



» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

» Target Group: Engineers, architects and graduates who want to learn and update themselves on the latest technological trends and digitalization processes that will help them lead technological innovation and business transformation. It is also highly recommended for innovation managers who want to create value within their field and organizations, relying on the emerging technologies of Industry 4.0, knowing them and making an intelligent selection and application of them to meet customer expectations.

 $We b site: {\color{blue} www.techtitute.com/us/school-of-business/postgraduate-diploma/postgraduate-diploma-industrial-internet-things-iiotolic technique and {\color{blue} www.techtitute.com/us/school-of-business/postgraduate-diploma-industrial-internet-things-iiotolic technique and {\color{blue} www.technique and {\color{$ 

# Index

01

Welcome

02

Why Study at TECH?

p. 4

03

Why Our Program?

p. 6

04

Objectives

p. 14

05

**Structure and Content** 

p. 18

06

Methodology

p. 24

p. 10

07

Our Students' Profiles

p. 32

80

Course Management

p. 36

)9

Impact on Your Career

p. 40

10

Benefits for Your Company

p. 44

11

Certificate

# 01 **Welcome**

The Internet has completely changed our perception of the world. So much so that for many it has meant a radical improvement in their quality of life, education, work, security.... With a settled digital world, what we call the internet of things is now focused on creating smart projects using the best technology available to do so. Being a cutting-edge sector for many industries, professionals looking for an opportunity to climb the career ladder will find in this TECH program the perfect opportunity to do so. They will learn world-class skills that will lead to better jobs, bigger projects and higher salaries.







# tech 08 | Why Study at TECH?

## At TECH Technological University



#### **Innovation**

The university offers an online learning model that balances the latest educational technology with the most rigorous teaching methods. A unique method with the highest international recognition that will provide students with the keys to develop in a rapidly-evolving world, where innovation must be every entrepreneur's focus.

"Microsoft Europe Success Story", for integrating the innovative, interactive multi-video system.



## The Highest Standards

Admissions criteria at TECH are not economic. Students don't need to make a large investment to study at this university. However, in order to obtain a qualification from TECH, the student's intelligence and ability will be tested to their limits. The institution's academic standards are exceptionally high...

95%

of TECH students successfully complete their studies



## Networking

Professionals from countries all over the world attend TECH, allowing students to establish a large network of contacts that may prove useful to them in the future.

+100000

+200

executives prepared each year

different nationalities



### **Empowerment**

Students will grow hand in hand with the best companies and highly regarded and influential professionals. TECH has developed strategic partnerships and a valuable network of contacts with major economic players in 7 continents.

+500

collaborative agreements with leading companies



#### **Talent**

This program is a unique initiative to allow students to showcase their talent in the business world. An opportunity that will allow them to voice their concerns and share their business vision.

After completing this program, TECH helps students show the world their talent.



#### **Multicultural Context**

While studying at TECH, students will enjoy a unique experience. Study in a multicultural context. In a program with a global vision, through which students can learn about the operating methods in different parts of the world, and gather the latest information that best adapts to their business idea.

TECH students represent more than 200 different nationalities.



TECH strives for excellence and, to this end, boasts a series of characteristics that make this university unique:



### **Analysis**

TECH explores the student's critical side, their ability to question things, their problem-solving skills, as well as their interpersonal skills.



#### **Academic Excellence**

TECH offers students the best online learning methodology. The university combines the *Relearning* methodology (the most internationally recognized postgraduate learning methodology) with Harvard Business School case studies. A complex balance of traditional and state-of-the-art methods, within the most demanding academic framework.



## **Economy of Scale**

TECH is the world's largest online university. It currently boasts a portfolio of more than 10,000 university postgraduate programs. And in today's new economy, **volume + technology = a ground-breaking price**. This way, TECH ensures that studying is not as expensive for students as it would be at another university.





### Learn with the best

In the classroom, TECH's teaching staff discuss how they have achieved success in their companies, working in a real, lively, and dynamic context. Teachers who are fully committed to offering a quality specialization that will allow students to advance in their career and stand out in the business world.

