

# Postgraduate Certificate Security in IoT Device Communications





## Postgraduate Certificate Security in IoT Device Communications

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

Website: [www.techtitute.com/in/information-technology/postgraduate-certificate/security-iot-device-communications](http://www.techtitute.com/in/information-technology/postgraduate-certificate/security-iot-device-communications)

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# 01

# Introduction

The next great technological revolution is brought about by the Internet of Things (IoT). This concept refers to the interconnection of everyday devices with the Internet, allowing users to control a large number of elements of their daily lives through a network connection. So, at the same time that IoT has produced and will produce numerous advances for millions of people, it is also susceptible to attacks. For that reason, the next relevant area of cybersecurity is dedicated to this technology. This program will allow the professional to deepen in this area, becoming a specialist coveted by companies of all types of sectors that rely on these digital services.



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*Get ready to face the present and the future of IoT with the best tools, delving into the best security methods in this area of IT thanks to this Postgraduate Certificate”*

IoT is the great dream foretold by so many works of science fiction in literature and film. Its emergence has led to the streamlining of numerous processes and activities, both in the domestic and in the business world. This technology interconnects various devices, making them centrally and remotely controllable, simply by using an Internet connection. Therefore, it is a tool within the reach of millions of people, which can make it vulnerable.

Thus, IoT has become one of the major areas of development for computer scientists and engineers, and one of the most important areas in this regard is security. Professionals specialized in their cybersecurity are needed, who know the particularities of how they work and who can identify potential vulnerabilities.

For this reason, TECH has designed this Postgraduate Certificate in Security in IoT Device Communications, which will allow students to delve into issues such as IoT connectivity or PAN, LAN, WAN networks. All this, with the support of a highly prestigious teaching staff, innovative content presented in a variety of multimedia formats, and a 100% online teaching system that adapts to the circumstances of the professional.

This **Postgraduate Certificate in Security in IoT Device Communications** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ◆ Case studies presented by IT and cybersecurity experts
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and 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



*The internet of things is the next big revolution: this Postgraduate Certificate will teach you all the latest developments in this field so that you can perform professionally in the most effective way in this field"*

“ *TECH's online methodology will not interrupt your professional work, as it allows you to decide when, how and where to study*”

The program's teaching staff includes professionals from the sector who contribute their work experience to this training 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 throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*You will experience a dramatic career advancement thanks to the innovative security techniques applied to IoT that you will acquire in this program.*

*You will have access to content prepared by the leading international experts in IoT security.*



# 02 Objectives

This Diploma in Security in IoT Device Communications will allow professionals to incorporate the best cybersecurity techniques and methods in this booming technological area into their daily professional practice. To achieve this goal, it offers content that integrates the latest advances in the internet of things, a flexible teaching method that adapts to your personal circumstances and the best teachers, carefully recruited by TECH.





