

Professional Master's Degree

Digital Transformation and Industry 4.0





Professional Master's Degree Digital Transformation and Industry 4.0

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/pk/information-technology/professional-master-degree/master-digital-transformation-industry-4-0

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01

Introduction

Big Data, Virtual Reality, Artificial Intelligence or the Internet of Things (IoT) have opened up a range of possibilities for the industry, which is currently undergoing a process of digitalization. The efficiency and effectiveness of new technologies have led to improvements in this sector and a boost that in turn has an impact on other areas such as information technology. In this reality, IT professionals have become a key player and are in great demand. For this reason, this academic institution has created a program aimed at graduates who wish to deepen their knowledge of Blockchain, quantum computing, robotics, augmented workers and artificial intelligence. All of this is done through innovative teaching material developed by the specialized teaching team that teaches this 100% online program.





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Thanks to this Professional Master's Degree, you have the opportunity to achieve the success you are looking for in the Digital Transformation and Industry 4.0 sector"

New technologies are present in all social and economic sectors. In recent years, this transformation has boosted the creation of a digital economy in which IT professionals play a decisive role, thanks to their in-depth knowledge. Likewise, the pandemic caused by COVID-19 has given a decisive impetus to a process, which until now had been taking firm but not giant steps.

In this totally favorable scenario for Industry 4.0, the computer scientist has an excellent opportunity to access a sector where there are multiple possibilities, ranging from the digitization of automation processes, the creation of robots, drones or the creation of a Startup with the knowledge and skills necessary for it. In this scenario of growth, TECH has designed a Professional Master's Degree, in which it has brought together a relevant teaching team in this field and whose objective is to offer the most updated information in a booming sector.

A degree that provides the graduate with the most advanced knowledge in the field of Virtual, Augmented and Mixed Reality, Industry 4.0 itself and its application in sectors such as agriculture or the potential of intelligent security systems, through video summaries, detailed videos, complementary reading or case studies.

Students are faced with a program taught only in online mode, which can be accessed comfortably whenever and wherever they wish. All you need is an electronic device with an Internet connection, which will allow you to view the content hosted on the virtual platform. The syllabus can be distributed according to your needs, providing the flexibility that people who want a university qualification that is compatible with their professional and personal responsibilities are looking for.

This **Professional Master's Degree in Digital Transformation and Industry 4.0** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ◆ The development of case studies presented by experts in Digital Transformation and Industry 4.0
- ◆ The graphic, schematic and practical contents of the book provide technical and practical information on those disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



With this degree you will have the knowledge and skills to lead an IT project in Industry 4.0. Take the plunge and enroll now"

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Access comfortably from your computer, at any time of the day, to the latest news on digitization in the primary sector”

The teaching staff includes professionals from the engineering sector, who bring their experience to this specialization 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 training programmed to train 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 professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Digital Transformation and Industry 4.0 and with extensive experience.

Drones, robots, Virtual Reality... make your mark with the creation of devices that are changing sectors such as construction, tourism or healthcare.

This 100% online Professional Master's Degree provides you with practical cases that will lead you to learn more about the applications of the Internet of Things.



02 Objectives

Thanks to the theoretical-practical approach of this Professional Master's Degree, the IT professional who takes this program will obtain the most comprehensive knowledge in the powerful sector of Digital Transformation and Industry 4.0. For this purpose, multimedia educational resources are available, which will enable students to take leadership initiatives, learn about technological advances applied in the primary, secondary or tertiary sectors, as well as to delve into the creation of robots and virtual reality. These objectives will be easier to achieve as the most advanced content in this field will be available 24 hours a day.



