Postgraduate Certificate

Electronic Power Converters

tech global university

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Postgraduate Certificate
Electronic Power Converters

- 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/electronic-power-converters**

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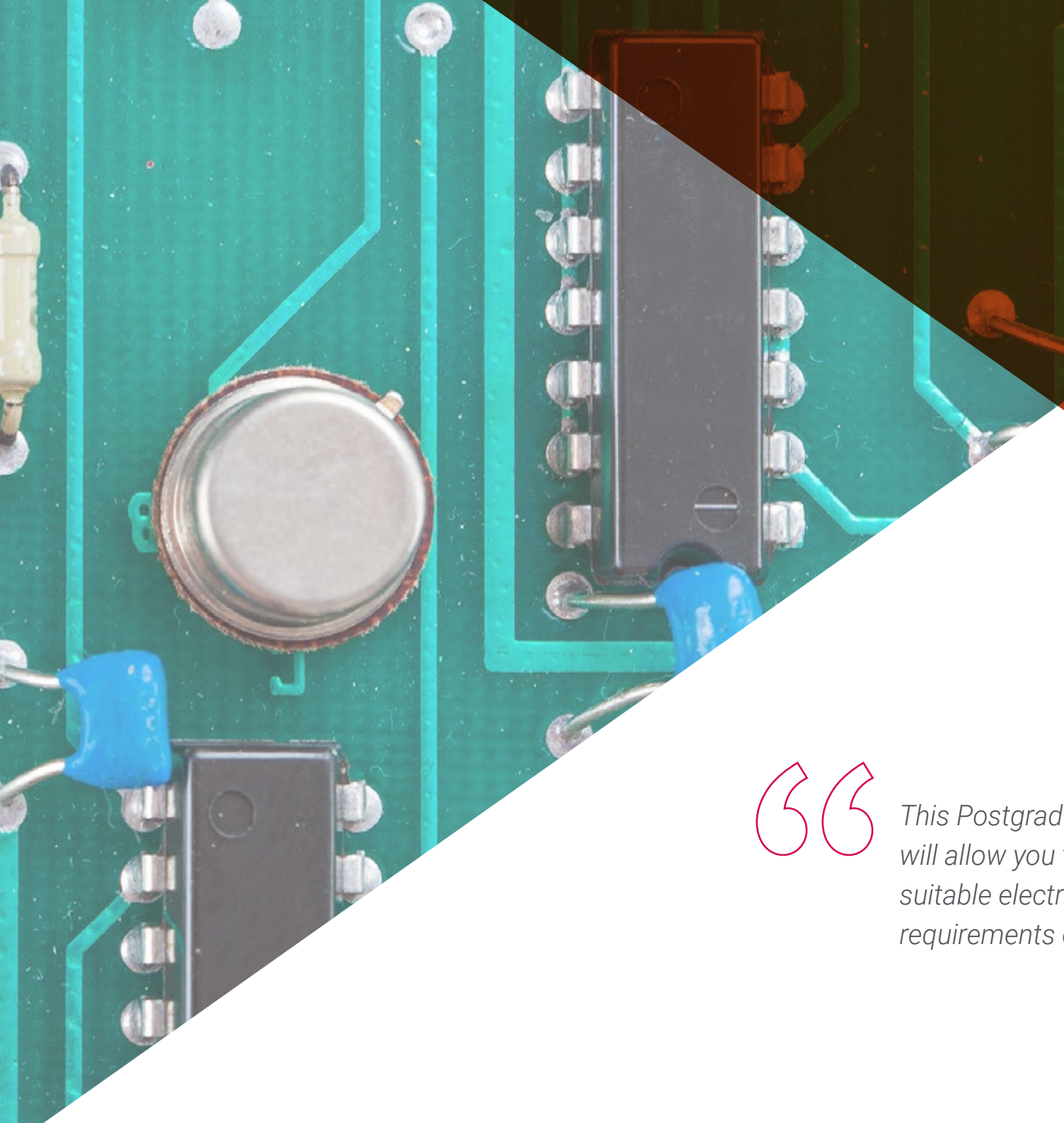
01

Introduction

Power converters are essential in the field of electronics because, more often than not, the electrical systems of certain machinery are not compatible with the power supply. These parts are the key to make the device work properly and, therefore, the specialization of engineers in this field is essential to achieve a successful work. In this way, completing this TECH program will open the doors to a wide job market in the electronic systems engineering sector.



This Postgraduate Certificate will allow you to select the most suitable electronic circuit for the requirements of each system"

This TECH Postgraduate Certificate in Electronic Power Converters aims to develop specialized knowledge on current applications of power electronics. Specifically, it shows the devices that allow varying the waveform of the electrical signal, known as converters, which are present in sectors as varied as domestic, industrial, military or aerospace.

