Postgraduate Certificate

Industrial Electronic Communications

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Postgraduate Certificate

Industrial Electronic Communications

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/industrial-electronic-communications**

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01

Introduction

In order to carry out production processes in the industrial environment, large amounts of data must be managed, so it is necessary for communications networks to be powerful and secure. This will allow the work to be carried out in an efficient manner. This TECH program will give engineers the keys to design and analyze this type of communication networks, achieving a higher level of training that will open the doors to an increasingly demanding and competitive labor market.

Learn how to design and analyze the different types of communications networks that can be applied in industries and open the doors to a successful future career"

Industries manage large amounts of data, which makes a communication network necessary to meet the requirements of each specific case. In some cases, enormous bandwidths will be required to communicate, in very short times, large amounts of data. Alternatively, it is necessary to have wireless links for mobile elements or elements that are located at considerable distances. Parameters such as data volume, transmission and response speed, and the scope of application determine which types of networks are most suitable for certain scenarios. Therefore, engineers who wish to develop professionally in this field must acquire the necessary qualifications to be able to handle this type of systems.

For this reason, TECH has designed this Postgraduate Certificate in Industrial Electronic Communications, which covers relevant issues such as what are the most common real-time systems in industrial processes, or the main communications protocols used for the transmission of large volumes of data. A program of high academic level that fulfills a double premise: placing the professional as one of the main experts in the field and obtaining a first level qualification, certified by a prestigious university.

In addition, this program has the advantage of being 100% online, which will allow students to distribute their study time, not being conditioned by fixed schedules or having the need to move to another physical location, being able to access all the contents at any time of the day, balancing their work and personal life with their academic life.

This **Postgraduate Certificate in Industrial Electronic Communications** contains the most complete and up-to-date educational program on the market. The most important features include:

- Case studies presented by engineering 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
- Special emphasis on innovative methodologies in Industrial Electronic communication
- 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

Your Postgraduate Certificate in Industrial Electronic Communications will enable you to design devices that make industrial work more efficient"

TECH is a 21st century university that is focused on the most innovative teaching methodology in the current academic scenario"

TECH aims to improve the knowledge of its students in a comfortable way and, therefore, offers them a 100% online methodology.

Enroll in this Postgraduate Certificate and have direct access to a wide range of theoretical and practical resources.

Its teaching staff includes professionals from the field of engineering, who contribute their work experience to this program, as well as renowned specialists from leading companies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will allow professionals to learn in a contextual and situated learning environment, i.e., a simulated environment that will provide immersive specialization for real situations.

The design of this program is focused on Problem-Based Learning, by means of which the students will have to try to solve the different professional practice situations that will be presented to them throughout the academic program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