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Advance in your professional career thanks to the advanced learning about Blockchain and quantum computing that this program brings you”



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



Advance in your professional career thanks to the advanced learning about Blockchain and quantum computing that this program brings you"



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
- ◆ Acquire important knowledge about one of the technologies that will revolutionize our future, such as quantum computing

Module 2. 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 knowledge of the different transversal applications that this technology has in all fields

Module 3. Virtual Reality Augmented and Mixed

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

Module 4. 4.0 Industry

- ◆ 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 5. Leading Industry 4.0

- ◆ Understand the current virtual era we live in 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
- ◆ 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
- ◆ Deepen the understanding of the main automation and control systems, their connectivity, the types of industrial communications and the type of data they exchange
- ◆ 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
- ◆ Find out how technologies are revolutionizing the agricultural, livestock, industrial, energy and construction sectors

Module 8. Industry 4.0 - Services and Sectorial Solutions I

- ◆ Entering the world of robotics and automation
- ◆ Choose a robotic platform, prototype and know in detail simulators and robot operating system (ROS)
- ◆ Deepen 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 trained to perform in complex and challenging environments

Module 9. Industry 4.0 Industry - 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 (eHealth and Smart Hospitals), smart cities, the financial sector (Fintech) and mobility solutions
- ◆ Knowing the technological trends of the future

Module 10. The Internet of Things

- ◆ 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.
- ◆ 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.
- ◆ 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 IoT

03 Skills

Professionals who take this university program will have at their disposal the latest pedagogical tools to advance their knowledge in Digital Transformation and Industry 4.0. A learning process that will lead you throughout the 1,500 teaching hours to increase your competences in this field and to enhance your technical skills to face the great challenges of artificial intelligence or to be able to lead digitization projects. The expert faculty that teaches this qualification will accompany the graduate during this journey so that they can achieve these goals.



