Professional Master's Degree

Digital Transformation and Industry 4.0

tech global university

tech global university

Professional Master's Degree
Digital Transformation and Industry 4.0

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/artificial-intelligence/professional-master-degree/master-digital-transformation-industry-4-0**

Index

01

Introduction

The Internet of Things (IoT) is opening up a wide range of possibilities for organizations undergoing digitization processes. This interconnection of physical devices via the Internet brings numerous advantages, including the optimization of resources and improved quality of life. One example is remote health monitoring via smartwatches, which facilitates the monitoring of chronic diseases and preventive medical care. However, this technology presents a number of challenges that need to be addressed by experts to maximize its benefits and ensure its long-term success. For this reason, TECH is developing an online degree that will delve into the cyber-physical systems of Industry 4.0.

Get an effective update on Industry 4.0 thanks to this Professional Master's Degree, with a syllabus developed by pioneers of the Digital Transformation"

In a scenario marked by the advancement of technologies, Artificial Intelligence has become an indispensable element for all industrial sectors. An example of this is Virtual Reality, which has varied applications ranging from the field of entertainment to architecture and education. For this reason, more and more institutions are demanding the incorporation of experts in digital transformation projects. In this way, organizations can carry out innovation processes to distinguish themselves from their competitors and offer both differentiated goods and services with the highest quality standards.

To contribute to the specialization of professionals in this area, TECH creates a Professional Master's Degree focused on Industry 4.0. Designed by experts in this field, the curriculum will analyze the specificities of the digitization of industry, focusing on its innovative technologies. Likewise, the syllabus will highlight the importance of *Augment Workers* to improve performance and productivity through Mixed and Augmented Reality. Didactic materials will also address the steps to create intelligent tools such as drones, robots and simulators. It should be noted that, throughout the entire academic itinerary, students will acquire new competencies that will help them to experience a significant leap in quality in their profession.

Due to the fact that this program is developed through a 100% online modality, the student will acquire an excellent education without the need to make uncomfortable trips to a study center. Similarly, the teaching materials available to you are presented in a variety of multimedia formats including interactive summaries, explanatory videos and self-assessment tests. In this way, you will students will acquire the effective learning that is compatible with your personal and professional duties.

This **Professional Master's Degree in Digital Transformation and Industry 4.0** contains the most complete and up-to-date program on the market. The most important features include:

- 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

You will implement in your projects the strategies Industry 4.0 strategies to transform your business models and improve productivity"

You will produce devices such as drones, robots or virtual reality to revolutionize the construction industry"

6 months of stimulating learning that will take you to a higher level for the implementation of Computer Integrated Automation CIM.

You will consolidate your knowledge through the revolutionary Relearning methodology, without the need to memorize.

