

# Postgraduate Diploma Communication and Marketing in Electronic Systems Engineering





## Postgraduate Diploma Communication and Marketing in Electronic Systems Engineering

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

Website: [www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-communication-marketing-electronic-systems-engineering](http://www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-communication-marketing-electronic-systems-engineering)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 22*

06

Certificate

---

*p. 30*

# 01

# Introduction

Industrial markets are becoming increasingly complex, as they are globalized markets where differentiation is difficult, with increasingly well-informed and demanding customers, with reduced product and service life cycles, and with constant innovation processes. For this reason, Communication and Marketing is fundamental to achieve the difference that will mark the company's course. This TECH program, specific to these subjects, is designed for computer scientists to learn how to successfully work in this field, while learning about power electronic converters and industrial communication networks.





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*Become a prestigious computer scientist in the field of industrial communication networks and achieve the professional improvement you desire”*



This Postgraduate Diploma in Communication and Marketing in Electronic Systems Engineering at TECH is designed for IT professionals to acquire that superior knowledge that will allow them to stand out from the rest of the competitors. The program covers many current topics, which are fundamental for the daily work in this field.

In addition, the course develops specialized knowledge on current applications of power electronics, specifically devices that allow variation of the waveform of the electrical signal, known as converters. These devices are present in sectors as varied as domestic, industrial, military and aerospace. For its part, the creation of communication networks is also a fundamental part of this Postgraduate Diploma, since it is a key element for the transfer of data between all the elements of an industrial production system; they are the basis of what is known as Industry 4.0. In this way, controllers can communicate with sensors and other instrumentation elements, as well as with management systems, databases and even with services deployed in the cloud.

Another of the fundamental issues of this program is Marketing. It is a great instrument for creating value in industrial companies, in addition to being a key element for their competitiveness in the current environment. It must be taken into account that in order to compete with other companies, it is very important to have market information, create relationships and collaboration networks, so that information sources become a competitive advantage for the company. However, it is even more important to know how to communicate this information and share it at all levels of the organization. For this reason, this section is of fundamental value in the program.

In short, this is a 100% online Postgraduate Diploma that will allow students to distribute their study time, not being restricted by fixed schedules or having 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 Diploma in Communication and Marketing in Electronic Systems Engineering** is the most complete and up-to-date program on the market. Its most notable features are:

- » Practical cases presented by experts in information technology
- » The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- » Practical exercises where self-assessment can be used to improve learning
- » Special emphasis on innovative methodologies in Communication and Marketing in Electronic Systems Engineering
- » 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



*Delve into the study of this complete program and learn how to create fundamental communication networks in industries”*

“

*As soon as you enroll in this Postgraduate Diploma, you will have direct access to all the theoretical and practical resources”*