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

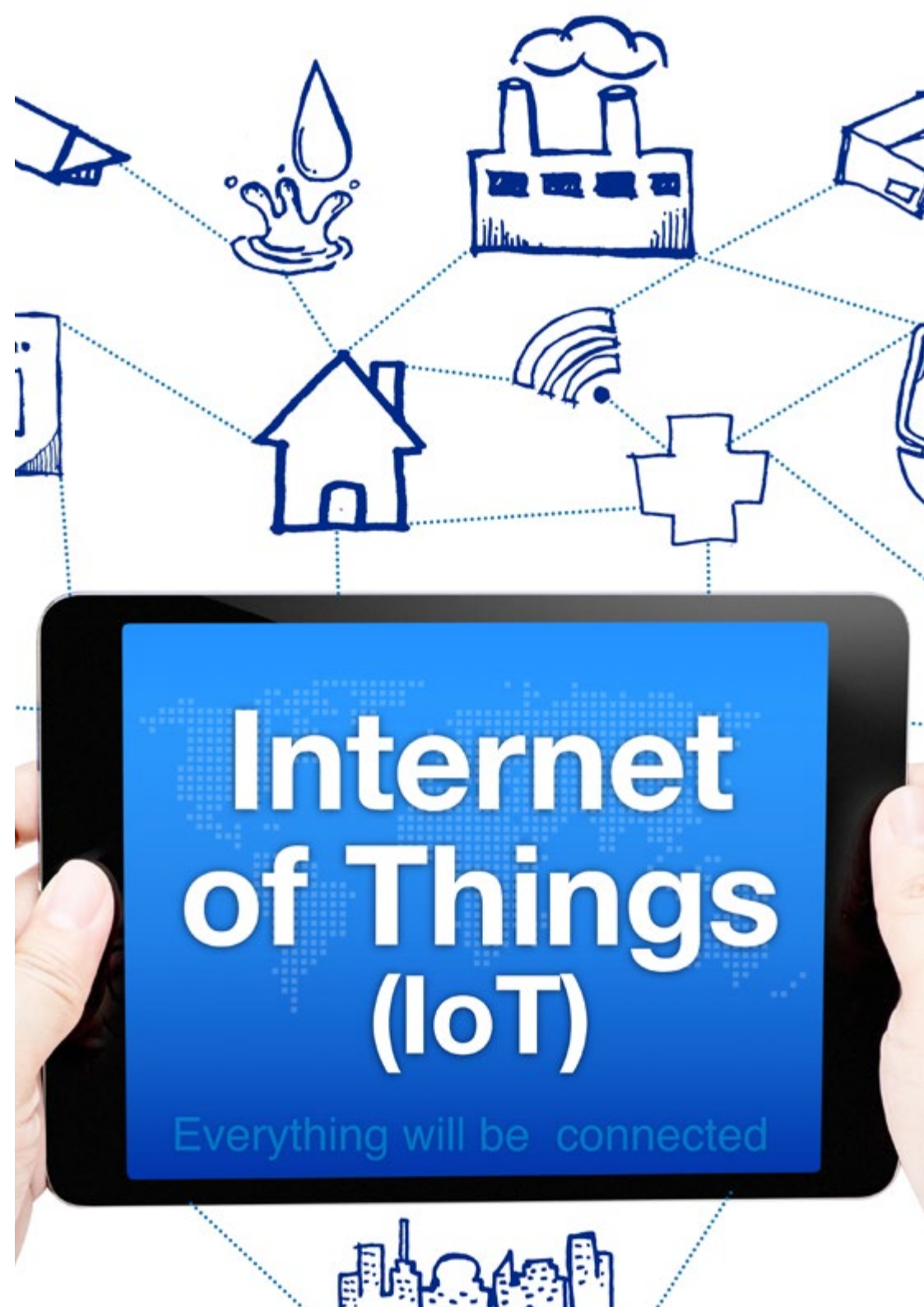


General Skills

- ◆ 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
- ◆ Apply the necessary tools to lead technological innovation and digital transformation processes



Expand your skills in the field of digital transformation with a program that will allow you to learn about the main business strategies used in Industry 4.0"





Specific Skills

- ◆ Securing 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
- ◆ Facing 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 truly useful chatbots and virtual assistants
- ◆ Create virtual worlds and elevate User Experience (UX) enhancement
- ◆ Integrating 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
- ◆ 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
- ◆ Reflecting 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
- ◆ Addressing 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

Given the great current importance of Industry 4.0 and the need for highly qualified IT professionals in this field, TECH has created a university program in which it has brought together a team of specialists versed in this field and with an excellent professional background. A faculty that will guide students over 12 months to obtain the most advanced and current knowledge in this field, allowing them to progress in a booming sector.



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You have a team of leading professionals in the technology sector at your disposal. Acquire, thanks to them, the necessary knowledge to progress as a computer scientist in the field of Digital Transformation"

Management



Mr. Segovia Escobar, Pablo

- ◆ Commercial manager of the Aftermarket and Industry 4.0 area applied to system support at Indra
- ◆ Industrial Engineer, Project Management Professional (PMP) por el Program Management Institute
- ◆ Master in Business Administration and Management
- ◆ Postgraduate in Strategic Management Function
- ◆ Sales Manager and Program Manager



Mr. Diezma López, Pedro

- ◆ Founder of the technology companies Acuilae (Artificial Intelligence), Etyka and Zerintia Technologies
- ◆ Wearable "Best Initiative" Award in eHealth 2017 and "Best Technological "Solution" 2018 for occupational safety

Professors

Mr. Asenjo Sanz, Álvaro

- ◆ Technical Engineer in Computer Systems from the UCM
- ◆ Software developer, consulting and IT project management
- ◆ Engineer at Kolokium
- ◆ Lecturer of the Degree in Computer Science at the Universidad Europea de Madrid
- ◆

Mr. Castellano Nieto, Francisco

- ◆ Responsible for the maintenance of defense equipment in the aeronautical, naval and terrestrial sectors at Indra
- ◆ Development engineer in R&D department in the sector of automatic packaging machines for solids, granulates and liquids, packaging machines, palletizers and distribution chains; solutions with technologies from Siemens, Allen-Bradley (Rockwell Automation), Schneider, Omron and Beckhoff
- ◆ Industrial Electronic Technical Engineer by the Universidad Pontificia de Comillas I.C.A.I.

Mr. Montes, Armando

- ◆ Expert in drones, robots and electronics, and 3D printers
- ◆ Creator of several state-of-the-art technological solutions and projects such as Emertech or Smart Vest

Ms. Sánchez López, Cristina

- ◆ IT (Software Engineer) for the Accenture Group in large clients such as Banco de Santander, BBVA, Endesa or Barclays Bank
- ◆ CEO and founder of Acuilae and ETHYKA
- ◆ Master's Degree in Data Science
- ◆ Degree in Statistics from the Complutense University Madrid

Mr. González Cano, José Luis

- ◆ Lighting Designer
- ◆ Industrial Electronics Technician. Madrid, Spain
- ◆ Technical Director Consulting, training and development of lighting technology projects and implementation of ISO 9001:2015 quality systems (internal auditor). Madrid, Spain
- ◆ Vocational teacher in electronics and automation
- ◆ Degree in Optics and Optometry from the Complutense University of Madrid, Spain

04

Structure and Content

The team specialized in Digital Transformation and Industry 4.0 that has designed this syllabus has developed innovative teaching material, which will allow students to delve into the most up-to-date information on Machine learning, the creation of drones, sector services and solutions or advances in the Internet of Things. All this, in modules through which you will be able to advance more quickly thanks to the Relearning system, used by TECH in all its programs. In this way, you will also be able to consolidate the knowledge you have acquired, which will allow you to progress in your professional field.