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

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

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

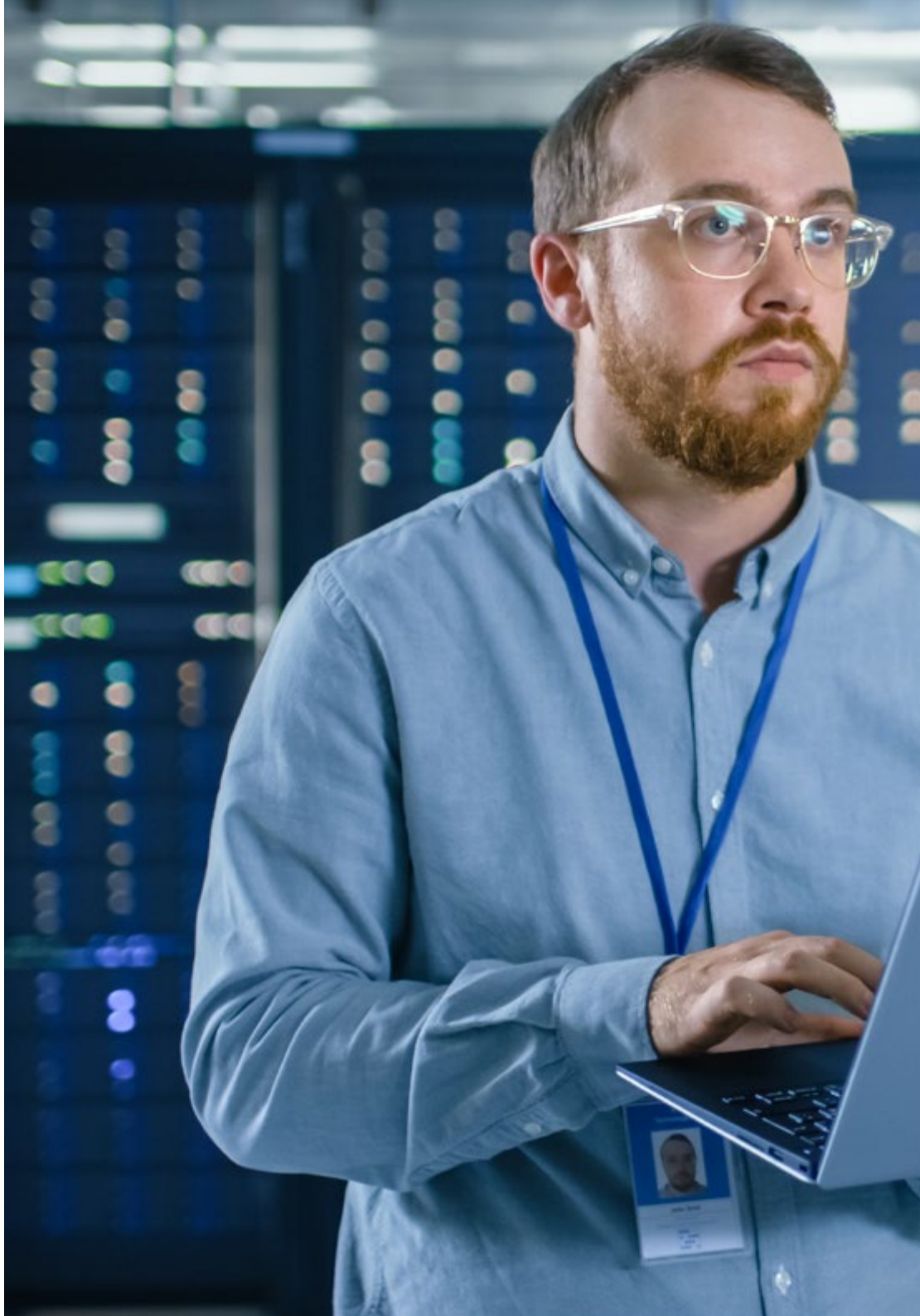
Objectives

Under a theoretical-practical approach, this university degree will provide students with the most comprehensive understanding of the field of Digital Transformation and Industry 4.0. Graduates will be equipped with the most powerful technological tools to carry out innovative projects using the mechanisms of Artificial Intelligence. In this way, they will be able to join the most prestigious companies in their environment to carry out digital modernization and automation processes. In this way, they will generate new sources of wealth in aspects such as creativity, innovation or technological efficiency.

You will lead Digital Transformation projects in institutions thanks to this innovative TECH program"

General Objectives

- Conduct a comprehensive analysis of the profound transformation and radical paradigm shift being experienced in the current global digitalization process
- Provide in-depth knowledge and the necessary technological tools to face and lead the technological leap and the challenges currently present in companies
- Mastering the digitalization procedures of companies and the automation of their processes to create new fields of wealth in areas such as creativity, innovation and technological efficiency
- Leading Digital Change



Specific Objectives

Module 1. 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

Module 2. Big Data and Artificial Intelligence

- Delve into 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 knowledge of the different transversal applications that this technology has in all fields

Module 3. Virtual, Augmented and Mixed Reality

- Acquire an expert knowledge of the characteristics and fundamentals of Virtual Reality, Augmented Reality and Mixed Reality
- Delve into the existing differences between each of these fields
- Use applications of each of these technologies and develop solutions with each of them individually and in an integrated manner
- Efficiently combine all these technologies to achieve immersive experiences

Module 4. Industry 4.0

- 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 5. Leading Industry 4.0

- Understand the current virtual era and its leadership capacity, on which the success and survival of digital transformation processes involving any type of industry will depend
- Develop, from all available data, the Digital Twin of the facilities/systems/assets integrated in an IoT network

Module 6. Robotics, Drones and Augmented Workers

- 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 7. Industry 4.0 Automation Systems

- 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

Module 8. Industry 4.0- Services and Solutions I

- Entering the world of robotics and automation
- Delve into in 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 accompany us in the coming years and how humanoid machines will be specialized to perform in complex and challenging environments

Module 9. Industry 4.0 Services and 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, health and healthcare (e-Health and Smart Hospitals), smart cities, the financial sector (Fintech) and mobility solutions
- Knowing the technological trends of the future

Module 10. Internet of Things (IoT)

- Have detailed knowledge of the functioning of IoT and Industry 4.0 and its combinations with other technologies, its current situation, its main devices and uses and how hyper-connectivity gives rise to new business models where all products and systems are connected and in permanent communication
- Deepen 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 IoT platforms, robotics and other emerging technologies

You will be able to access the Online Campus from any device with an Internet connection. Even from your mobile or tablet!"

03

Skills

Thanks to this university degree, graduates will have a wide range of tools at their disposal to carry out Digital Transformation projects and enter the new Industry 4.0. Students will master Artificial Intelligence to lead digitization projects in the most reputable technology companies. In tune with this, they will obtain advanced skills that will enable them to effectively handle cutting-edge technologies such as drones, robots or autonomous vehicles.

Acquire the necessary skills and capabilities to lead Industry 4.0. Enroll now"

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

Enriquecerás tu praxis profesional con las herramientas más efectivas para la creación de experiencias de usuarios"

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 virtual worlds and elevate User Experience (UX) enhancement
- Integrating the benefits and main advantages of Industry 4.0
- Leading the new business models derived from Industry 4.0
- Develop future production models
- Facing the challenges of Industry 4.0 and understanding its effects
- Mastering 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