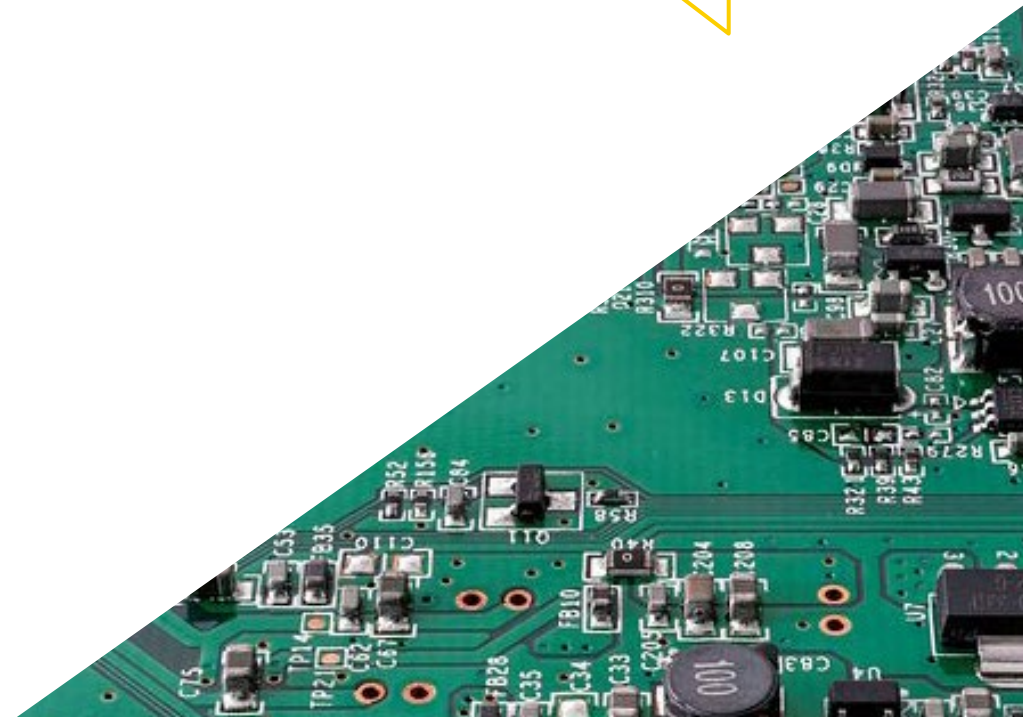
The teaching staff includes professionals from the information technology sector, who bring their experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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 an immersive training experience designed to train for real-life situations.

This program is designed around Problem-Based Learning, whereby the student must try to solve the different professional practice situations that arise throughout the program. This will be done with the help of an innovative system of interactive videos made by renowned experts.

*TECH provides you with a multitude of practical cases that will be fundamental to your learning.*

*This online program will allow you to study at any time and from anywhere in the world.*



# 02 Objectives

The Postgraduate Diploma in Communication and Marketing in Electronic Systems Engineering at TECH aims to offer advanced knowledge to IT professionals which will provide them with the necessary training to access positions of responsibility in the field. Thus, students who complete the program will have the necessary qualifications to understand and successfully implement the main tools in this area, providing higher quality in industrial processes.









## General Objectives

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- » Determine the need for power electronic converters in most real-world applications
- » Analyze the different types of converters that can be found based on their function
- » Design and implement power electronic converters according to the need of use
- » Analyze and simulate the behavior of the most commonly used electronic converters in electronic circuits
- » 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
- » Evaluate which type of communications network is the most suitable in certain scenarios
- » Determine the keys to effective marketing in the industrial marketplace
- » Develop commercial management to create profitable and long-lasting relationships with customers
- » Generate specialized knowledge to compete in a globalized and increasingly complex environment



*Get to know the main industrial marketing tools and apply them successfully to achieve customer loyalty"*





## Specific Objectives

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### Module 1. Electric Power Converters

- » Analyze the converter function, classification and characteristic parameters
- » Identify real applications that justify the use of power electronic converters
- » Approach the analysis and study of the main converter circuits: rectifiers, inverters, switched-mode converters, voltage regulators and cycloconverters
- » Analyze the different figures of merit as a measure of quality in a converter system
- » Determine the different control strategies and the improvements provided by each of them
- » Examine the basic structure and components of each of the converter circuits
- » Develop knowledge of the performance requirements and gain specialized knowledge to be able to select the appropriate electronic circuit according to the system requirements
- » Propose solutions for the design of power converters

### Module 2. Industrial Communications

- » 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

### Module 3. Industrial Marketing

- » Determine the specifics of marketing in the industrial sector
- » Analyze what a marketing plan is, the importance of planning, setting objectives and developing strategies
- » Examine the different techniques to obtain information and learn from the market in the industrial environment
- » Manage positioning and segmentation strategies
- » Assess the value of services and customer loyalty
- » Establish the differences between Transactional Marketing and Relationship Marketing in industrial markets
- » Value the power of the brand as a strategic asset in a globalized market
- » Apply industrial communication tools
- » Determine the different distribution channels of industrial companies in order to design an optimal distribution strategy
- » Address the importance of the sales force in industrial markets



03

# Course Management

The teachers of this TECH program are professionals with extensive experience in the industry, who understand the importance of quality specialization to excel in an area that is currently in high demand, such as electronic systems engineering. To this end, they have compiled the latest information on Communication and Marketing in this field. In this way, the main objective is for computer engineers to achieve the higher qualification needed to become true experts in the field.