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Be part of the digital change thanks to the content of this program designed for computer scientists with high professional aspirations”

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. Viewing Data
 - 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 Functionality
 - 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: Dialog Flow, 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. 360° 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 Functioning, 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. 4.0 Industry

- 4.1. 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. 4.0 Industry 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. 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
 - 5.2.2. 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
 - 5.2.1. 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. Functioning 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 of 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 Sectorial 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 Agriculture and Intelligence
 - 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 Industry – 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 Twins
 - 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.



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

The case method has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

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

Relearning Methodology

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

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

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

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

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



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

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

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



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



Study Material

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

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



Classes

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

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



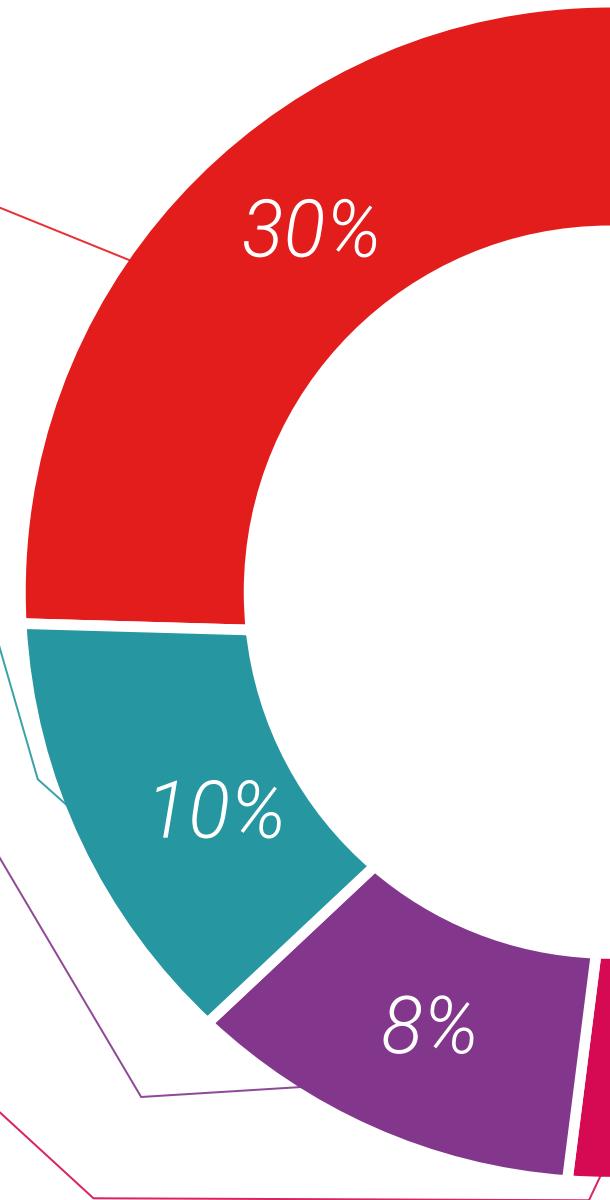
Practising Skills and Abilities

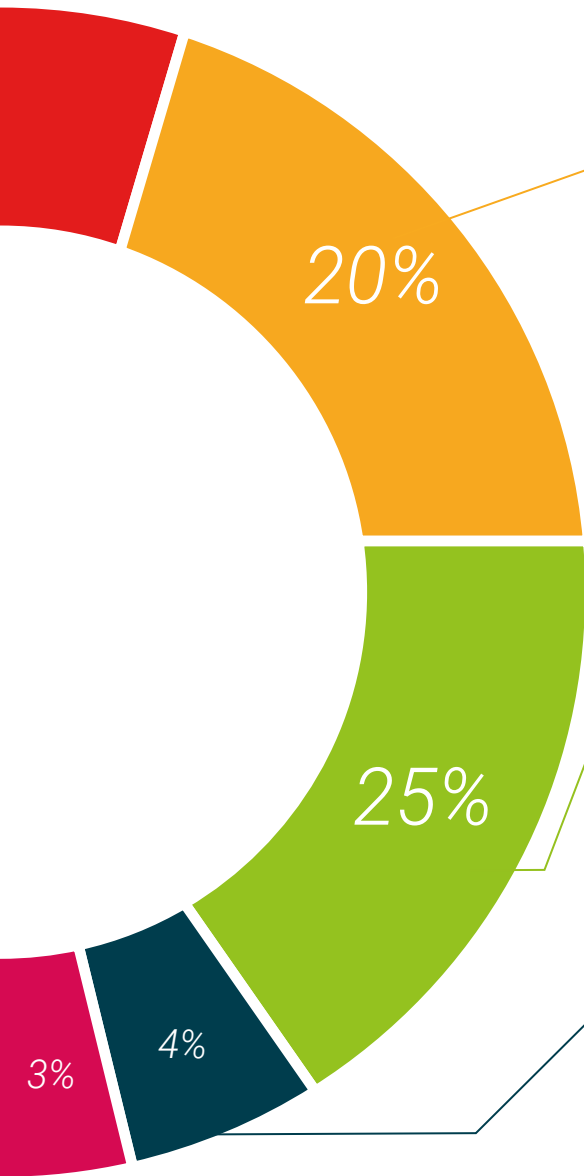
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



Additional Reading

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





Case Studies

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



Interactive Summaries

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

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



Testing & Retesting

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



06 Certificate

The 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 Technological University.



“

*Successfully complete this training program
and receive your university certificate without
travel or laborious paperwork”*

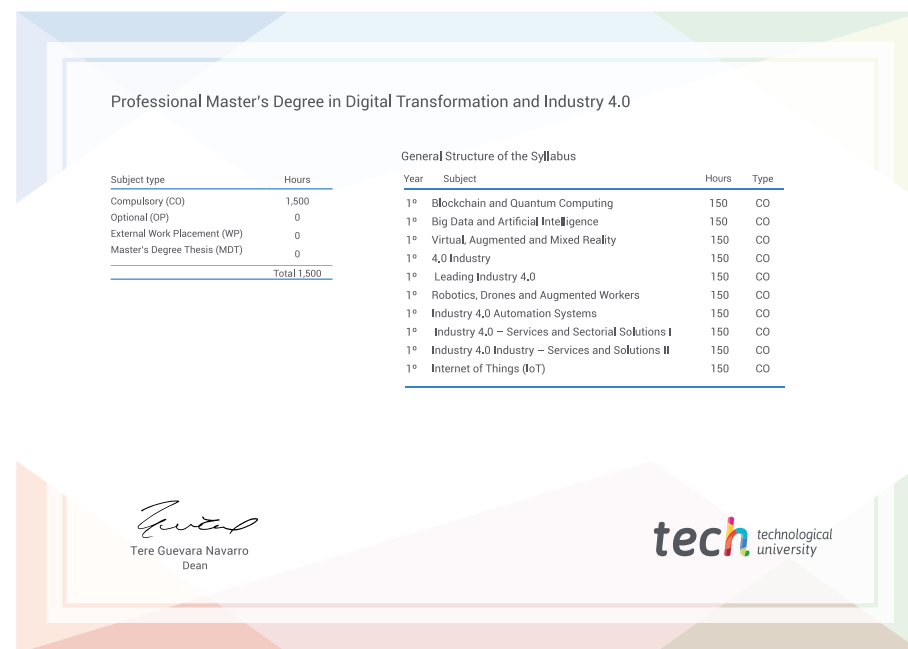
This **Professional Master's Degree in Digital Transformation and Industry 4.0** contains the most up-to-date program on the market.

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

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

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

Official N° of hours: **1,500 h.**



*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.

future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present
development languages
virtual classroom



Professional Master's Degree Digital Transformation and Industry 4.0

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Professional Master's Degree

Digital Transformation and Industry 4.0