04

Course Management

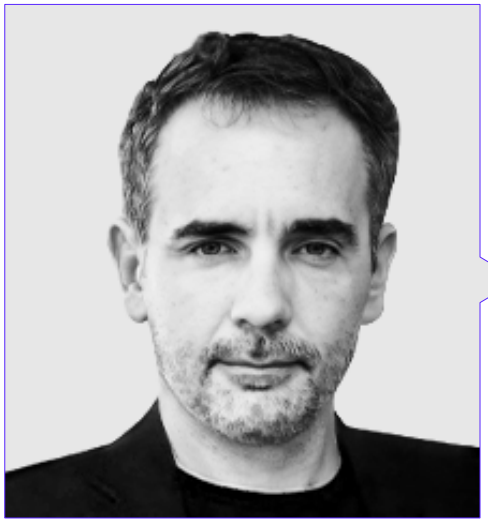
Faced with the advance of technology and the so-called Industry 4.0, entities demand the incorporation of professionals who properly handle the most innovative electronic devices. For this reason, TECH implements a university degree that brings together a team of professionals in this field. They are characterized by having a wide working background, where they have developed highly creative solutions using the most cutting-edge resources. In this way, they pour into this program didactic contents characterized by their high quality. In this way, students have the guarantees they need to specialize in a sector that is advancing by leaps and bounds.

Thanks to the support of the teachers and their didactic contents, you will design innovative projects to revolutionize the digital industry"

Management

Dr. Segovia Escobar, Pablo

- Chief Executive of the Defense Sector in the Company Tecnobit of the Oesía Group
- Corporate Project Director Indra
- Master's Degree in Companies Administration and Management by the National University of Distance Education
- Postgraduate in Strategic Management Function
- Member of: Spanish Association of People with High Intellectual Quotient



Dr. Diezma López, Pedro

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

Professors

Ms. Sánchez López, Cristina

- CEO and founder of Acuilae
- Artificial Intelligence consultant at ANHELA IT
- Creator of Ethyka Software for Computer System Security
- (Software Engineer) for the Accenture Group in large clients such as Bank of Santander, BBVA, Endesa or Barclays Bank
- Master's Degree in Data Science at KSchool
- Degree in Statistics from the Complutense University Madrid

Mr. Montes, Armando

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

Mr. Castellano Nieto, Francisco

- Head of Indra Company Maintenance Area
- Consultant for Siemens AG, Allen-Bradley at Rockwell Automation and other companies
- Industrial Electronic Technical Engineer by the Universidad Pontificia Comillas

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. Gonzáles 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
- Member of: The Professional Association of Lighting Designers (Technical Consultant) and Member of the Spanish Lighting Committee

05

Structure and Content

This Professional Master's Degree is prepared by professionals in Digital Transformation and Industry 4.0, who pour into the teaching materials their extensive knowledge of emerging technologies. The program will analyze in detail the Blockchain together with Quantum Computing, allowing students to understand their properties to implement them in booming areas such as cryptocurrencies. Likewise, the syllabus will provide the most advanced Machine Learning tools to develop algorithms that allow computers to learn and perform automated tasks. The didactic materials will also delve into the creation of drones, robots and simulators. Graduates will be able to develop highly innovative projects.

Raise your professional potential in the world of Quantum Computing thanks to this Professional Master's Degree 100% online"

Module 1. Blockchain and Quantum Computing

1.1. Aspects of Decentralization
- 1.1.1. Market Size, Growth, Companies and Ecosystem
- 1.1.2. Fundamentals of Blockchain

1.2. Background: Bitcoin, Ethereum, etc
- 1.2.1. Popularity of Decentralized Systems
- 1.2.2. Evolution of Decentralized Systems

1.3. Blockchain Operation and Examples
- 1.3.1. Types of Blockchain and Protocols
- 1.3.2. Wallets, Mining and more

1.4. Characteristics of Blockchain Networks
- 1.4.1. Functions and properties of Blockchain networks
- 1.4.2. Applications: Cryptocurrencies, Reliability, Chain of Custody, etc

1.5. Types of Blockchain
- 1.5.1. Public and Private Blockchains
- 1.5.2. Hard And Soft Forks

1.6. Smart Contracts
- 1.6.1. Intelligent Contracts and Their Potential
- 1.6.2. Smart Contract Applications

1.7. Industry Use Models
- 1.7.1. Blockchain Applications by Industry
- 1.7.2. Blockchain Success Stories by Industry

1.8. Security and Cryptography
- 1.8.1. Objectives of Cryptography
- 1.8.2. Digital signatures and Hash functions

1.9. Cryptocurrencies and Uses
- 1.9.1. Types of Cryptocurrencies Bitcoin, Hyperledger, Ethereum, Litecoin, etc
- 1.9.2. Current and Future Impact of Cryptocurrencies
- 1.9.3. Risks and Regulations

1.10. Quantum Computing
- 1.10.1. Definition and Keys
- 1.10.2. Uses of Quantum Computing

Module 2. Big Data and Artificial Intelligence

2.1. Fundamental Principles of Big Data
- 2.1.1. Big Data
- 2.1.2. Tools to Work With Big Data

2.2. Data Mining and Warehousing
- 2.2.1. Data Mining Cleaning and Standardization
- 2.2.2. Information Extraction, Machine Translation, Sentiment Analysis, etc
- 2.2.3. Types of Data Storage

2.3. Data Intake Applications
- 2.3.1. Principles of Data intake
- 2.3.2. Data Ingestion Technologies to Serve Business Needs

2.4. Data Visualization
- 2.4.1. The Importance of Data Visualization
- 2.4.2. Tools to Carry It Out Tableau, D3, matplotlib (Python), Shiny®

2.5. Machine Learning
- 2.5.1. Understanding Machine Learning
- 2.5.2. Supervised and Unsupervised Learning
- 2.5.3. Types of Algorithms