“

*The best teaching  
staff on the current  
academic scene”*



## Management



### Ms. Casares Andrés, María Gregoria

- Associate professor at Carlos III University of Madrid
- Degree in IT from the Polytechnic University of Madrid
- Researcher at Polytechnic University of Madrid
- Researcher at Carlos III University of Madrid
- Evaluator and creator of OCW courses at Carlos III University of Madrid
- Tutor of courses at INTEF (National Agency for Educational Technology and Teacher Development)
- Support Technician at the Ministry of Education Directorate General of Bilingualism and Quality of Education of the Community of Madrid
- Middle and high school teacher specializing in IT
- Associate professor off the Pontificia de Cimillas University
- Teaching Expert in the Community of Madrid
- Analyst / Project Manager at Banco Urquijo Computer Systems
- ERIA Computer Analyst

## Professors

### Mr. De la Rosa Prada, Marcos

- » Teacher of Vocational Training Courses, Consejería de Educación de la Comunidad de Madrid (Ministry of Education of the Community of Madrid)
- » Consultant at Santander Technology
- » Agent of New Technologies in Badajoz
- » Author and content editor at CIDEAD (General Secretariat for Vocational Training, Ministry of Education and Vocational Training).
- » Telecommunications Engineer from the University of Extremadura
- » Scrum Foundation Certified Expert by EuropeanScrum.org
- » Certificate in Pedagogical Aptitude, University of Extremadura