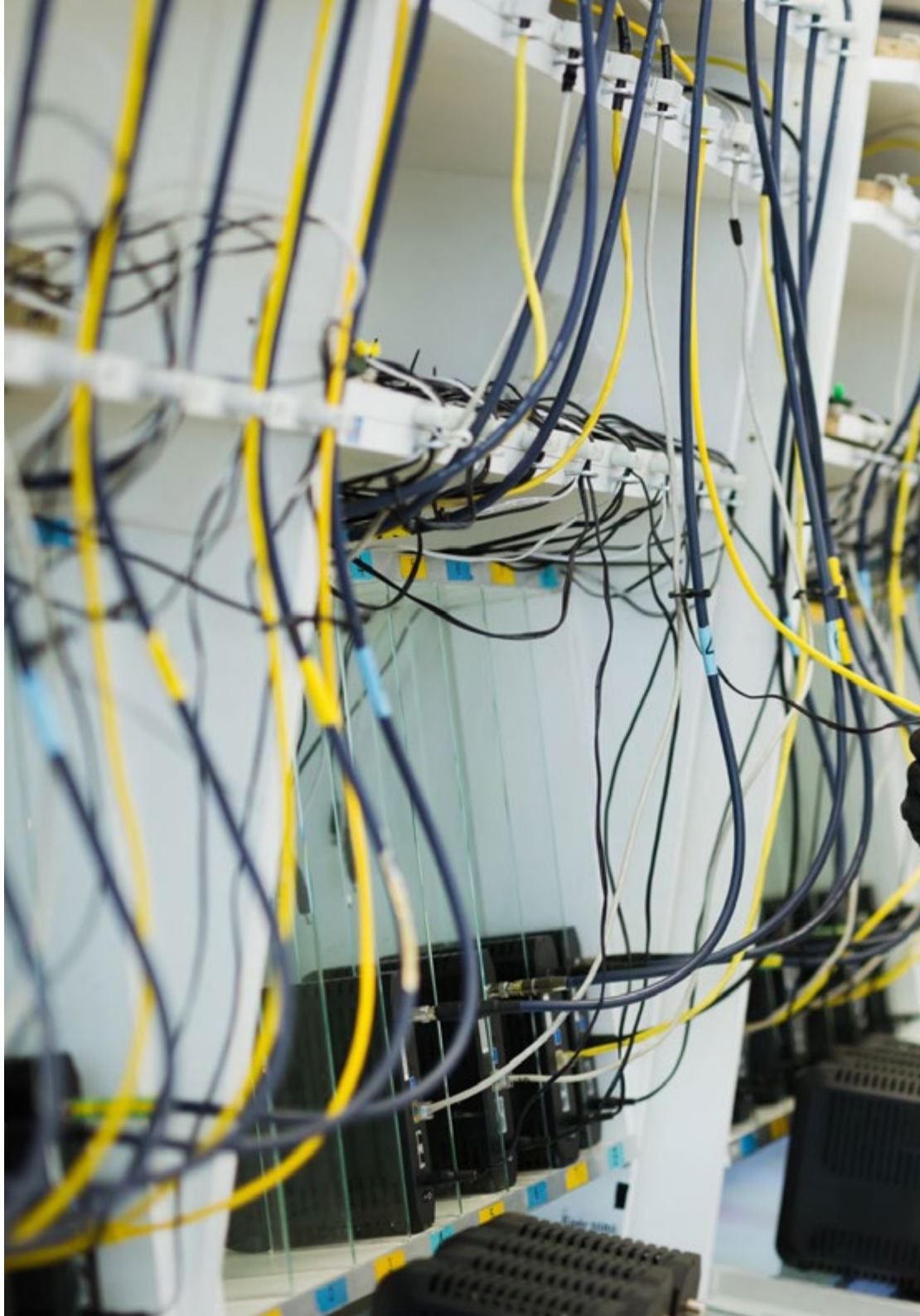
This Postgraduate Certificate in Industrial Electronic Communications will provide students with the keys to learn how to design and repair these types of systems, with the main objective of turning them into first level engineers, able to access reference positions in industry and electronics. An objective that will be achieved with effort and dedication, but, above all, with access to the latest developments in this field.

Engineers who are willing to become specialized in electronic communications will find in this program a unique opportunity to improve their knowledge and skills"

General Objectives

- Determine the characteristics of real type systems and recognize the complexity of programming these types of systems
- Analyze the different types of communication networks available
- Assess which type of communications network is the most suitable in certain scenarios

Learn to program real-time systems and become one of the most in-demand professionals in the engineering sector”



Specific Objectives

- Establish the basis of real-time systems and their main characteristics in relation to industrial communications
- Examine the need for distributed systems and their programming
- Determine the specific characteristics of industrial communications networks
- Analyze the different solutions for the implementation of a communications network in an industrial environment
- Gain in-depth knowledge of the OSI communications model and the TCP protocol
- Develop the different mechanisms to convert this type of networks into reliable networks
- Address the basic protocols on which the different mechanisms of information transmission in industrial communication networks are based