2.6. Neural Networks (Deep Learning)
- 2.6.1. Neural Network: Parts and Operation
- 2.6.2. Types of Networks CNN, RNN
- 2.6.3. Applications of Neural Networks; Image Recognition and Natural Language Interpretation
- 2.6.4. Generative Text Networks: LSTM

2.7. Natural Language Recognition
- 2.7.1. PLN (Processing Natural Language)
- 2.7.2. Advanced PLN Techniques: Word2vec, Doc2vec

2.8. Chatbots and Virtual Assistants
- 2.8.1. Types of Assistants: Voice and Text Assistants
- 2.8.2. Fundamental Parts for the Development of an Assistant: Intents, Entities and Dialog Flow
- 2.8.3. Integrations: Web, Slack, WhatsApp, Facebook
- 2.8.4. Assistant Development Tools: Dialogflow, Watson Assistant

2.9. Emotions, Creativity and Personality in IA
- 2.9.1. Understand How to Detect Emotions Using Algorithms
- 2.9.2. Creating a Personality: Language, Expressions and Content

2.10. Future of Artificial Intelligence

2.11. Reflections

Module 3. Virtual, Augmented and Mixed Reality

3.1. Market and Tendencies
- 3.1.1. Current Market Situation
- 3.1.2. Reports and Growth by Different Industries

3.2. Differences Between Virtual, Augmented and Mixed Reality
- 3.2.1. Differences Between Immersive Realities
- 3.2.2. Immersive Reality Typology

3.3. Virtual Reality Cases and Uses
- 3.3.1. Origin and Fundamentals of Virtual Reality
- 3.3.2. Cases Applied to Different Sectors and Industries

3.4. Augmented Reality Cases and Uses
- 3.4.1. Origin and Fundamentals of Augmented Reality
- 3.4.2. Cases Applied to Different Sectors and Industries

3.5. Mixed and Holographic Reality
- 3.5.1. Origin, History and Fundamentals of Mixed and Holographic Reality
- 3.5.2. Cases Applied to Different Sectors and Industries

3.6. 360º Photography and Video
- 3.6.1. Camera Typology
- 3.6.2. Uses of 360 Images
- 3.6.3. Creating a Virtual Space in 360 Degrees

3.7. Virtual World Creation
- 3.7.1. Platforms for the Creation of Virtual Environments
- 3.7.2. Strategies for the Creation of Virtual Environments

3.8. User Experience (UX)
- 3.8.1. Components in the User Experience
- 3.8.2. Tools for the Creation of User Experiences

3.9. Devices and Glasses for Immersive Technologies
- 3.9.1. Device Typology on the Market
- 3.9.2. Glasses and Wearables: Operation, Models and Uses
- 3.9.3. Smart Glasses Applications and Evolution

3.10. Future Immersive Technologies
- 3.10.1. Tendencies and Evolution
- 3.10.2. Challenges and Opportunities

Module 4. Industry 4.0

4.2. Definition of 4.0.Industry
- 4.1.1. Features

4.2. Benefits of the 4.0.Industry
- 4.2.1. Key Factors
- 4.2.2. Main Advantages

4.3. Industrial Revolutions and Vision of the Future
- 4.3.1. Industrial Revolutions
- 4.3.2. Keys Factors in Each Revolution
- 4.3.3. Technological Principles as a Basis for Possible New Revolutions

4.4. The Digital Transformation of the Industry
- 4.4.1. Characteristics of the Digitization of the Industry
- 4.4.2. Disruptive Technologies
- 4.4.3. Applications in the Industry

4.5. Forth Industrial Revolution. Key Principles of Industry 4.0.
- 4.5.1. Definitions
- 4.5.2. Key Principles and Applications

4.6. Industry 4.0 and Industrial Internet
- 4.6.1. Origin of IoT
- 4.6.2. Operation
- 4.6.3. Steps to Follow for its Implementation
- 4.6.4. Benefits

4.7. Smart Factory Principles
- 4.7.1. The Smart Factory
- 4.7.2. Elements that Define a Smart Factory
- 4.7.3. Steps to Deploy a Smart Factory

4.8. Status of the 4.0.Industry
- 4.8.1. Status of the 4.0.Industry in Different Sectors
- 4.8.2. Barriers to the Implementation of 4.0.Industry

4.9. Challenges and Risks
- 4.9.1. SWOT Analysis
- 4.9.2. Challenges

4.10. Role of Technological Capabilities and the Human Factor
- 4.10.1. Disruptive Technologies in Industry 4.0
- 4.10.2. The Importance of the Human Factor Key Factor

Module 5. Leading Industry 4.0

5.1. Leadership Abilities
- 5.1.1. Leadership Factors in the Human Factor
- 5.1.2. Leadership and Technology

5.2. Industry 4.0.and the Future of Production
- 5.2.1. Definitions
- 5.2.2. Production Systems
- 5.2.3. Future of Digital Production Systems

5.3. Effects of Industry 4.0
- 5.3.1. Effects and Challenges

5.4. Essential Technologies in Industry 4.0
- 5.4.1. Definition of Technologies
- 5.4.2. Characteristics of Technologies
- 5.4.3. Applications and Impacts