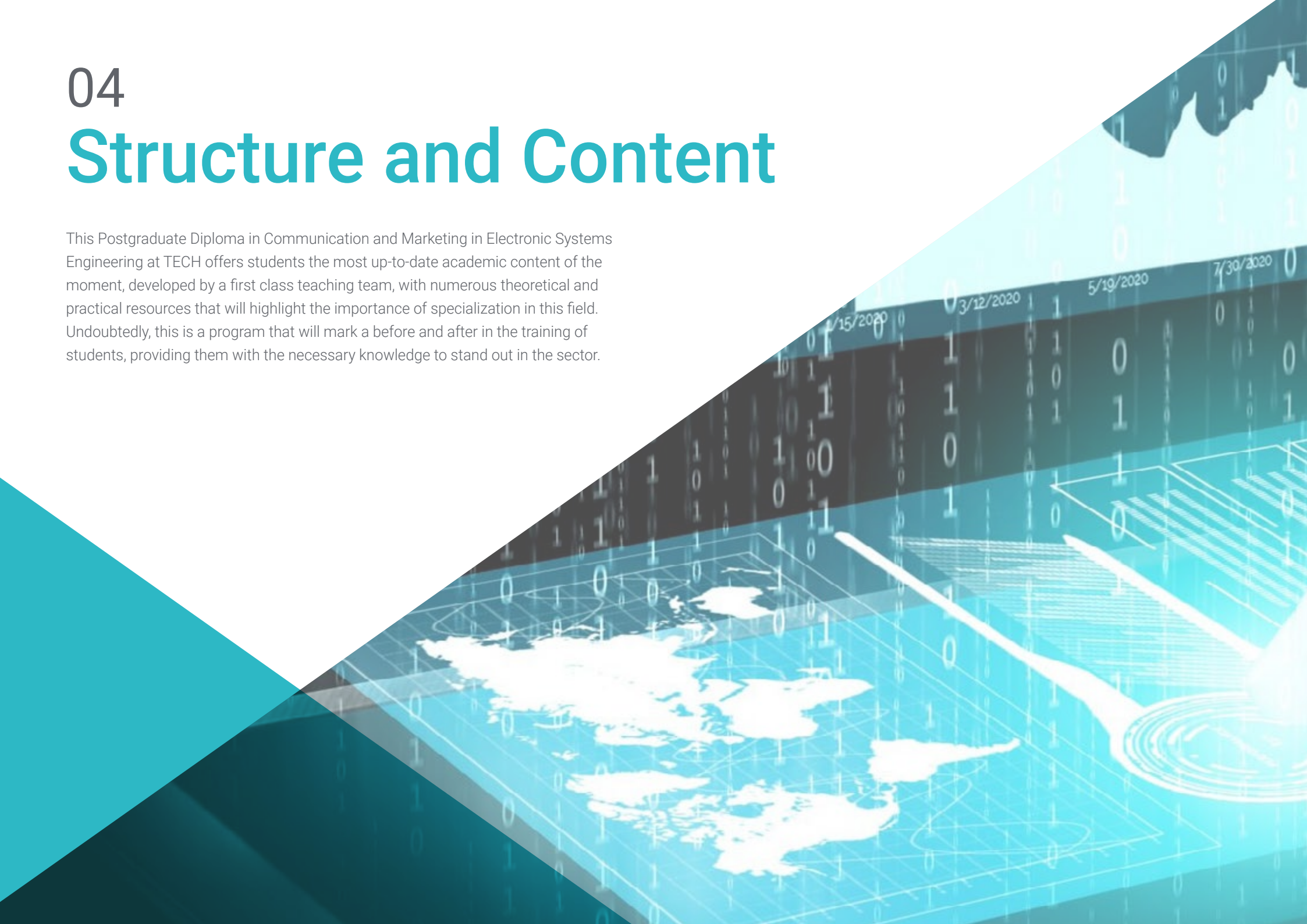
**Ms. Escandel Varela, Lorena**

- » Research support technician in the project: "System for the provision and consumption of HD multimedia content in means of collective passenger transport based on LIFI technology for data transmission" At the Carlos III University, Madrid
- » Computer Sciences Specialist in Emprester, Ministry of Tourism, Cuba
- » Computer Sciences Specialist in UNE, an electrical company in Cuba
- » IT and Communications Specialist, Almacenes Universales S.A., Cuba
- » Specialist in Radio Communications in Santa Clara air base, Cuba
- » Engineering in Telecommunications and Electronics in the Marta Abreu de las Villas Central University, Santa Clara, Cuba
- » Master's Degree in Electronic Systems and Its Application at 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

# 04

# Structure and Content

This Postgraduate Diploma in Communication and Marketing in Electronic Systems Engineering at TECH offers students the most up-to-date academic content of the moment, developed by a first class teaching team, with numerous theoretical and practical resources that will highlight the importance of specialization in this field. Undoubtedly, this is a program that will mark a before and after in the training of students, providing them with the necessary knowledge to stand out in the sector.





“

*A high-level program  
for professionals  
seeking excellence”*

## Module 1. Power Converters

- 1.1. Power Electronics
  - 1.1.1. Power Electronics
  - 1.1.2. Applications of Power Electronics
  - 1.1.3. Power Conversion Systems
- 1.2. Converter
  - 1.2.1. Converters
  - 1.2.2. Types of Converters
  - 1.2.3. Characteristic Parameters
  - 1.2.4. Fourier Series
- 1.3. AC/DC Conversion. Single-Phase Uncontrolled Rectifiers
  - 1.3.1. AC/DC Conversion
  - 1.3.2. Diode
  - 1.3.3. Uncontrolled Half Wave Rectifier
  - 1.3.4. Uncontrolled Full Wave Rectifier
- 1.4. AC/DC Conversion. Single-Phase Controlled Rectifiers
  - 1.4.1. Thyristor
  - 1.4.2. Controlled Half Wave Rectifier
  - 1.4.3. Controlled Full Wave Rectifier
- 1.5. Three-Phase Rectifiers
  - 1.5.1. Three-Phase Rectifiers
  - 1.5.2. Controlled Three-Phase Rectifiers
  - 1.5.3. Uncontrolled Three-Phase Rectifiers
- 1.6. DC/AC Conversion. Single-Phase Inverters
  - 1.6.1. DC/AC Conversion
  - 1.6.2. Single-Phase Square Wave Controlled Inverters
  - 1.6.3. Single-Phase Inverters Using Sinusoidal PWM Modulation
- 1.7. DC/AC Conversion. Three-Phase Inverters
  - 1.7.1. Three-Phase Inverters
  - 1.7.2. Three-Phase Square Wave Controlled Inverters
  - 1.7.3. Three-Phase Inverters Using Sinusoidal PWM Modulation