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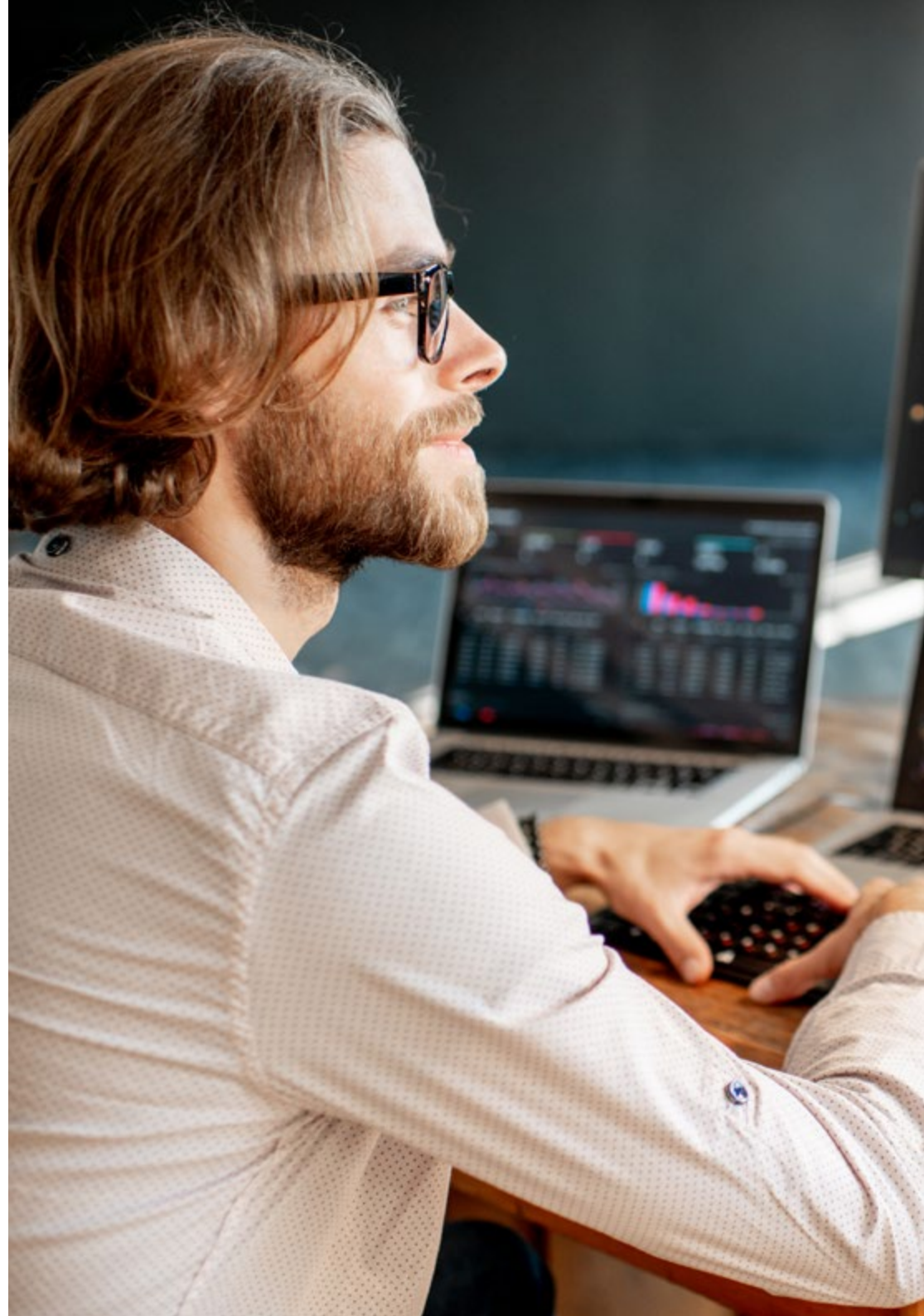
*This Diploma offers you the possibility to update your knowledge in IoT security, which will open the doors to great professional opportunities"*



## General Objectives

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- ◆ Assess IoT connectivity options to address a project, with special emphasis on LPWAN technologies
- ◆ Present the basic specifications of the main LPWAN technologies for the IoT
- ◆ Develop security specifications for each LPWAN technology
- ◆ Analyze comparatively the security of LPWAN technologies





## Specific Objectives

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- ◆ Introduce the simplified IoT architecture
- ◆ Substantiate the differences between generalist connectivity technologies and connectivity technologies for IoT
- ◆ Establish the concept of the iron triangle of IoT connectivity
- ◆ Analyze the security specifications of LoRaWAN technology, NB-IoT technology and WiSUN technology
- ◆ Justify the choice of the appropriate IoT technology for each project

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*Professionals focused on security in IoT are required. This is what you were looking for  
Enroll now”*

# 03

# Course Management

It is not easy to access an educational program that provides the professional with the best security tools applied to the Internet of Things. With this in mind, TECH has assembled a high-level teaching staff that will transfer the most advanced techniques in this field to the student. Thus, the professional who decides to enroll will know that they are looking at a great option for updating their knowledge, since they will enjoy the teaching of experts in a very new area.