03

Course Management

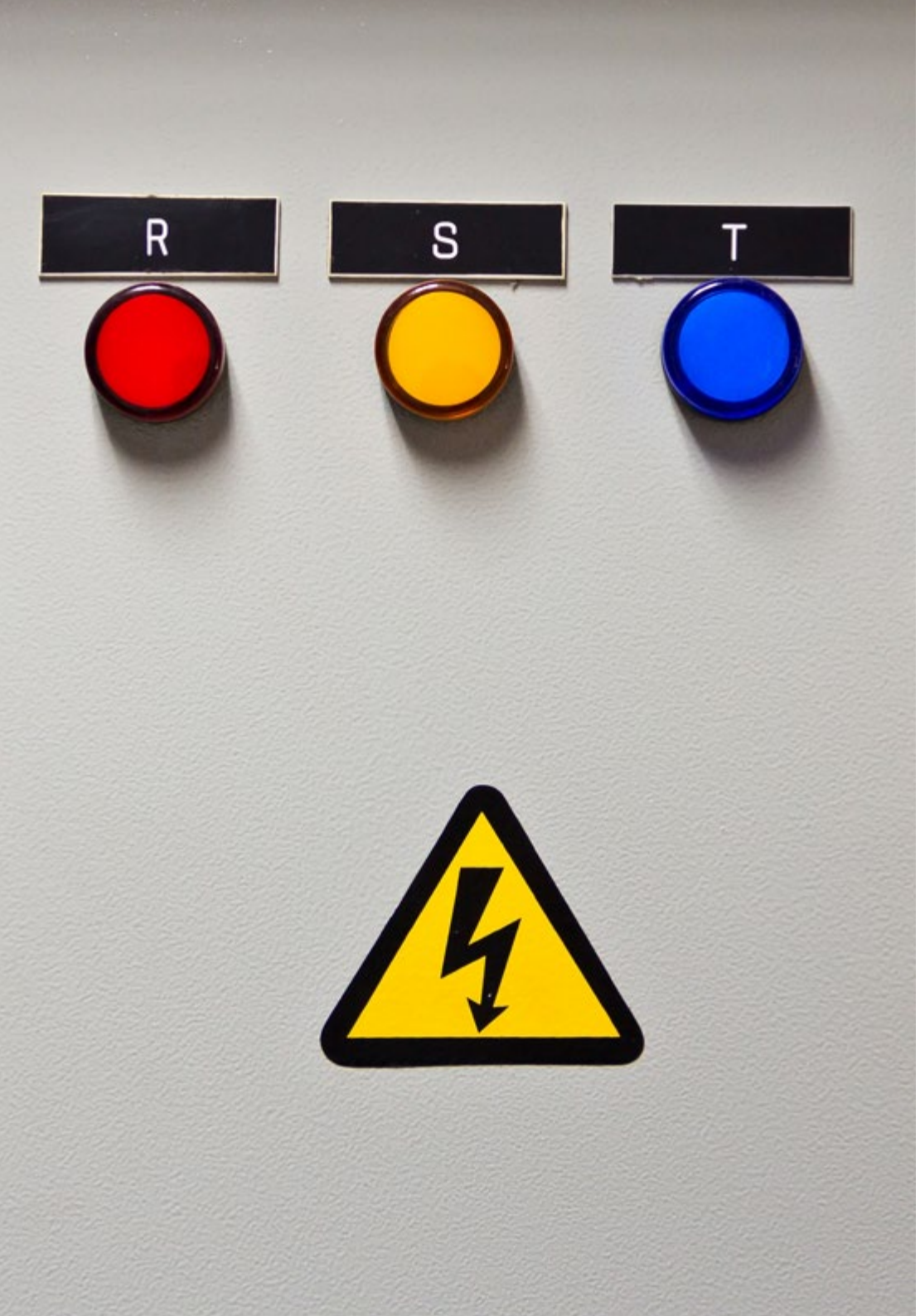
The faculty of this TECH Postgraduate Certificate are professionals specialized in Industrial Electronic Communications, who have dedicated a large part of their careers to become specialists in an area of great interest at the industrial level. A faculty that is aware of the importance of higher education in order to advance professionally and that also has the necessary training to offer its students the best teaching in the field.

A leading faculty will provide you with the most complete information on Industrial Electronic Communications"

Management

Ms. Casares Andrés, María Gregoria

- Associate Professors, Carlos III University of Madrid
- Degree in IT Polytechnic University of Madrid
- Research Sufficiency Polytechnic University of Madrid
- Research Sufficiency, Carlos III University of Madrid
- Evaluator and Creator of OCW courses at Carlos III University of Madrid
- INTEF courses tutor
- Support Technician, Ministry of Education Directorate General of Bilingualism and Quality of Education of the Community of Madrid
- Secondary Education Professor with specialty in IT
- Associate professor at the Pontificia de Comillas University
- Postgraduate Diploma in Teaching Unit, Community of Madrid
- Analyst/ IT Project manager, Banco Urquijo
- IT Analyst at ERIA