5.5. Digitization of Manufacturing
- 5.5.1. Definitions
- 5.5.2. Benefits of the Digitization of Manufacturing
- 5.5.3. Digital Twins

5.6. Digital Capabilities in an Organization
- 5.6.1. Development Digital Capabilities
- 5.6.2. Understanding the Digital Ecosystem
- 5.6.3. Digital Vision of the Business

5.7. Architecture Behind a Smart Factory
- 5.7.1. Areas and Operations
- 5.7.2. Connectivity and Security
- 5.7.3. Case Uses

5.8. Technology Markers in the Post-Covid Era
- 5.8.1. Technological Challenges in the Post-Covid Era
- 5.8.2. New Case Uses

5.9. The Era of Absolute Virtualization
- 5.9.1. Virtualisation
- 5.9.2. The New Era of Virtualization
- 5.9.3. Advantages

5.10. Current Situation in Digital Transformation Gartner Hype
- 5.10.1. Gartner Hype
- 5.10.2. Analysis of Technologies and Their Status
- 5.10.3. Data Exploitation

Module 6. Robotics, Drones and Augmented Workers

6.1. Robotics
- 6.1.1. Robotics, Societies and Cinema
- 6.1.2. Components and Parts of Robot

6.2. Robotics and Advanced Automation: Simulators, Cobots
- 6.2.1. Transfer of Learning
- 6.2.2. Cobots and Case Uses

6.3. RPA (Robotic Process Automatization)
- 6.3.1. Understanding RPA and its Functioning
- 6.3.2. RPA Platforms, Projects and Roles

6.4. Robot as a Service (RaaS)
- 6.4.1. Challenges and Opportunities for Implementing Raas Services and Robotics in Enterprises
- 6.4.2. Operation of a Raas system

6.5. Drones and Automated Vehicles
- 6.5.1. Components and Drones Operation
- 6.5.2. Uses, Types and Applications of Drones
- 6.5.3. Evolution of Drones and Autonomous Vehicles

6.6. The Impact of 5G
- 6.6.1. Evolution of Communications and Implications
- 6.6.2. Uses of 5G Technology

6.7. Augmented Workers
- 6.7.1. Human-Machine Integration in Industrial Environments
- 6.7.2. Challenges in Worker-Robot Collaboration

6.8. Transparency, Ethics and Traceability
- 6.8.1. Ethical Challenges in Robotics and Artificial Intelligence
- 6.8.2. Monitoring, Transparency and Traceability Methods

6.9. Prototyping, Components and Evolution
- 6.9.1. Prototyping Platforms
- 6.9.2. Phases to Make a Prototype

6.10. Future of Robotics
- 6.10.1. Trends in Robotization
- 6.10.2. New Types of Robots

Module 7. Industry 4.0. Automation Systems

7.1. Industrial Automation
- 7.1.1. Automization
- 7.1.2. Architecture and Components
- 7.1.3. Safety

7.2. Industrial Robotics
- 7.2.1. Fundamentals of Industrial Robotics
- 7.2.2. Models and Impact on Industrial Processes

7.3. PLC Systems and Industrial Control
- 7.3.1. PLC Evolution and Status
- 7.3.2. Evolution of Programming Languages
- 7.3.3. Computer Integrated Automation CIM

7.4. Sensors and Actuators
- 7.4.1. Classification of Transducers
- 7.4.2. Types of Sensors
- 7.4.3. Standardization of Signals

7.5. Monitor and Manage
- 7.5.1. Types of Actuators
- 7.5.2. Feedback Control Systems

7.6. Industrial Connectivity
- 7.6.1. Standardized Fieldbuses
- 7.6.2. Connectivity

7.7. Proactive / Predictive Maintenance
- 7.7.1. Predictive Maintenance
- 7.7.2. Fault Identification and Analysis
- 7.7.3. Proactive Actions Based on Predictive Maintenance

7.8. Continuous Monitoring and Prescriptive Maintenance
- 7.8.1. Prescriptive Maintenance Concept in Industrial Environments
- 7.8.2. Selection and Exploitation of Data for Self-Diagnostics

7.9. Lean Manufacturing
- 7.9.1. Lean Manufacturing
- 7.9.2. Benefits Lean Implementation in Industrial Processes

7.10. Industrialized Processes in Industry 4.0. Use Case
- 7.10.1. Project definition
- 7.10.2. Technological Selection
- 7.10.3. Connectivity
- 7.10.4. Data Exploitation

Module 8. Industry 4.0- Services and Solutions I

8.1. Industry 4.0.and Business Strategies
- 8.1.1. Factors of Business Digitalization
- 8.1.2. Roadmap for Business Digitalization

8.2. Digitalization of Processes and the Value Chain
- 8.2.1. Value Chain
- 8.2.2. Key Steps in the Digitization of Processes

8.3. Sector Solutions Primary Sector
- 8.3.1. The Primary Economic Sector
- 8.3.2. Characteristics of Each Subsector

8.4. Digitization of the Primary Sector: Smart Farms
- 8.4.1. Main Characteristics
- 8.4.2. Keys Factors of Digitization

8.5. Digitization of the Primary Sector: Digital and Intelligent Agriculture
- 8.5.1. Main Characteristics
- 8.5.2. Keys Factors of Digitization