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*You will learn from leading IoT specialists.  
Don't miss this great opportunity to improve  
your career prospects”*

## Management



### Mr. Olalla Bonal, Martín

- ◆ Director de Información en ePETID - Global Animal Health
- ◆ Blockchain Technical Specialist at IBM SPGI
- ◆ *Blockchain* Architect
- ◆ Infrastructure Architect in Banking
- ◆ Project management and implementation of solutions
- ◆ Digital Electronics Technician
- ◆ Teacher Hyperledger Fabric Training for companies
- ◆ Teacher Blockchain Training for Businesses



## Professors

### Mr. del Valle Arias, Jorge

- ◆ Smart Cities Business Growth Manager Spain en Itron Inc.
- ◆ IoT Consultor
- ◆ IoT Division Director at Diode Spain
- ◆ Sales Manager IoT & Celular at Aicox Solutions
- ◆ Founder and CEO of Sensor Intelligence
- ◆ Operations Manager at Codium Networks
- ◆ Head of Electronics at Aitemin
- ◆ Telecommunications Engineer from the Polytechnic University of Madrid
- ◆ Executive MBA from the International Graduate School of La Salle in Madrid

# 04

## Structure and Content

This Diploma in Security in IoT Device Communications has the most complete and up-to-date content on the market. Thus, leading international experts have been responsible for developing its agenda, which has been structured in 1 specialized module, and with which the student will learn about the latest developments in the democratization of telemetry, the architecture of the Internet of Things, LPWAN wireless technologies or WiSUN use cases.