- 1.8. DC/DC Conversion
  - 1.8.1. DC/DC Conversion
  - 1.8.2. Classification of DC/ DC Converters
  - 1.8.3. Control of DC/ DC Converters
  - 1.8.4. Reducing Converter
- 1.9. DC/DC Conversion. Lifting Converter
  - 1.9.1. Lifting Converter
  - 1.9.2. Reducing-Lifting Converter
  - 1.9.3. Cúk Converter
- 1.10. AC/AC Conversion
  - 1.10.1. AC/AC Conversion
  - 1.10.2. Classification of AC/ AC Converters
  - 1.10.3. Voltage Regulators
  - 1.10.4. Cycloconverters

## Module 2. Industrial Communications

- 2.1. Real Time Systems
  - 2.1.1. Classification
  - 2.1.2. Programming
  - 2.1.3. Planning
- 2.2. Communication Networks
  - 2.2.1. Transmission of medium
  - 2.2.2. Basic Configurations
  - 2.2.3. CIM Pyramid
  - 2.2.4. Classification
  - 2.2.5. OSI Model
  - 2.2.6. TCP/IP Model
- 2.3. Fieldbuses
  - 2.3.1. Classification
  - 2.3.2. Distributed, Centralized Systems
  - 2.3.3. Distributed Control Systems



- 2.4. BUS
  - 2.4.1. Physical Level
  - 2.4.2. Link Level
  - 2.4.3. Error Control
  - 2.4.4. Components
- 2.5. CAN or CANopen
  - 2.5.1. Physical Level
  - 2.5.2. Link Level
  - 2.5.3. Error Control
  - 2.5.4. DeviceNet
  - 2.5.5. Controlnet
- 2.6. Profibus
  - 2.6.1. Physical Level
  - 2.6.2. Link Level
  - 2.6.3. Application Level
  - 2.6.4. Communication Models
  - 2.6.5. System Operation
  - 2.6.6. Profinet
- 2.7. Modbus
  - 2.7.1. Physical Environment
  - 2.7.2. Access to the Environment
  - 2.7.3. Transmission Series Modes
  - 2.7.4. Protocol
  - 2.7.5. Modbus TCP
- 2.8. Industrial Ethernet
  - 2.8.1. Profinet
  - 2.8.2. Modbus TCP
  - 2.8.3. Ethernet/IP
  - 2.8.4. EtherCAT

- 2.9. Wireless Communication
  - 2.9.1. Networks 802.11 (Wifi)
  - 2.9.3. Networks 802.15.1 (BlueTooth)
  - 2.9.3. Networks 802.15.4 (ZigBee)
  - 2.9.4. WirelessHART
  - 2.9.5. WiMAX
  - 2.9.6. Networks Based on Cell Phones
  - 2.9.7. Satellite Communications
- 2.10. IoT in Industrial Environments
  - 2.10.1. The Internet of Things
  - 2.10.2. IoT Device Characteristics
  - 2.10.3. Application of IoT in Industrial Environments
  - 2.10.4. Security Requirements
  - 2.10.5. Communication Protocols: MQTT and CoAP