Teachers representing 20 different nationalities.



At TECH, you will have access to the most rigorous and up-to-date case analyses in academia"





# tech 12 | Why Our Program?

This program will provide you with a multitude of professional and personal advantages, among which we highlight the following:



## A Strong Boost to Your Career

By studying at TECH, students will be able to take control of their future and develop their full potential. By completing this program, students will acquire the skills required to make a positive change in their career in a short period of time.

70% of students achieve positive career development in less than 2 years.



# Develop a strategic and global vision of the company

TECH offers an in-depth overview of general management to understand how each decision affects each of the company's different functional fields.

Our global vision of companies will improve your strategic vision.



## Consolidate the student's senior management skills

Studying at TECH means opening the doors to a wide range of professional opportunities for students to position themselves as senior executives, with a broad vision of the international environment.

You will work on more than 100 real senior management cases.



## You will take on new responsibilities

The program will cover the latest trends, advances and strategies, so that students can carry out their professional work in a changing environment.

45% of graduates are promoted internally.



## Access to a powerful network of contacts

TECH connects its students to maximize opportunities. Students with the same concerns and desire to grow. Therefore, partnerships, customers or suppliers can be shared.

You will find a network of contacts that will be instrumental for professional development.



## Thoroughly develop business projects

Students will acquire a deep strategic vision that will help them develop their own project, taking into account the different fields in companies.

20% of our students develop their own business idea.



## Improve soft skills and management skills

TECH helps students apply and develop the knowledge they have acquired, while improving their interpersonal skills in order to become leaders who make a difference.

Improve your communication and leadership skills and enhance your career.



## You will be part of an exclusive community

Students will be part of a community of elite executives, large companies, renowned institutions, and qualified teachers from the most prestigious universities in the world: the TECH Technological University community.

We give you the opportunity to study with a team of world-renowned teachers.





# tech 16 | Objectives

TECH makes the goals of their students their own goals too. Working together to achieve them.

The Postgraduate Diploma in Industrial Internet of Things (IIoT) trains students to:



Analyze the origins of the so-called Fourth Industrial Revolution and the Industry 4.0 concept



Better understanding of the main automation and control systems, their connectivity, the types of industrial communications and the type of data they exchange



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



Deepen the understanding of the main automation and control systems, their connectivity, the types of industrial communications and the type of data they exchange



Define continuous monitoring, predictive and prescriptive maintenance models



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 IIoT



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



Develop, from all available data, the Digital Twin of the facilities/systems/assets integrated in an IoT network





## tech 20 | Structure and Content

## **Syllabus**

The Postgraduate Diploma in Industrial Internet of Things (Ilot) contains all the most up-to-date knowledge of advanced industrial technology on the market. To this end, TECH has assembled a team of experts in the field who have developed each and every one of the contents of this program with the student's professional improvement in mind.

Throughout 450 hours of study, the student will learn to apply new organizational methodologies such as lean manufacturing, as well as industrial robotics systems and process monitoring. In addition, learning is supported by case studies where the student will see real examples of application of the knowledge being acquired.

The student will deepen, among other things, in the characteristics of the new industrial revolution or industry 4.0, the current state of it, the industrial automation that dominates the production landscape, the main application platforms of the internet of things and the necessary security in them to prevent cyberattacks or failures.

This Postgraduate Diploma takes place over 6 months and is divided into 3 modules:

Module 1	4.0 Industry
Module 2	Industry 4.0 Automation Systems
Module 3	Internet of Things (IoT)



## Where, when, and how it is taught

TECH offers the possibility of developing this Postgraduate Diploma in Internet of Things Industries (IIoT) completely online. Throughout the 6 months of the educational program, you will be able to access all the contents of this program at any time, allowing you to self-manage your study time.

A unique, key, and decisive educational experience to boost your professional development and make the definitive leap.