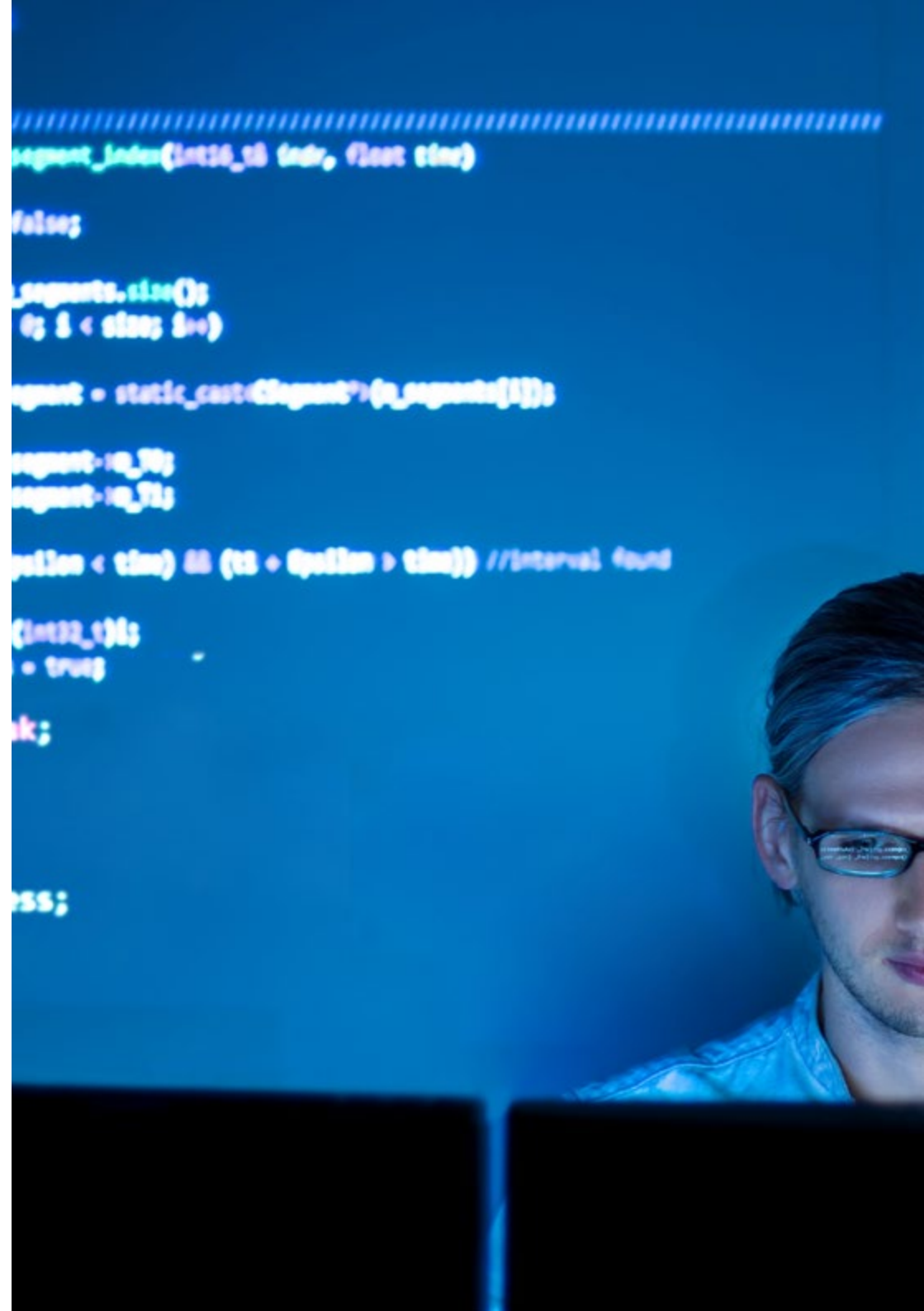


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*In this Postgraduate Certificate you will find all the latest developments in security applied to IoT. This way, you will be able to update yourself easily and quickly, with a unique educational program"*