This program deals with the different types of converters, according to their function, and delves into the characteristic parameters of each one through the use of examples and concrete applications, thus providing a better understanding and synthesis of the theoretical foundations. In addition, the focus is on the basic structures of these converters and their implementation by means of electronic circuits based on diodes and thyristors, among others. Propose the use of simulation software to analyze and estimate the behavior of most prominent circuits.

A very complete program aimed at engineers, in which they can find the most complete information on the market, thanks to which they will be able to access positions as electronic engineers in different sectors such as industry, construction, robotics or even telecommunications, for example. In addition, this Postgraduate Certificate has the advantage of a 100% online format that will allow students to distribute their study time, not being hindered by fixed schedules or the need to move to another physical location, as they can access all the contents at any time of the day, balancing their professional and personal life with their academic life.

This **Postgraduate Certificate in Electronic Power Converters** contains the most complete and up-to-date program on the market. Its most notable features are:

- 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
- Its special emphasis on innovative methodologies in Electronic Power Converters
- 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

Learn how to analyze the behavior of power converters and determine if their use is appropriate for your project"

By enrolling in this Postgraduate Certificate, you will have direct and unlimited access to a multitude of theoretical and practical resources. All you need is a computer or mobile device with an internet connection"

TECH is a 21st century university that is committed to online teaching as the primary learning method.

Join the leading online university in Spanish and open the doors to a successful working future.

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

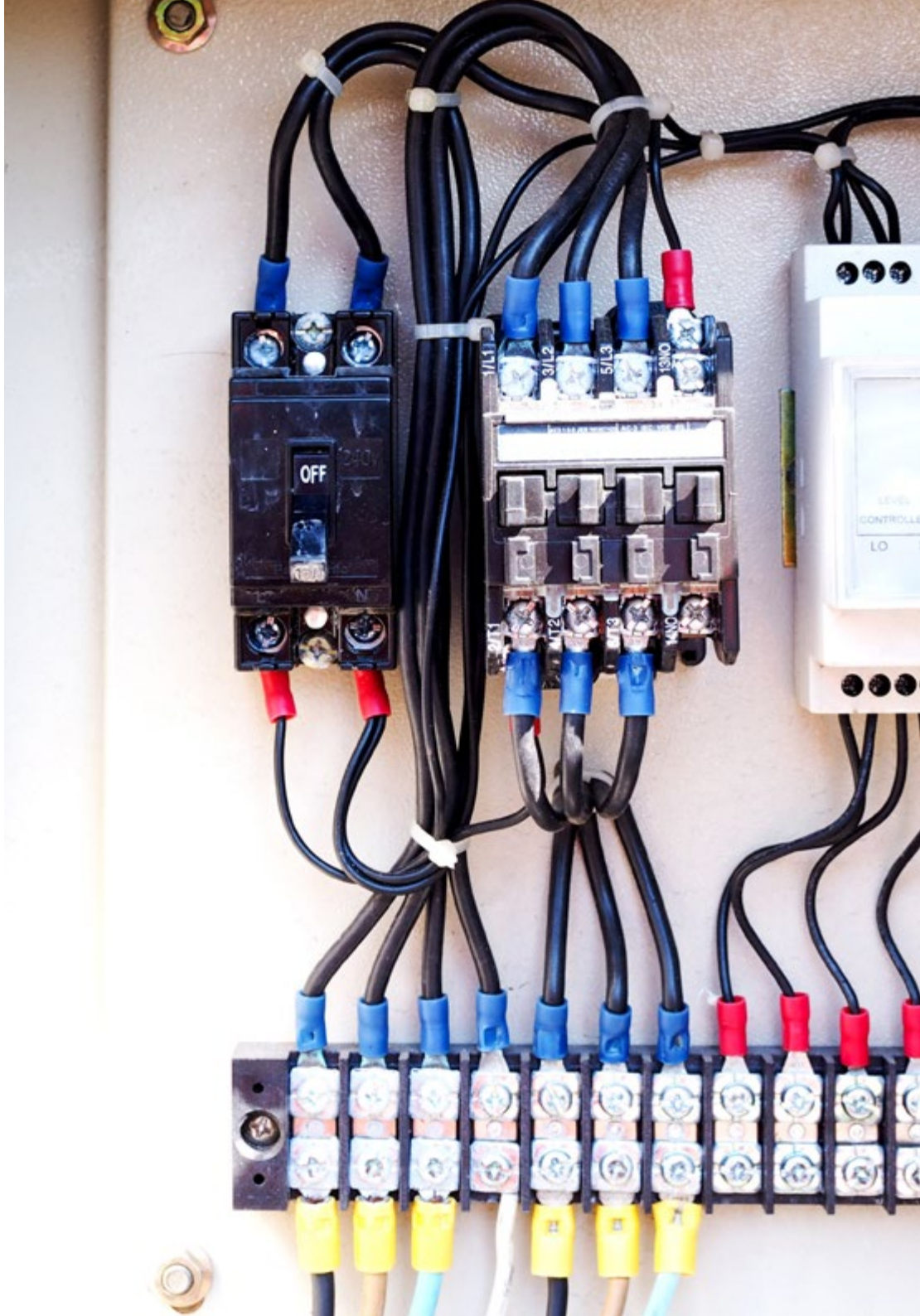
TECH has designed this program for engineers with the main objective of offering them the specialized knowledge in Electronic Power Converters that they will need to know in order to apply in a comprehensive manner to the electronic circuits that they develop during their professional development in the industry. In this way, the program has the appropriate theoretical and practical resources to achieve effective learning with which to develop the skills and competencies necessary to work in this field.