# tech 22 | Structure and Content

Mod	ule 1. 4.0 Industry			
	<b>Definition of 4.0. Industry</b> Features	<ul><li>1.2. Benefits of the 4.0. Industry</li><li>1.2.1. Key Factors</li><li>1.2.2. Main Advantages</li></ul>	<ul> <li>1.3. Industrial Revolutions and Vision of the Future</li> <li>1.3.1. Industrial Revolutions</li> <li>1.3.2. Keys Factors in Each Revolution</li> <li>1.3.3. Technological Principles as a Basis for Possible New Revolutions</li> </ul>	<ul> <li>1.4. The Digital Transformation of the Industry</li> <li>1.4.1. Characteristics of the Digitization of the Industry</li> <li>1.4.2. Disruptive Technologies</li> <li>1.4.3. Applications in the Industry</li> </ul>
1.5.1.	Forth Industrial Revolution Key Principles of Industry 4.0. Definitions Key Principles and Applications	<ul> <li>1.6. 4.0.Industry and Industrial Internet</li> <li>1.6.1. Origin of IIoT</li> <li>1.6.2. Operation</li> <li>1.6.3. Steps to Follow for its Implementation</li> <li>1.6.4. Benefits</li> </ul>	<ul><li>1.7. Smart Factory Principles</li><li>1.7.1. Smart Factory</li><li>1.7.2. Elements That Defiine a Smart Factory</li><li>1.7.3. Steps to Deploy a Smart Factory</li></ul>	<ul><li>1.8. Status of the 4.0. Industry</li><li>1.8.1. Status of the 4.0. Industry in Different Sectors</li><li>1.8.2. Barriers to the Implementation of 4.0. Industry</li></ul>
1.9.1.	Challenges and Risks SWOT Analysis Challenges	<ul> <li>1.10. Role of Technological Capabilities and the Human Factor</li> <li>1.10.1. Disruptive Technologies in Industry 4.0.</li> <li>1.10.2. The Importance of the Human Factor Key Factor</li> </ul>		
	1 0 1 1 1 10 1 1 1 0 1			
Mod	ule 2. Industry 4.0 Automation Systems	3		
<b>2.1.</b> 2.1.1. 2.1.2.	Industrial Automation Automization Architecture and Components Safety	<ul><li>2.2. Industrial Robotics</li><li>2.2.1. Fundamentals of Industrial Robotics</li><li>2.2.2. Models and Impact on Industrial Processes</li></ul>	<ul> <li>2.3. PLC Systems and Industrial Control</li> <li>2.3.1. PLC Evolution and Status</li> <li>2.3.2. Evolution of Programming Languages</li> <li>2.3.3. Computer Integrated Automation CIM</li> </ul>	<ul><li>2.4. Sensors and Actuators</li><li>2.4.1. Classification of Transducers</li><li>2.4.2. Types of Sensors</li><li>2.4.3. Standardization of Signals</li></ul>
2.1. 2.1.1. 2.1.2. 2.1.3. 2.5. 2.5.	Industrial Automation Automization Architecture and Components	<ul><li>2.2. Industrial Robotics</li><li>2.2.1. Fundamentals of Industrial Robotics</li></ul>	2.3.1. PLC Evolution and Status 2.3.2. Evolution of Programming Languages	2.4.1. Classification of Transducers 2.4.2. Types of Sensors

Module 3. Internet of Things (IoT)							
3.1. 3.1.1. 3.1.2. 3.1.3.	the Industry 4.0. Vision Internet of Things (IoT) Components Involved in IoT		Internet of Things and Cyber- Physical Systems Computing and Communication Capabilities to Physical Objects Sensors, Data and Elements in Cyber- Physical Systems		Device Ecosystem Typologies, Examples and Uses Applications of the Different Devices		IoT Platforms and their Architecture IoT Market Typologies and Platforms Operation of an IoT Platform
	<b>Digital Twins</b> Digital Twin Uses and Applications the Digital Twin	3.6. 3.6.1. 3.6.2.	Indoor & outdoor Geolocation (Real Time Geospatial) Indoor and Outdoor Geolocation Platforms Implications and Challenges of Geolocation in an IoT Project	<b>3.7.</b> 3.7.1. 3.7.2.	3, 1, 1, 1, 1	<b>3.8.</b> 3.8.1. 3.8.2.	IoT and IIoT Platform Security Security Components in an IoT System IoT Security Implementation Strategies
<b>3.9.</b> 3.9.1. 3.9.2.	Wearables at Work Types of Wearables in Industrial Environments Lessons Learned and Challenges in Implementing Wearables in the Workplace	3.10.1 3.10.2	Implementing an API to Interact with a Platform  Types of APIs Involved in an IoT Platform  API Market  Strategies and Systems to Implement API Integrations				



