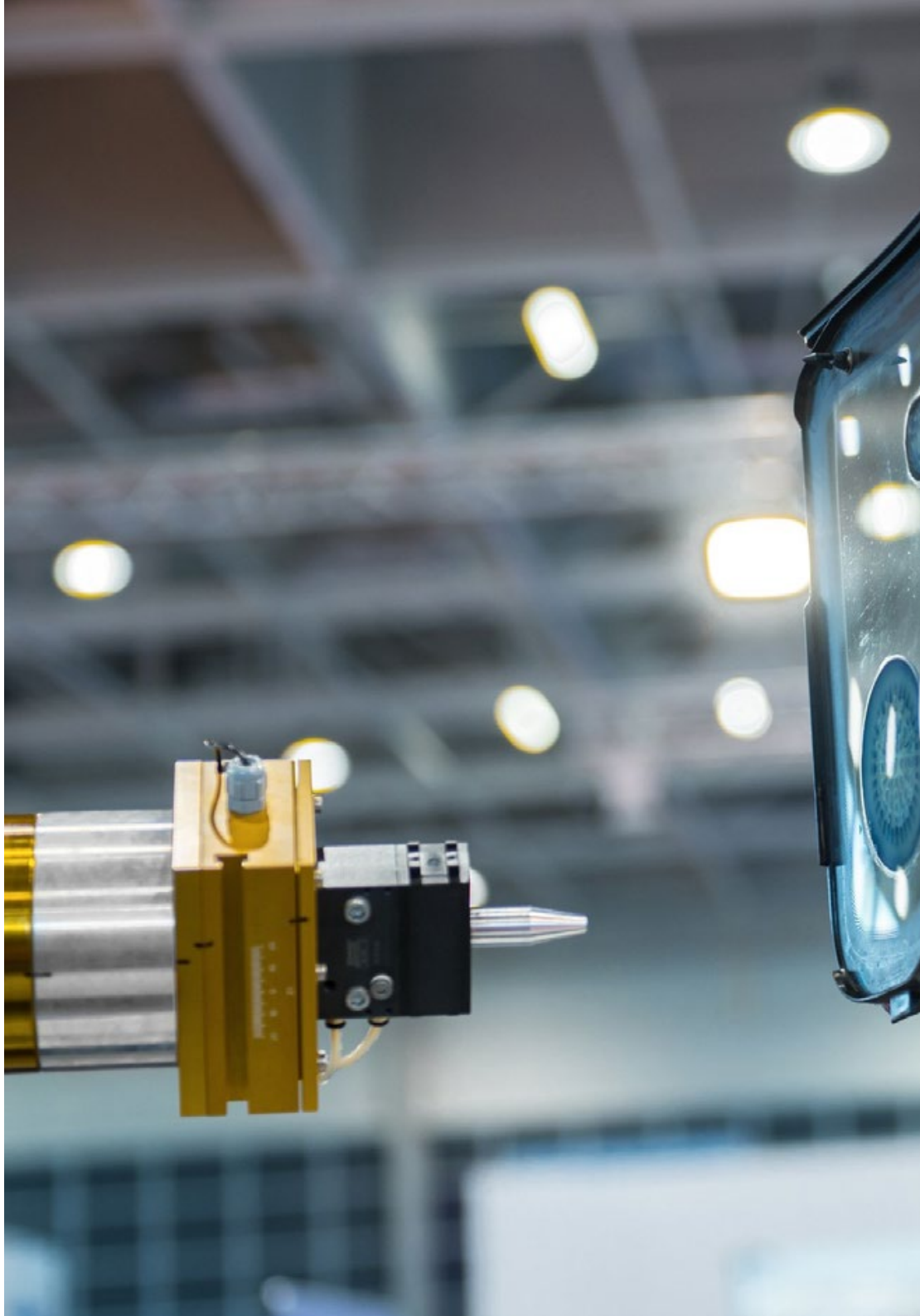
A unique opportunity to be part of a team of highly experienced computer engineers who are eager to teach you how to master the ins and outs of the profession"

TECH believes that, for any graduate, having a program that guarantees a practical stay in a prestigious center is a unique and unparalleled opportunity to complete their academic development and face the labor market in a more prepared and specialized way. For this reason, TECH has developed this program that includes 120 hours in a leading company in the IT sector, where he will be able to work, from Monday to Friday and with 8-hour consecutive working days, together with engineering professionals.