### Module 3. Industrial Marketing

- 3.1. Marketing and Analysis of the Industrial
  - 3.1.1. Marketing
  - 3.1.2. Market Understanding and Customer Orientation
  - 3.1.3. Differences Between Industrial Marketing and Consumer Marketing
  - 3.1.4. Industrial Marketing
- 3.2. Marketing Planning
  - 3.2.1. Strategic Planning
  - 3.2.2. Analysis of the environment
  - 3.2.3. Company Mission and Objectives
  - 3.2.4. Marketing Plan in Industrial Companies
- 3.3. Marketing Information Management
  - 3.3.1. Knowledge of the Client in the Industrial Sector
  - 3.3.2. Market Learning
  - 3.3.3. MkIS (Marketing Information System)
  - 3.3.4. Commercial Research

- 3.4. Marketing Strategies
  - 3.4.1. Segmentation
  - 3.4.2. Evaluation and Selection of the Market Objective
  - 3.4.3. Differentiation and Positioning
- 3.5. Marketing Relations in the Industrial Sector
  - 3.5.1. Creating Relations
  - 3.5.2. From Transactional Marketing to Relational Marketing
  - 3.5.3. Design and Implementation of an Industrial Relationship Marketing Strategy
- 3.6. Value Creation in the Industrial Market
  - 3.6.1. Marketing Mix and Offering
  - 3.6.2. Advantages of Inbound Marketing in the Industrial Sector
  - 3.6.3. Value Proposal in the Industrial Market
  - 3.6.4. Industrial Purchasing Process
- 3.7. Pricing policies
  - 3.7.1. Pricing policies
  - 3.7.2. Objectives of Pricing Policies
  - 3.7.3. Price-Fixing Strategies
- 3.8. Communication and Branding in the Industrial Sector
  - 3.8.1. Branding
  - 3.8.2. Building a Brand in the Industrial Marketing
  - 3.8.3. Stages in the Development of Communication
- 3.9. Commercial and Sales Function in Industrial Markets
  - 3.9.1. Importance of Commercial Management in Industrial Businesses
  - 3.9.2. Sales Force Strategy
  - 3.9.3. The Figure of the Sales Representative in the Industrial Market
  - 3.9.4. Commercial Negotiation
- 3.10. Distribution in Industrial Environments
  - 3.10.1. Nature of Distribution Channels
  - 3.10.2. Distribution in the Industrial Sector: Competitive Factor
  - 3.10.3. Types of Distribution Channel
  - 3.10.4. Types of Distribution Channel





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*Gain in-depth knowledge of  
Communication and Marketing in  
Electronic Systems Engineering and  
be more efficient in your daily work”*