A complete specialization in new industrial technologies that will distinguish you as a renewed, modern professional, capable of leading large production lines"



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.





## tech 26 | Methodology

# TECH Business School uses the 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.





This program prepares you to face business challenges in uncertain environments and achieve business success.



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

## A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch to present executives with challenges and business decisions at the highest level, whether at the national or international level. 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 business reality is taken into account.



You will learn, through collaborative activities and real cases, how to solve complex situations in real business environments"

The case method has been the most widely used learning system among the world's leading business 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 we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They must integrate all their knowledge, research, argue and defend their ideas and decisions.

## tech 28 | Methodology

## 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.

Our online system will allow you to organize your time and learning pace, adapting it to your schedule. You will be able to access the contents from any device with an internet connection.

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 online business school is the only one in the world licensed to incorporate 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.



## Methodology | 29 **tech**

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. With this methodology we have 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, markets, and financial 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 specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to 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.



## **Management Skills Exercises**

They will carry out activities to develop specific executive competencies in each thematic area. Practices and dynamics to acquire and develop the skills and abilities that a high-level manager needs to develop in the context of the globalization we live in.



#### **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.





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 senior management 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**

 $\bigcirc$ 

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.

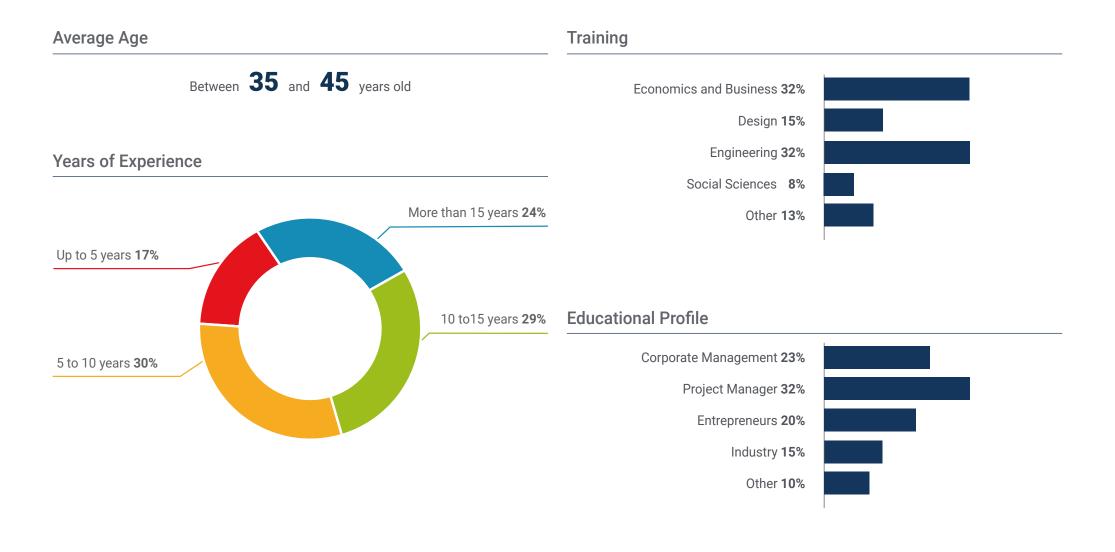


30%

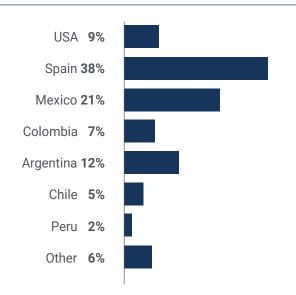




## tech 34 | Our Students' Profiles



## **Geographical Distribution**





# **Anaïs García**

## **Project Manager**

"Joining the IIoT was costing me because of the difficulties of combining my work with my studies. But with this program it turned out to be very easy. I have found your flexibility to be a great formula for achieving my goals"