## Module 1. Security in IoT Device Communications

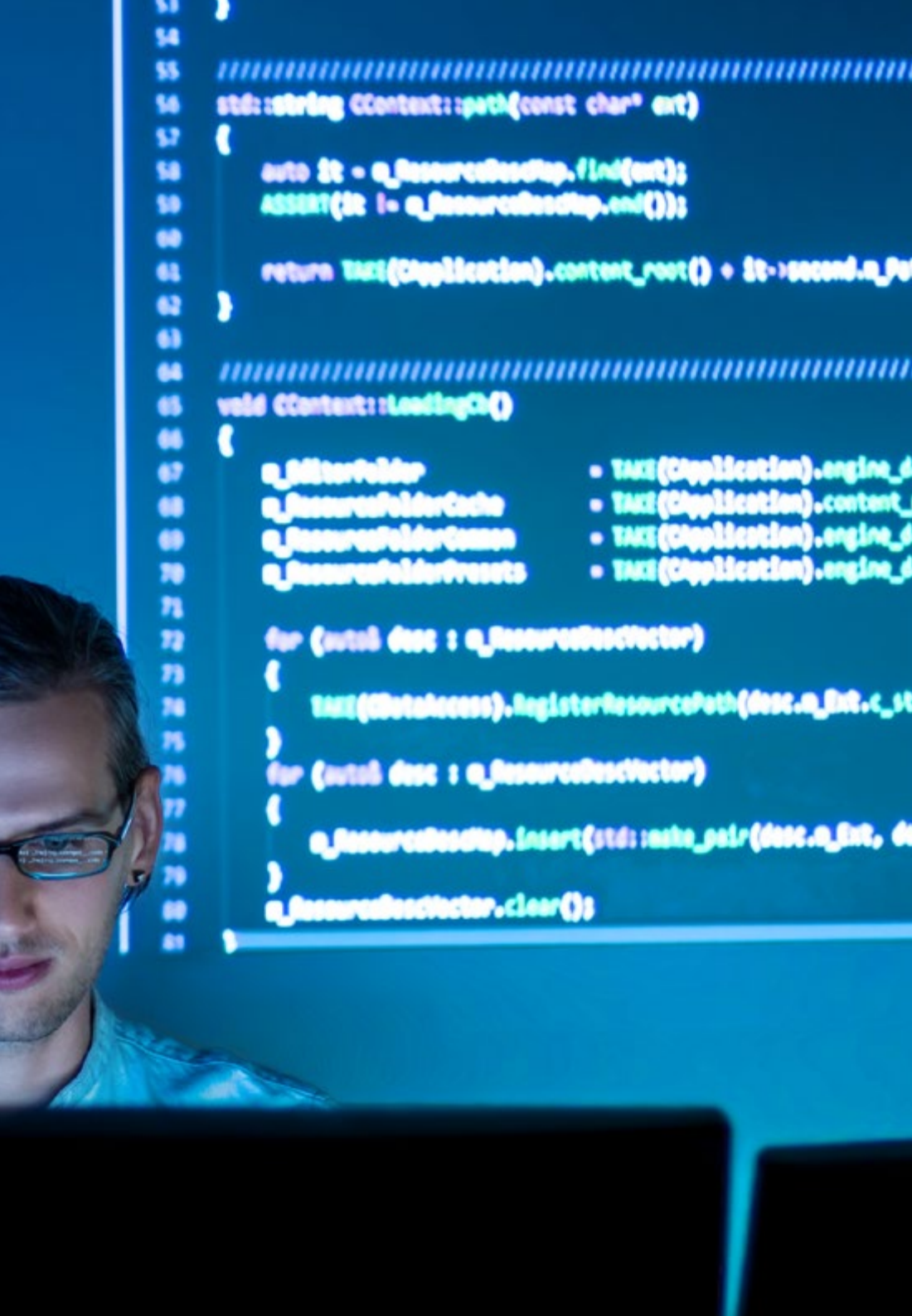
- 1.1. From Telemetry to IoT
  - 1.1.1. Telemetry
  - 1.1.2. M2M Connectivity
  - 1.1.3. Democratization of Telemetry
- 1.2. IoT Reference Models
  - 1.2.1. IoT Reference Models
  - 1.2.2. IoT Simplified Architecture
- 1.3. IoT Security Vulnerabilities
  - 1.3.1. IoT Devices
  - 1.3.2. IoT Devices Usage Case Studies
  - 1.3.3. IoT Devices Vulnerabilities
- 1.4. Connectivity to IoT
  - 1.4.1. PAN, LAN, WAN Networks
  - 1.4.2. Non IoT Wireless Technologies
  - 1.4.3. LPWAN Wireless Technologies
- 1.5. LPWAN Technologies
  - 1.5.1. The Iron Triangle of LPWAN Networks
  - 1.5.2. Free Frequency Bands vs. Licensed Bands
  - 1.5.3. LPWAN Technology Options
- 1.6. LoRaWAN Technology
  - 1.6.1. LoRaWAN Technology
  - 1.6.2. LoRaWAN Use Cases Ecosystem
  - 1.6.3. Security in LoRaWAN
- 1.7. Sigfox Technology
  - 1.7.1. Sigfox Technology
  - 1.7.2. Sigfox Use Cases Ecosystem
  - 1.7.3. Security in Sigfox



- 1.8. IoT Cellular Technology
  - 1.8.1. IoT Cellular Technology (NB-IoT and LTE-M)
  - 1.8.2. Cellular IoT Use Cases Ecosystem
  - 1.8.3. IoT Cellular Security
- 1.9. WiSUN Technology
  - 1.9.1. WiSUN Technology
  - 1.9.2. WiSUN Use Cases Ecosystem
  - 1.9.3. Security in WiSUN
- 1.10. Other IoT Technologies
  - 1.10.1. Other IoT Technologies
  - 1.10.2. Use Cases and Ecosystem of Other IoT Technologies
  - 1.10.3. Security in Other IoT Technologies



*This program offers you the best options to specialize: you will have at your disposal a highly prestigious faculty, up-to-date contents and the most efficient teaching system"*



# 05 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

“

*At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world”*



*You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.*



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

### A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.



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

The case method 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 Postgraduate Certificate in Security in IoT Device Communications guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Security in IoT Device Communications** 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 certificate 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 Certificate in Security in IoT Device Communications**

Official N° of hours: **150 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 language  
classroom



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

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