8.6. Sector Solutions Secondary Sector
- 8.6.1. The Secondary Economic Sector
- 8.6.2. Characteristics of Each Subsector

8.7. Digitization of the Secondary Sector: Smart Factory
- 8.7.1. Main Characteristics
- 8.7.2. Keys Factors of Digitization

8.8. Digitization of the Secondary Sector: Energy
- 8.8.1. Main Characteristics
- 8.8.2. Keys Factors of Digitization

8.9. Digitization of the Secondary Sector: Construction
- 8.9.1. Main Characteristics
- 8.9.2. Keys Factors of Digitization

8.10. Digitization of the Secondary Sector: Mining
- 8.10.1. Main Characteristics
- 8.10.2. Keys Factors of Digitization

Module 9. Industry 4.0. Services and Solutions II

9.1. Tertiary Sector Solutions
- 9.1.1. Tertiary Economic Sector
- 9.1.2. Characteristics of Each Subsector

9.2. Digitalization of the Tertiary Sector: Transportation
- 9.2.1. Main Characteristics
- 9.2.2. Keys Factors of Digitization

9.3. Digitization of the Tertiary Sector: e-Health
- 9.3.1. Main Characteristics
- 9.3.2. Keys Factors of Digitization

9.4. Digitization of the Tertiary Sector: Smart Hospitals
- 9.4.1. Main Characteristics
- 9.4.2. Keys Factors of Digitization

9.5. Digitization of the Tertiary Sector: Smart Cities
- 9.5.1. Main Characteristics
- 9.5.2. Keys Factors of Digitization

9.6. Digitalization of the Tertiary Sector: Logistics
- 9.6.1. Main Characteristics
- 9.6.2. Keys Factors of Digitization

9.7. Digitalization of the Tertiary Sector: Tourism
- 9.7.1. Main Characteristics
- 9.7.2. Keys Factors of Digitization

9.8. Digitization of the Tertiary Sector: Fintech
- 9.8.1. Main Characteristics
- 9.8.2. Keys Factors of Digitization

9.9. Digitalization of the Tertiary Sector: Mobility
- 9.9.1. Main Characteristics
- 9.9.2. Keys Factors of Digitization

9.10. Future Technological Tendencies
- 9.10.1. New Technological Innovations
- 9.10.2. Application Trends

Module 10. Internet of Things (IoT)

10.1. Cyber-Physical Systems (CPS) in the Industry 4.0. Vision
- 10.1.1. Internet of Things (IoT)
- 10.1.2. Components Involved in IoT
- 10.1.3. Cases and Applications of IoT

10.2. Internet of Things and Cyber-Physical Systems
- 10.2.1. Computing and Communication Capabilities to Physical Objects
- 10.2.2. Sensors, Data and Elements in Cyber-Physical Systems

10.3. Device Ecosystem
- 10.3.1. Typologies, Examples and Uses
- 10.3.2. Applications of the Different Devices

10.4. IoT Platforms and their Architecture
- 10.4.1. IoT Market Typologies and Platforms
- 10.4.2. Operation of an IoT Platform

10.5. Digital Twins
- 10.5.1. Digital Twin
- 10.5.2. Uses and Applications the Digital Twin

10.6. Indoor & outdoor Geolocation (Real Time Geospatial)
- 10.6.1. Indoor and Outdoor Geolocation Platforms
- 10.6.2. Implications and Challenges of Geolocation in an IoT Project

10.7. Security Intelligence Systems
- 10.7.1. Typologies and Platforms for Security Systems Implementation
- 10.7.2. Components and Architectures in Intelligent Safety Systems

10.8. IoT and IIoT Platform Security
- 10.8.1. Security Components in an IoT System
- 10.8.2. IoT Security Implementation Strategies

10.9. Wearables at Work
- 10.9.1. Types of Wearables in Industrial Environments
- 10.9.2. Lessons Learned and Challenges in Implementing Wearables in the Workplace

10.10. Implementing an API to Interact with a Platform
- 10.10.1. Types of APIs Involved in an IoT Platform
- 10.10.2. API Market
- 10.10.3. Strategies and Systems to Implement API Integrations