### Management



### Mr. Pablo Segovia Escobar

- 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 with extensive experience (more than 12 years) in project management
- Currently commercial manager of the Aftermarket and Industry 4.0 area applied to the support of systems at Indra



# Mr. Pedro Diezma López

- Entrepreneur, writer, TEDx speaker and expert in emerging and exponential technologies
- Founder of the technology companies Acuilae (Artificial Intelligence), Ethyka and Zerintia Technologies
- Wearable "Best Initiative" Award in eHealth 2017 and "Best Technological "Solution" 2018 for occupational safety
- One of the world's leading experts (Source: Onalytica) in Wearable Technology and Internet of Things



### **Professors**

#### Mr. Francisco Castellano Nieto

- Industrial Electronic Technical Engineer by the Universidad Pontificia de Comillas I.C.A.I
- Extensive experience in industrial environments as a 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
- Responsible for the maintenance of defense equipment in the aeronautical, naval and terrestrial sectors at Indra

#### Mr. José Luis González Cano

- Industrial Electronics Technician
- Degree in Optics from the Complutense University of Madrid
- Focuses his independent professional activity collaborating with companies in the lighting sector in consulting, training, lighting technology projects and implementation of ISO 9001:2015 quality systems (internal auditor)
- Vocational teacher in electronics and automation
- Has directed and taught as a teacher of Vocational Training in electronic systems, telematics (CISCO certified instructor), radio communications, IoT
- Member of the Professional Association of Lighting Designers (Technical Consultant)
- Member of the Spanish Lighting Committee, participating in working groups on LED technology





# Are you ready to take the leap? Excellent professional development awaits you

The Postgraduate Diploma Industrial Internet of Things of TECH Technological University is the best possible training for students who are looking for a job improvement in the industrial field specializing in first level technological methodologies. Therefore, this is a great opportunity to take the professional leap that students are waiting for.

**Generating Positive Change** 

A program of high academic standing to lead your career to success.

This Postgraduate
Diploma will enable
students to acquire
the necessary
competitiveness to
make a radical change
in their career.

### Time of Change



### Type of Change

Internal Promotion **33**%
Change of Company **39**%
Entrepreneurship **28**%

# Salary Increase

This program represents a salary increase of more than **25.22%** for our students.

\$57,900

A salary increase of

25.22%

\$75,500





# tech 46 | Benefits for Your Company

Developing and retaining talent in companies is the best long-term investment.



### Growth of talent and intellectual capital

The professional will introduce the company to new concepts, strategies, and perspectives that can bring about significant changes in the organization.



# Retaining high-potential executives to avoid talent drain

This program strengthens the link between the company and the professional and opens new avenues for professional growth within the company.



### **Building agents of change**

You will be able to make decisions in times of uncertainty and crisis, helping the organization overcome obstacles.



### Increased international expansion possibilities

Thanks to this program, the company will come into contact with the main markets in the world economy.







# **Project Development**

The professional can work on a real project or develop new projects in the field of R & D or business development of your company.



# Increased competitiveness

This program will equip students with the skills to take on new challenges and drive the organization forward.





# tech 50 | Certificate

This **Postgraduate Diploma in Industrial Internet of Things (IIoT)** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

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

Title: Postgraduate Diploma in Industrial Internet of Things (IIoT)

Official No of hours: 450 h.



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



# Postgraduate Diploma Industrial Internet of Things (IIoT)

» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