Professors

Ms. Millán Varela, Lorena

- Research Support Technician at the project as Learning from: "System for the provision and consumption of HD multimedia content in means of collective passenger transport based on Li-FI technology for data transmission". Carlos III University of Madrid
- Specialist in Computer Science, at Emprestur, Ministry of Tourism, Cuba
- Specialist in Computer Science at UNE, Empresa Eléctrica, Cuba.
- IT and Communications Specialist, Almacenes Universales S.A., Cuba
- Radio Communications Specialist at Santa Clara Air Base, Cuba
- Telecommunications and Electronics Engineering at Universidad Central "Marta Abreu" de las Villas, Santa Clara, Cuba
- Master's Degree in Political and Electoral Analysis from the Carlos III University, Madrid: Leganés Campus, Madrid
- PhD student in Electrical, Electronic and Automation Engineering, Department of Electronic Technology. Carlos III University of Madrid: Leganés Campus

Expand your studies with the best specialists in the field"

04

Structure and Content

TECH Global University has designed a very complete academic syllabus on Industrial Electronic Communications, which will be fundamental for the professional growth of engineers in this field. A program distributed in ten topics, through which students will learn about real-time systems, communication networks, wireless communications or IoT in industrial environments, among other relevant aspects for working in this field. A high-level program for professionals seeking excellence.

Get to know the characteristics of communications networks and learn how to develop them with total proficiency"

Module 1. Industrial Communications

1.1. The Systems in Real Time
- 1.1.1. Classification
- 1.1.2. Programming
- 1.1.3. Planning

1.2. Communication Networks
- 1.2.1. Transmission of medium
- 1.2.2. Basic Configurations
- 1.2.3. CIM Pyramid
- 1.2.4. Classification
- 1.2.5. OSI Model
- 1.2.6. TCP/IP Model

1.3. Fieldbuses
- 1.3.1. Classification
- 1.3.2. Distributed and Centralized Systems
- 1.3.3. Distributed Control Systems

1.4. BUS
- 1.4.1. Physical Level
- 1.4.2. Level of Scope
- 1.4.3. Error Control
- 1.4.4. Components

1.5. Elements
- 1.5.1. Physical Level
- 1.5.2. Level of Scope
- 1.5.3. Error Control
- 1.5.4. DeviceNet
- 1.5.5. ControlNet

1.6. Profibus
- 1.6.1. Physical Level
- 1.6.2. Level of Scope
- 1.6.3. Level of Application
- 1.6.4. Communication Model
- 1.6.5. Operation System
- 1.6.6. Profinet

1.7. Modbus
- 1.7.1. Physical Media
- 1.7.2. Access to the Media
- 1.7.3. Series Transmission Modes
- 1.7.4. Protocol
- 1.7.5. TCP Modbus

1.8. Industrial Ethernet
- 1.8.1. Profinet
- 1.8.2 . TCP Modbus
- 1.8.3. Ethernet/IP
- 1.8.4. EtherCAT

1.9. Wireless Communication
- 1.9.1. 802.11 Networks (Wi-Fi)
- 1.9.2. 802.15.1 Networks (Bluetooth)
- 1.9.3. 802.15.4 Networks (ZigBee)
- 1.9.4. WirelessHART
- 1.9.5. WiMAX
- 1.9.6. Mobile Phone-Based Networks
- 1.9.7. Satellite Communications

1.10. IoT in Industrial Environments
- 1.10.1. The Internet of Things
- 1.10.2. IoT Device Characteristics
- 1.10.3. Application of IoT in Industrial Environments
- 1.10.4. Security Requirements
- 1.10.5. Communication Protocols: MQTT and CoAP

A first-class program designed for at professionals seeking academic and professional excellence"

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 is the most widely used learning system in the best faculties in the world. 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 program, the studies 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