# 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.



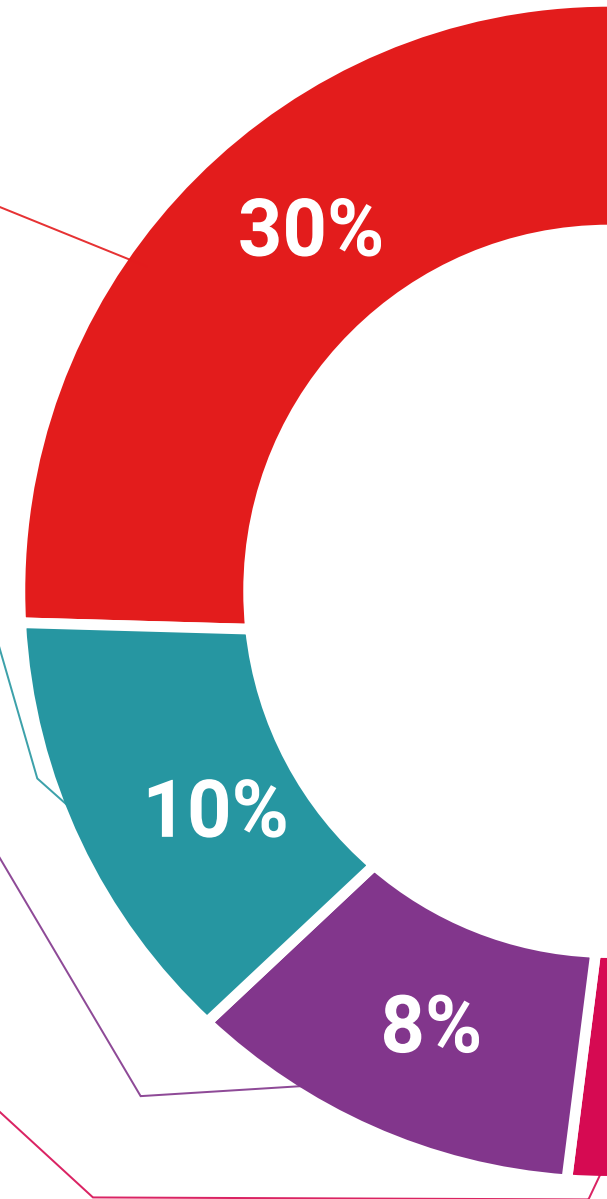
### Practising Skills and Abilities

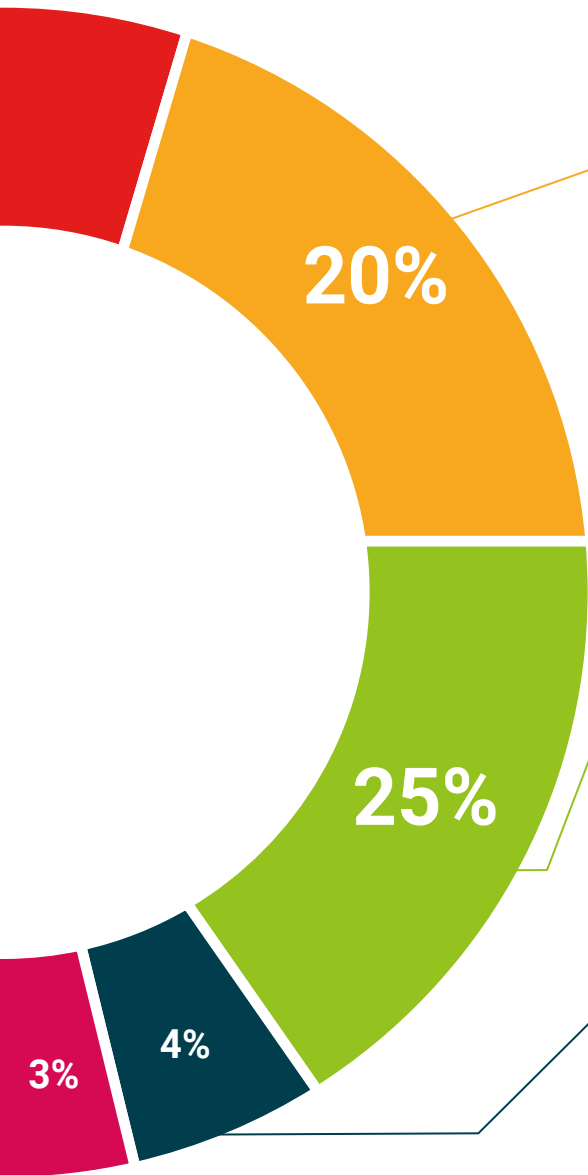
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### 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 Diploma in Communication and Marketing in Electronic Systems Engineering guarantees, in addition to the most rigorous and up-to-date education, access to Postgraduate Diploma issued by TECH Technological University.



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*By successfully completing this program, you will receive your TECH qualification without the need for complicated paperwork”*



This **Postgraduate Diploma in Communication and Marketing in Electronic Systems Engineering** is the most complete and up-to-date program on the market.

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

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

Title: **Postgraduate Diploma in Communication and Marketing in Electronic Systems Engineering**

Official N° of Hours: **450 h.**



\*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.

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



## Postgraduate Diploma Communication and Marketing in Electronic Systems Engineering

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

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