In this training proposal, the activities are aimed at the development and improvement of the competencies necessary for the provision of activities related to Digital Transformation and Industry 4.0, and which are oriented to the specific endowment for the exercise of the profession, with high job performance.

Thanks to this opportunity, the graduate will be able to work on improving their skills in the management of automation systems, as well as enter in a specialized way in the world of robotics, online reality, Blockchain and quantum computing. All this, through the use of the best and most sophisticated tools, and tutored by an industry professional who will ensure that the experience is as enriching and empowering as possible.

The practical part will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other training partners to facilitate teamwork and multidisciplinary integration as transversal competencies for advanced computer praxis (learning to be and learning to relate).



The procedures described below will be the basis of the practical part of the training, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:

Module	Practical Activity
Industry 4.0 solutions and services for the industry	Implement and manage the Industrial Internet of Things (IIoT) in the business sector
	Perform a SWOT analysis that takes into account the advantage of Industry 4.0 in the most relevant industrial factors
	Manage the underlying digital architecture of a Smart Factory
	Employ digital leadership techniques in an Industry 4.0 environment
	Analyze data and propose Industry 4.0 sector solutions based on the area of work developed
Industry 4.0 automation systems	Manage connectivity and automation systems in an industrial environment, operating with data generated on a day-to-day basis
	Analyze and evaluate large amounts of data
	Monitor and perform appropriate maintenance for all automation systems
	Configure a Machine Learning-based assistive Chatbot
	Employ Machine Learning or Deep Learning in handling large volumes of data
New technologies within Industry 4.0	Employ the basic fundamentals of blockchain technology in a professional industrial environment
	Use Smart Contracts and Big Data tools to address common issues in the Digital Industry
	Take advantage of Quantum Computing and apply it to an industrial project
	Develop digital twins of facilities, systems or assets integrated in an IoT network
	Make use of the most common Wearables in online reality of industry 4.0
	Prototype and operate robotic platforms and operational simulators

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. 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, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training 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 Professional 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 with 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, 5 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 Professional 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 pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Professional 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 Professional 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 Professional 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.

08

Where Can I Do the Clinical Internship?

Joining the companies that TECH offers as internships is not easy, and not all of them meet the demanding requirements that this center has to fulfill in order for the graduate to achieve his or her objectives. That is why the training of this Hybrid Professional Master's Degree will take place in a prestigious company within the IT sector, characterized by its experience and by the positive assessment of its customers.

Including this experience on your resume will open new doors in your future career"

The student will be able to take the practical part of this Hybrid Professional Master's Degree in the following centers:

Information Technology

Grupo Fórmula

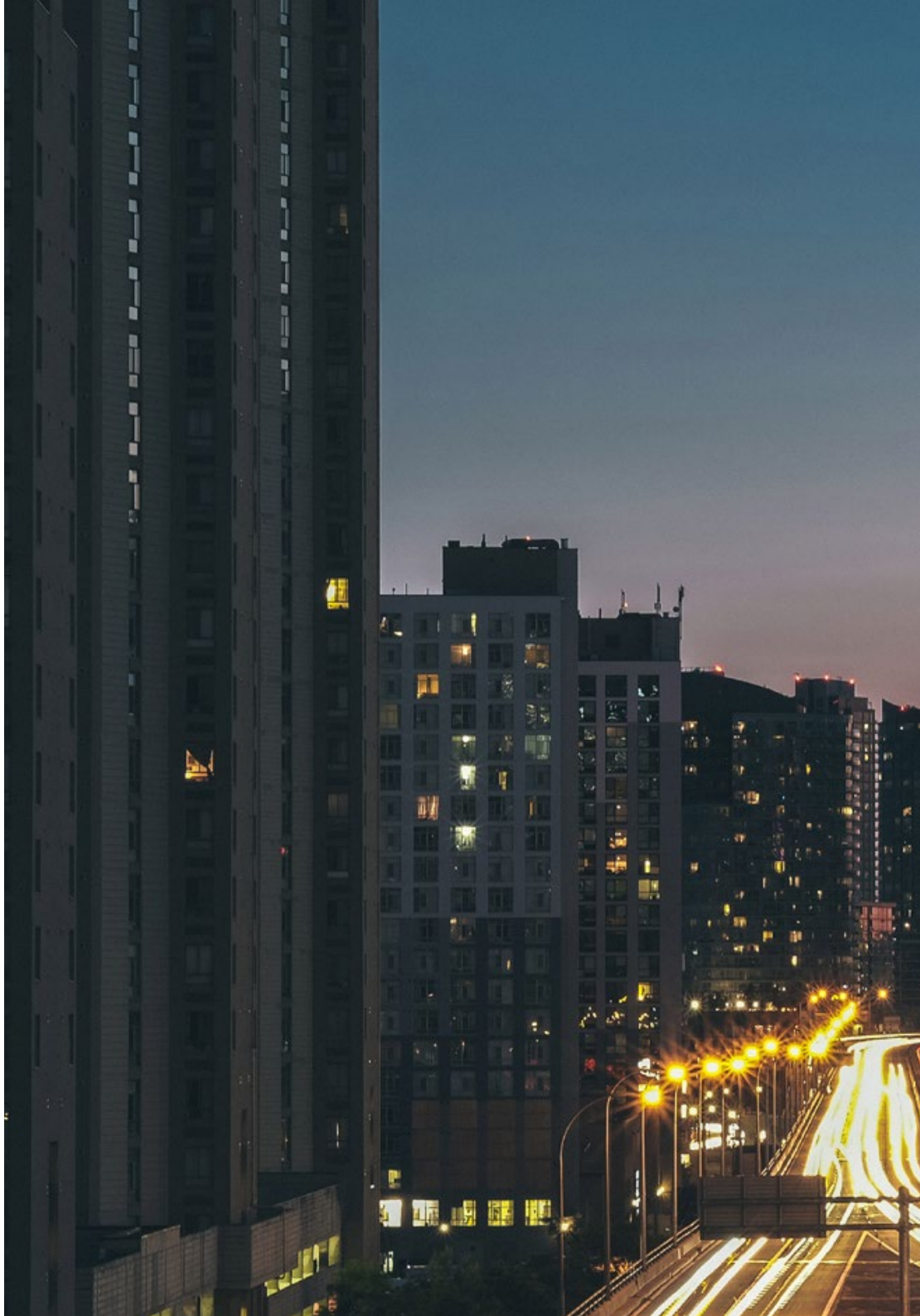
Country
Mexico

City
Mexico City

Address: Cda. San Isidro 44, Reforma Soc, Miguel Hidalgo, 11650 Ciudad de México, CDMX

Leading company in multimedia communication and content generation

Related internship programs:
Graphic Design
People Management



Information Technology

Smart manufacturing i4

Country
Spain

City
Barcelona

Address: Riera de Targa, 73, 08339 Vilassar de Dalt, Barcelona

Technology audit and industrial digitalization company

Related internship programs:
- Digital Transformation and Industry 4.0

Enroll now and advance in your field of work with a comprehensive program that will allow you to put into practice everything you have learned"