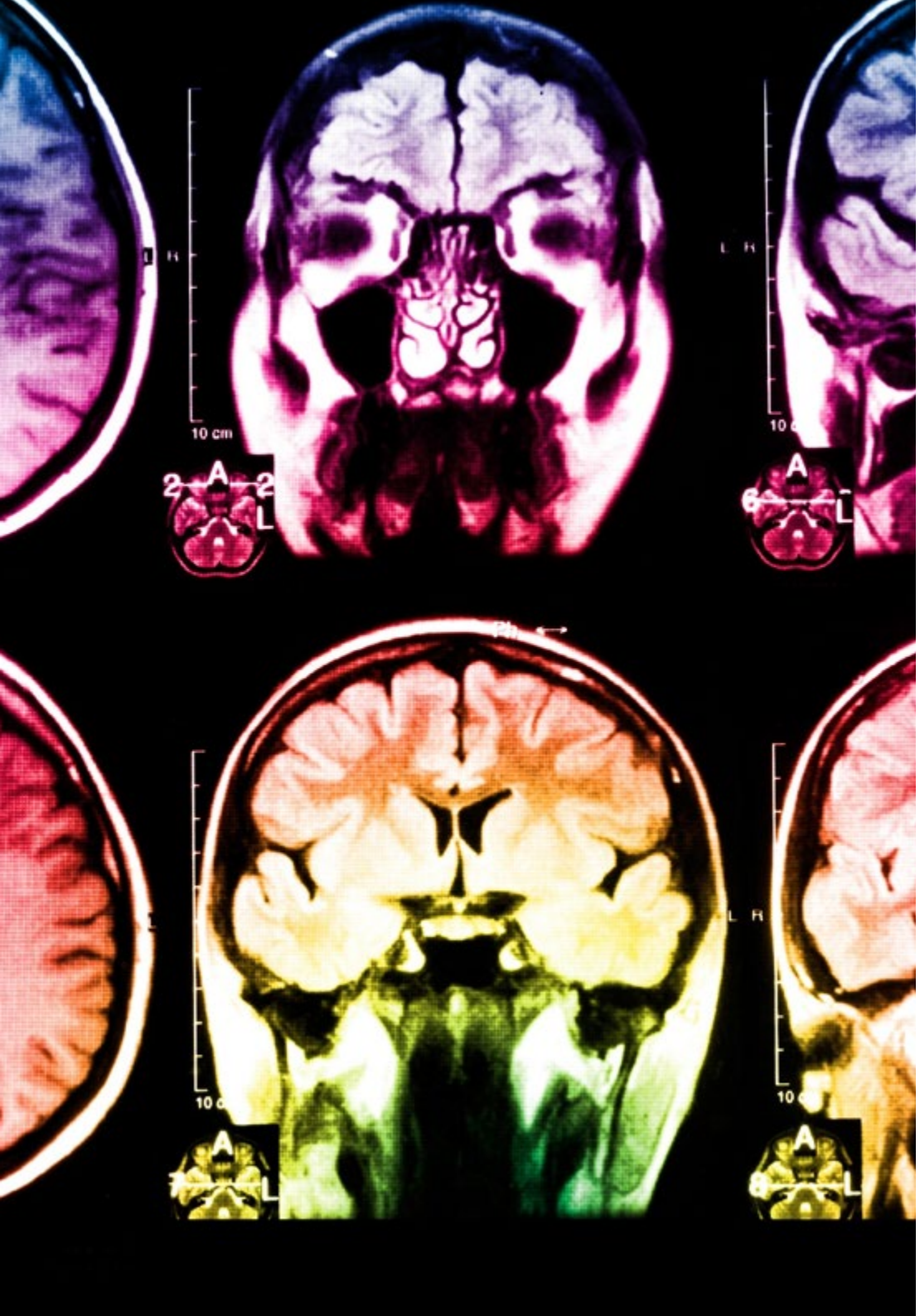
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