06

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

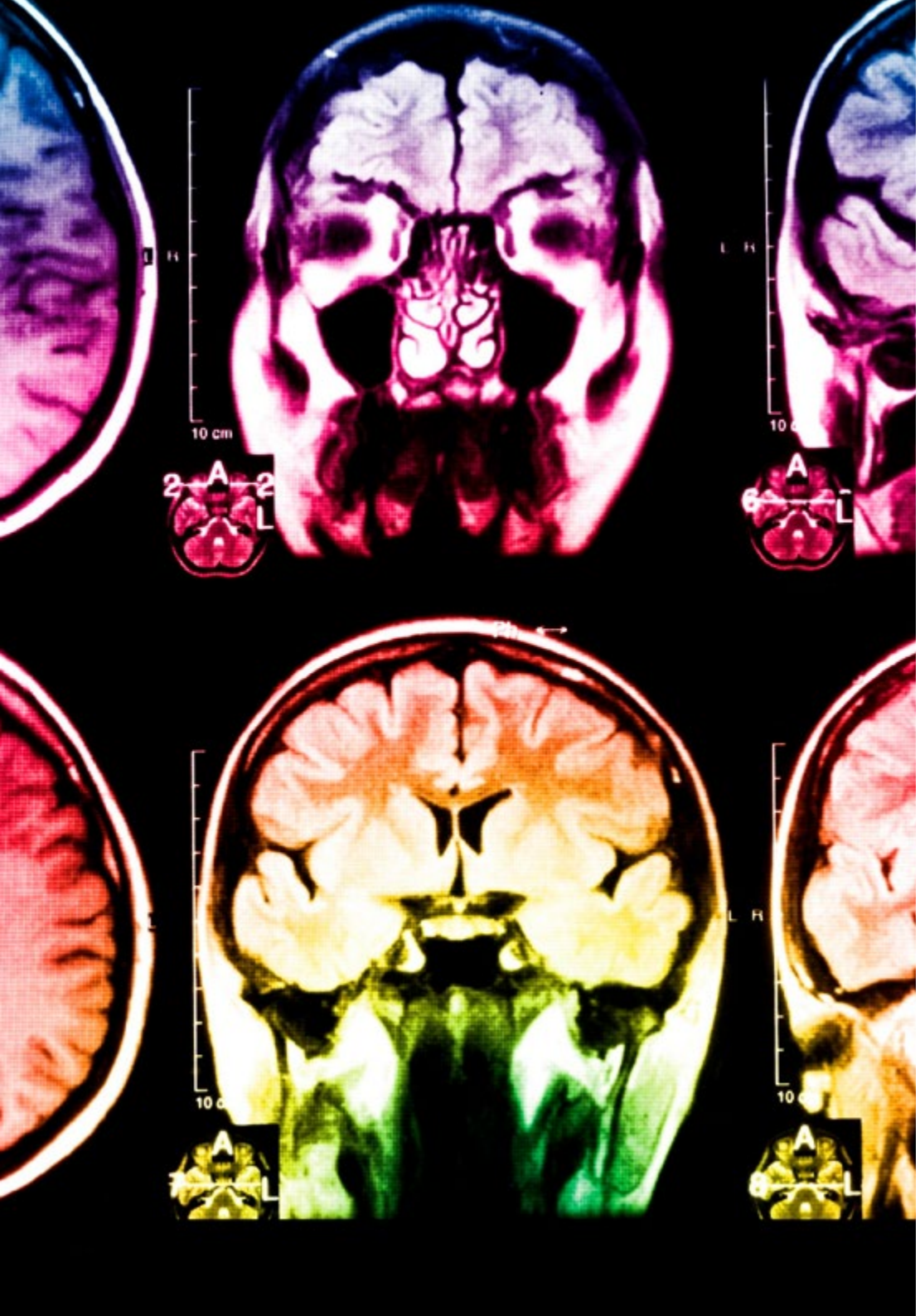
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

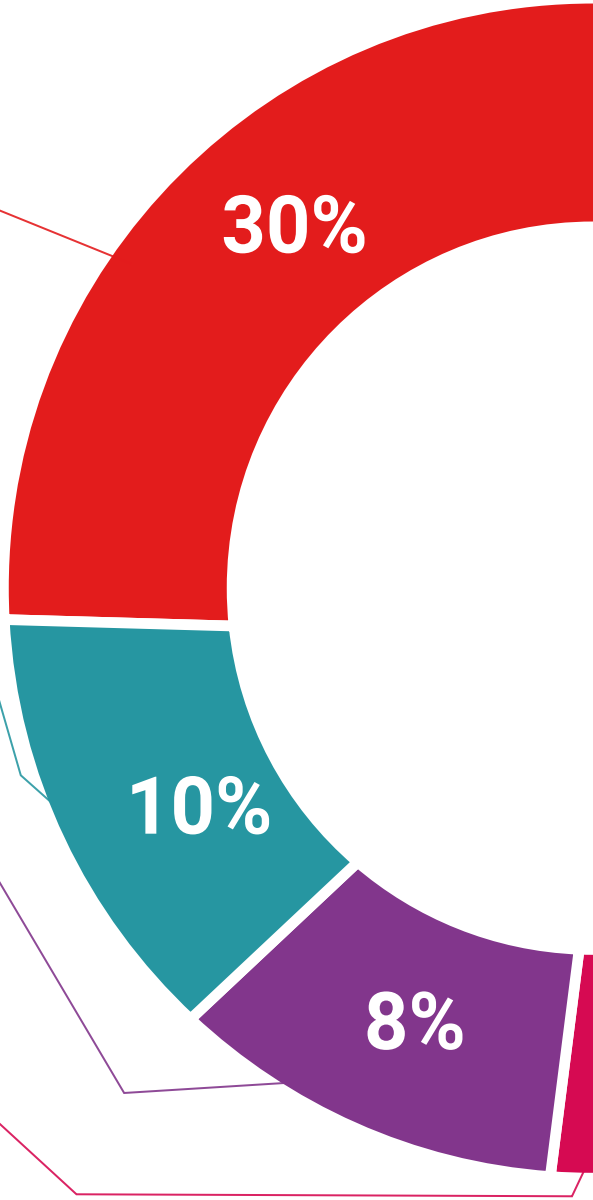
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