09

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

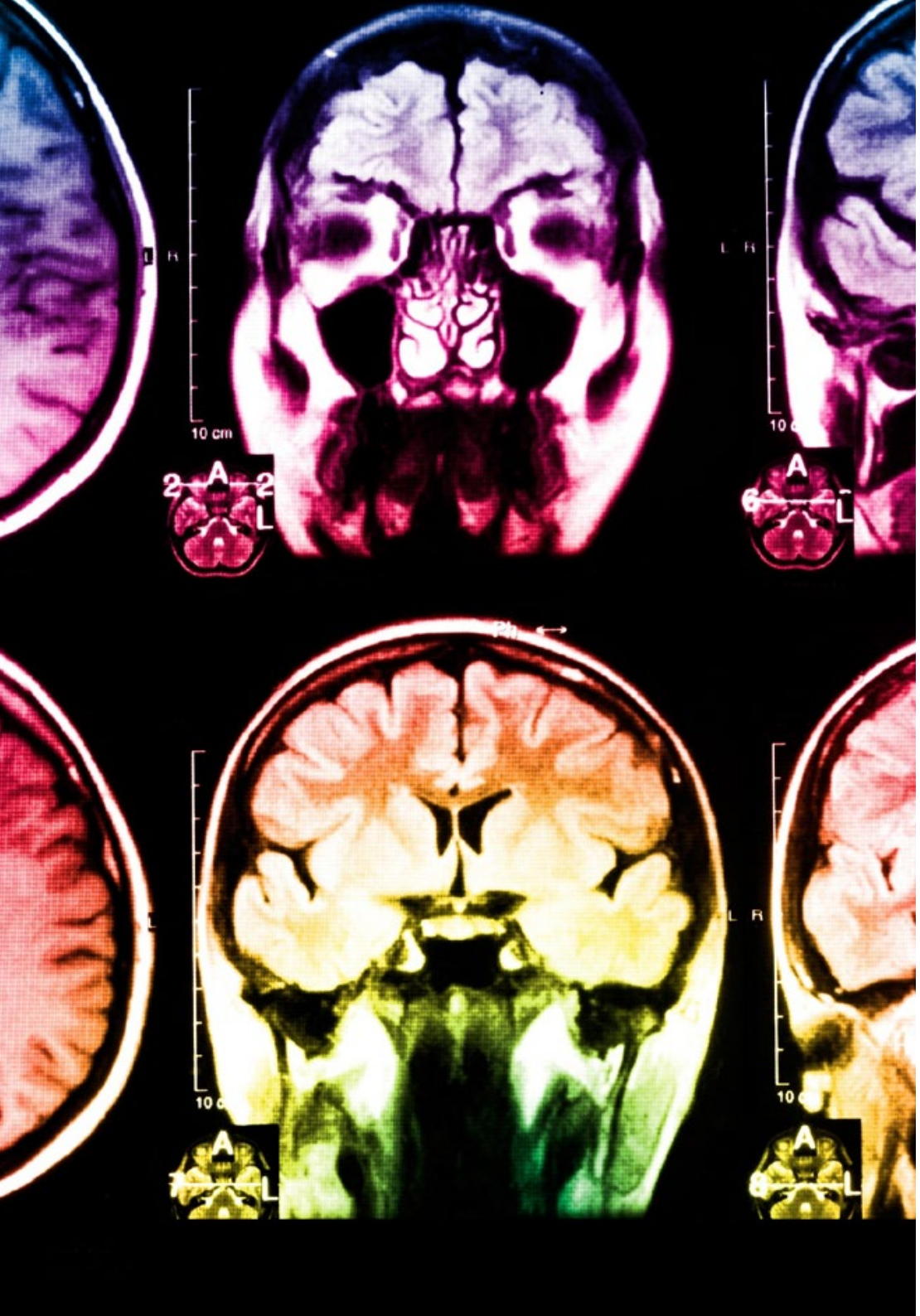
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