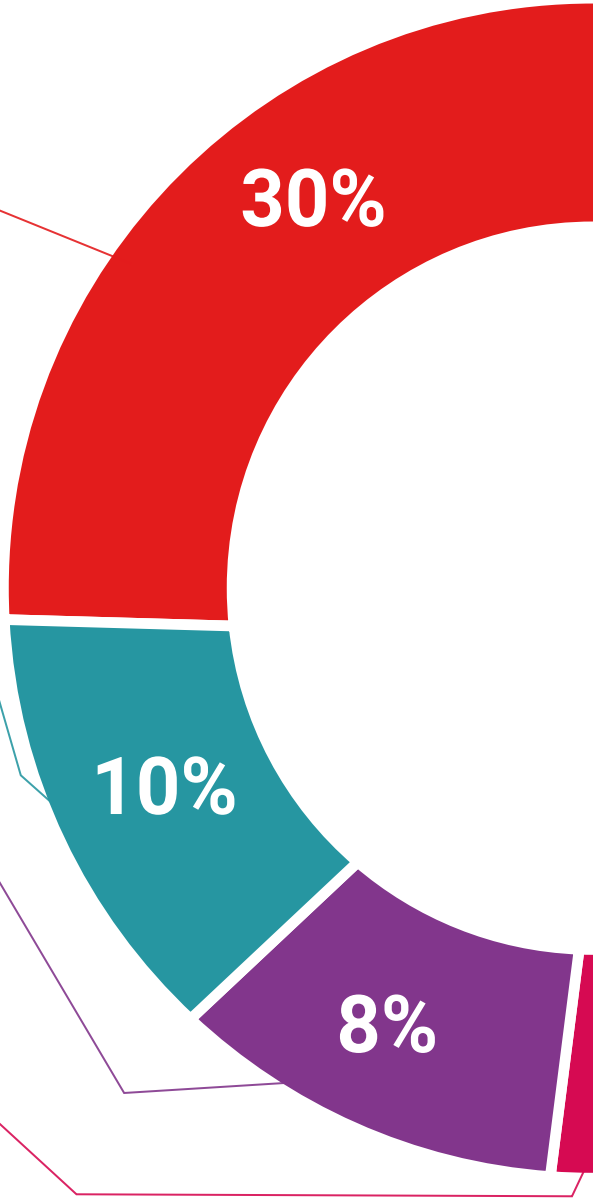
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

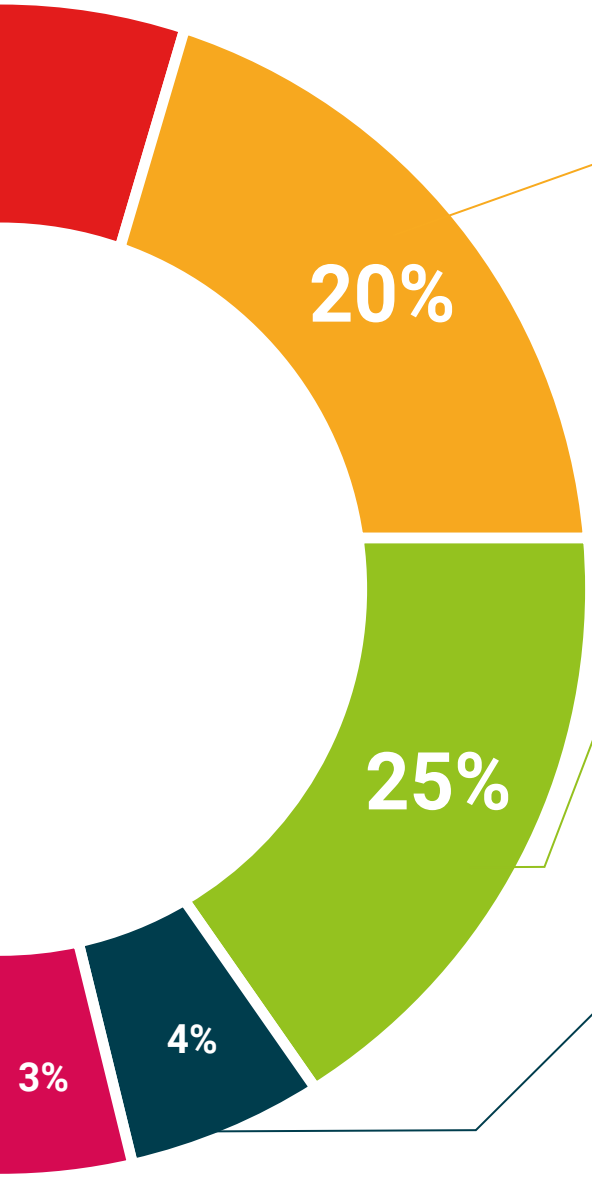
Practising Skills and Abilities

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".