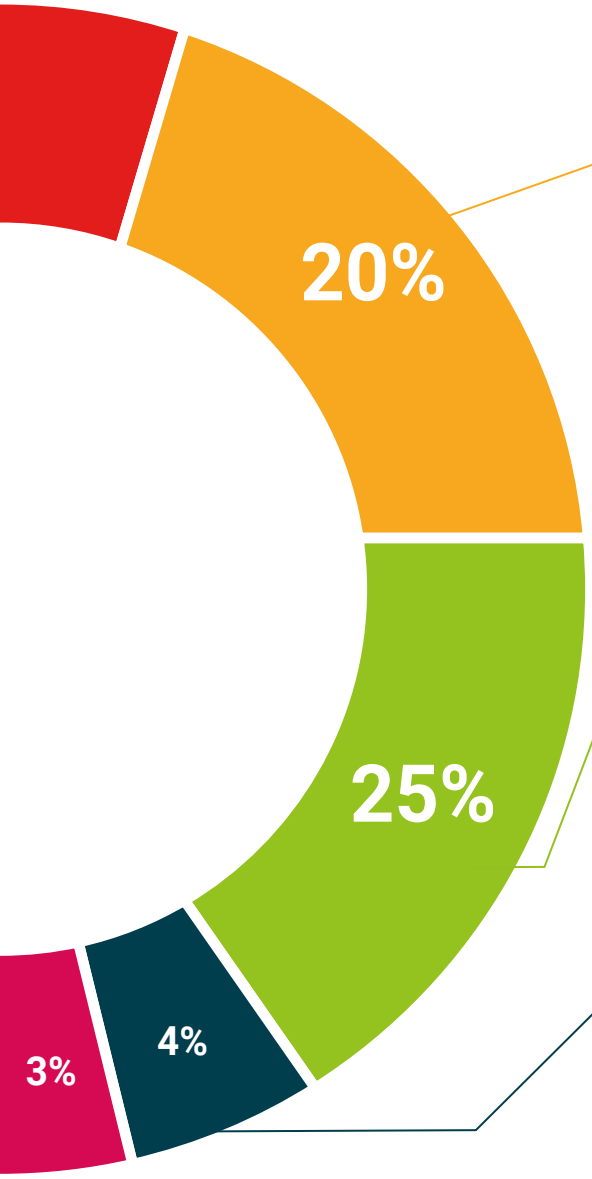
Practising Skills and Abilities

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.

07

Certificate

The 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 Degree issued by TECH Global University.

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

This program will allow you to obtain your **Professional Master's Degree diploma in Digital Transformation and Industry 4.0** 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: **Professional Master's Degree in Digital Transformation and Industry 4.0**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**


tech global university

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

Professional Master's Degree in Digital Transformation and Industry 4.0

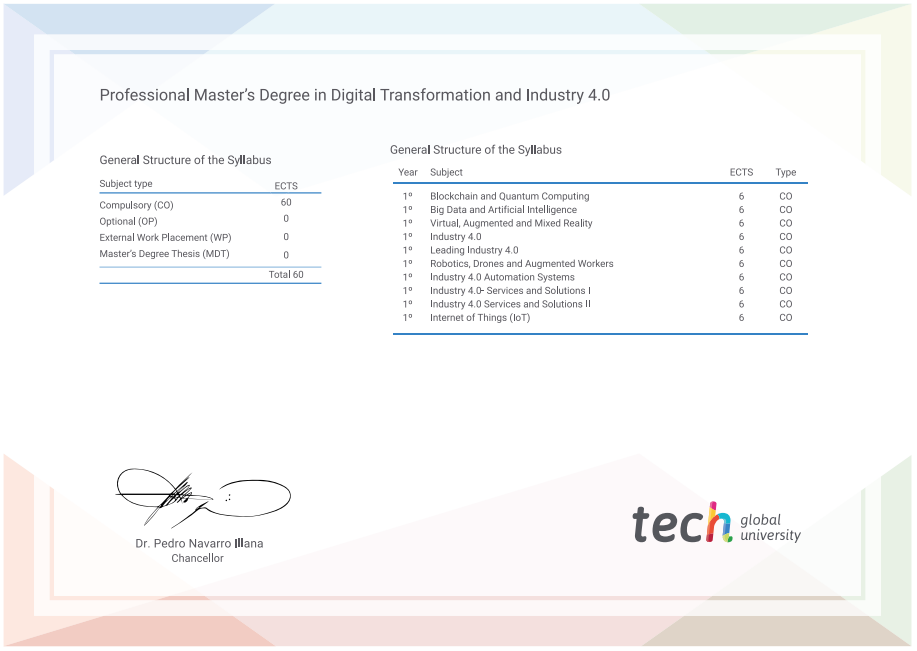
This is a program of 1,500 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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
Chancellor

Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Digital Transformation and Industry 4.0

General Structure of the Syllabus

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

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Blockchain and Quantum Computing	6	CO
1º	Big Data and Artificial Intelligence	6	CO
1º	Virtual, Augmented and Mixed Reality	6	CO
1º	Industry 4.0	6	CO
1º	Leading Industry 4.0	6	CO
1º	Robotics, Drones and Augmented Workers	6	CO
1º	Industry 4.0 Automation Systems	6	CO
1º	Industry 4.0 Services and Solutions I	6	CO
1º	Industry 4.0 Services and Solutions II	6	CO
1º	Internet of Things (IoT)	6	CO

Dr. Pedro Navarro Illana
Chancellor

tech global university

*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.

tech global university

Professional Master's Degree
Digital Transformation and Industry 4.0

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

Digital Transformation and Industry 4.0

tech global university