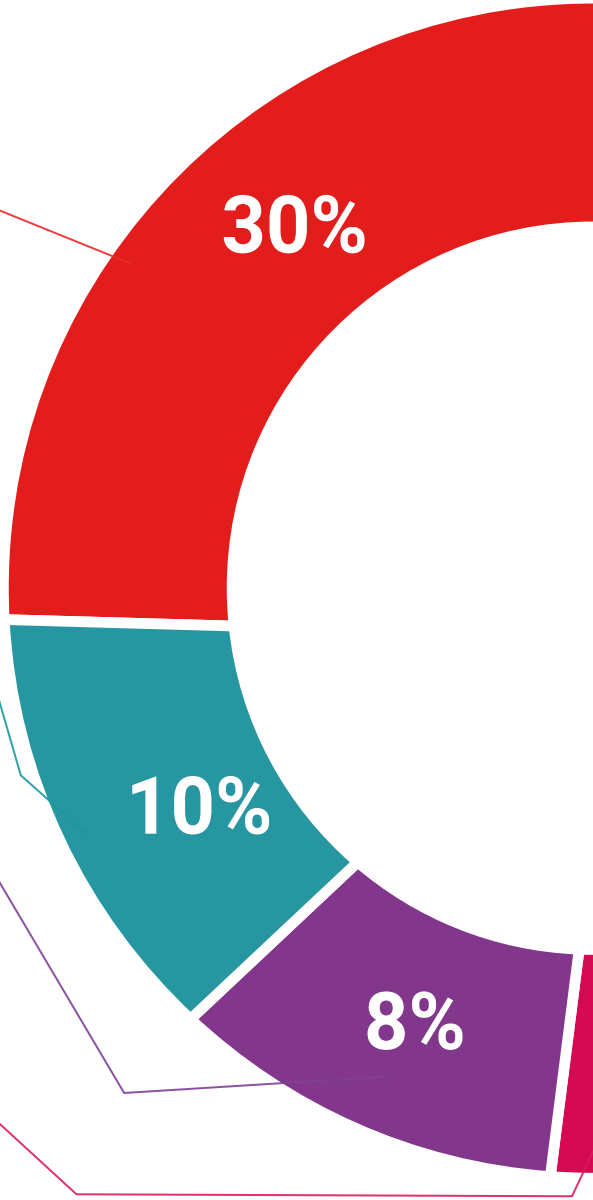
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

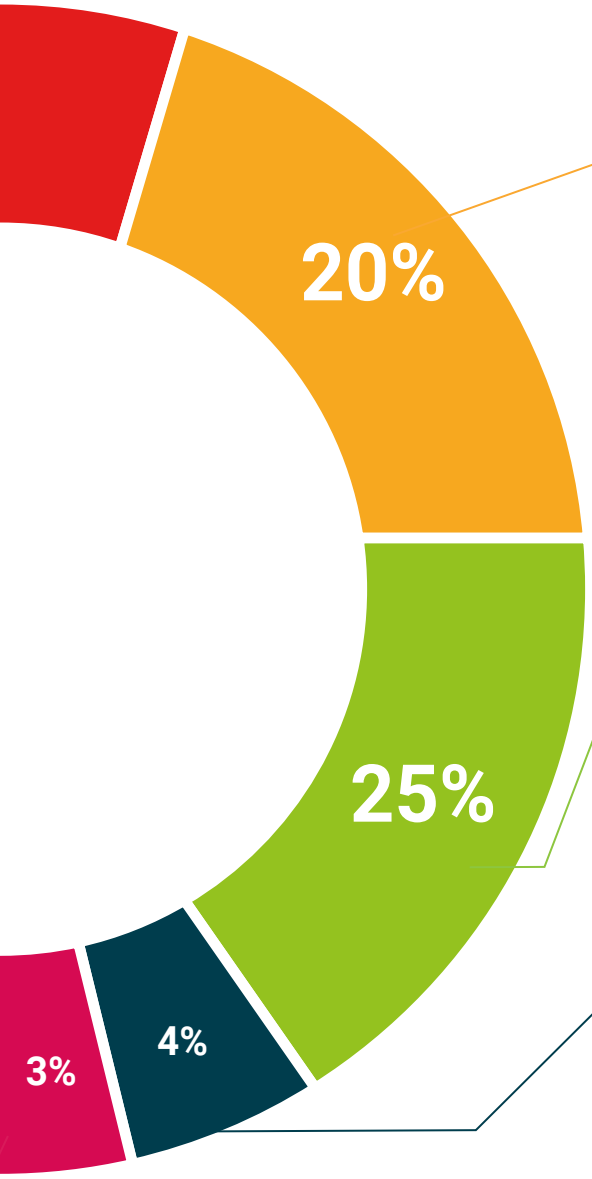
Practising Skills and Abilities

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.