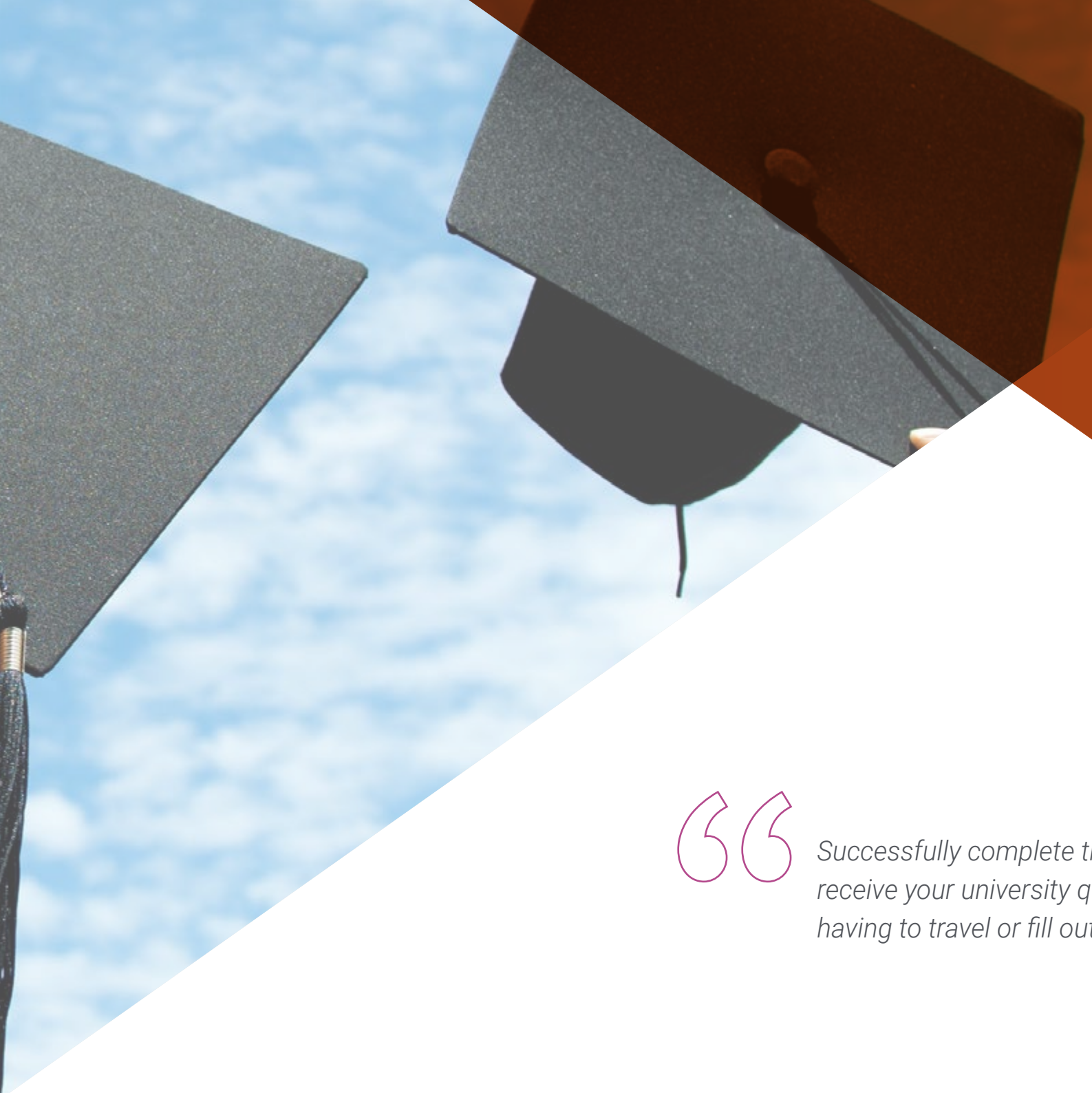
Testing & Retesting

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 Industrial Electronic Communications guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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

This program will allow you to obtain your **Postgraduate Certificate in Industrial Electronic Communications** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Industrial Electronic Communications**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

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

Postgraduate Certificate in Industrial Electronic Communications

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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