10

Certificate

The Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0 guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Hybrid: issued by TECH Technological University.

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

This **Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0** contains the most complete and up-to-date program on the professional field.

After the student has passed the assessments, they will receive their corresponding Hybrid Professional Master's Degree diploma issued by TECH Technological University via tracked delivery*.

In addition to the certificate, students will be able to obtain an academic transcript, as well as a certificate outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

Title: **Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0**

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

Duration: **12 months**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 h.**

tech technological university

Awards the following

CERTIFICATE

to

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

For having successfully passed and accredited the following program

HYBRID PROFESSIONAL MASTER'S DEGREE

in

Digital Transformation and Industry 4.0

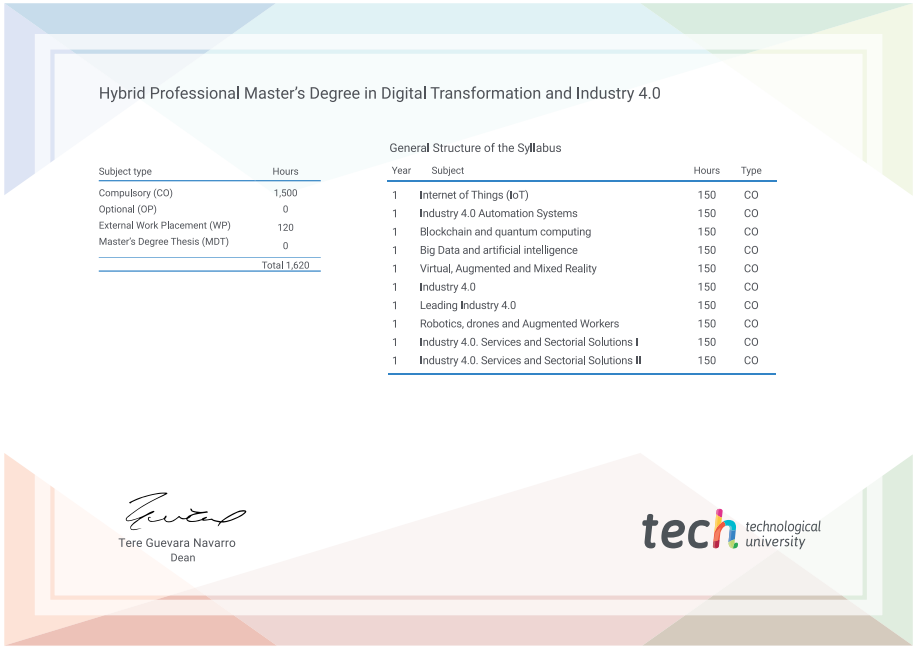
This is a qualification awarded by this University, with a duration of 1,620 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

Unique TECH Code: AFWORD23S techtitute.com/certificates



Hybrid Professional Master's Degree in Digital Transformation and Industry 4.0

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	120
Master's Degree Thesis (MDT)	0
	Total 1,620

General Structure of the Syllabus

Year	Subject	Hours	Type
1	Internet of Things (IoT)	150	CO
1	Industry 4.0 Automation Systems	150	CO
1	Blockchain and quantum computing	150	CO
1	Big Data and artificial intelligence	150	CO
1	Virtual, Augmented and Mixed Reality	150	CO
1	Industry 4.0	150	CO
1	Leading Industry 4.0	150	CO
1	Robotics, drones and Augmented Workers	150	CO
1	Industry 4.0. Services and Sectorial Solutions I	150	CO
1	Industry 4.0. Services and Sectorial Solutions II	150	CO

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Dean

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

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Hybrid Professional Master's Degree

Digital Transformation and Industry 4.0

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

Duration: **12 months**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 h**

Hybrid Professional Master's Degree
Digital Transformation and Industry 4.0

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