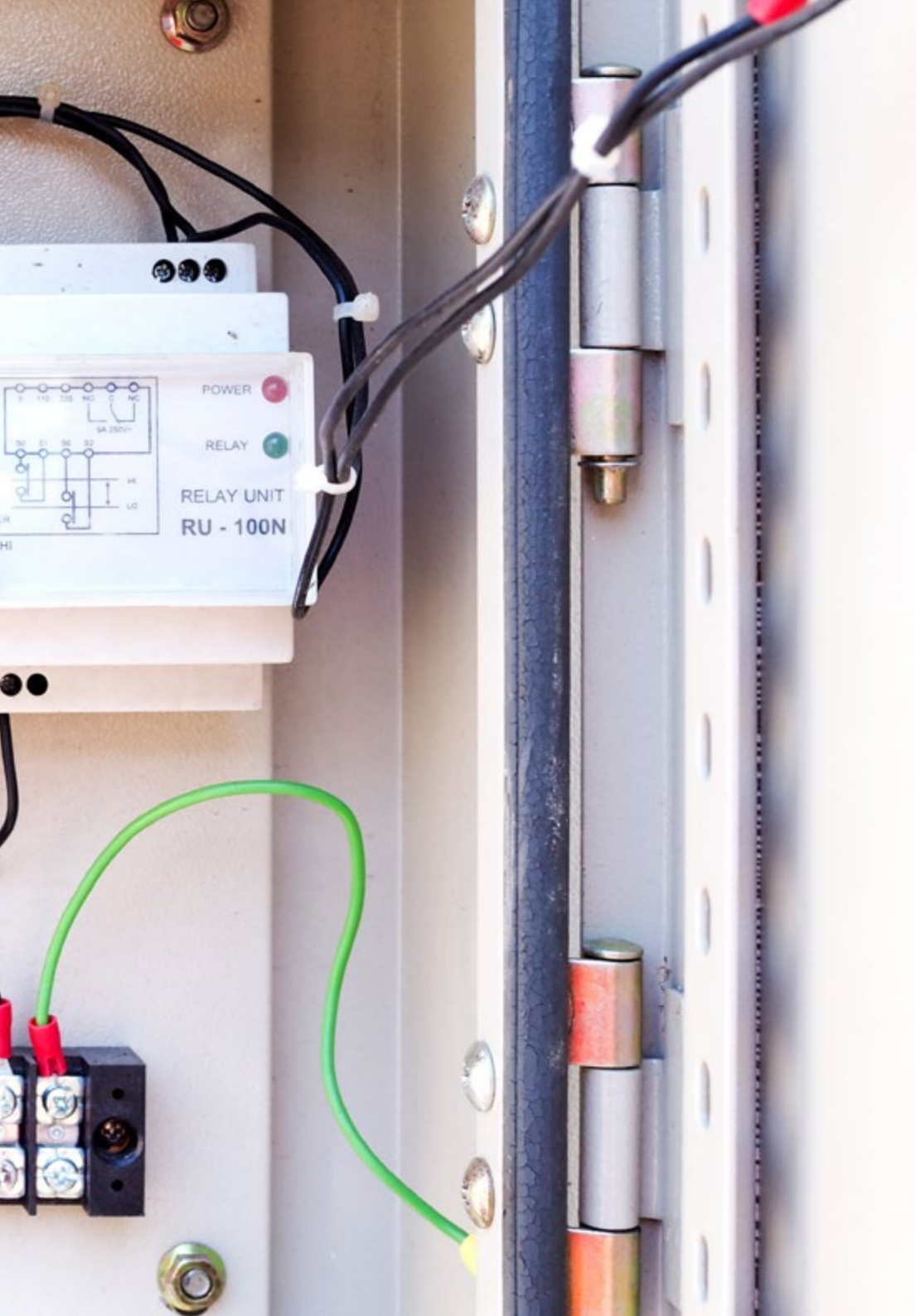
Develop the right skills to be able to understand how power converters work"

General Objectives

- Determine the need for power electronic converters in most real-world applications
- Analyze Cone different types of converters that can be found in 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

Your qualification in this field will enable you to contribute new criteria for the design of power converters"





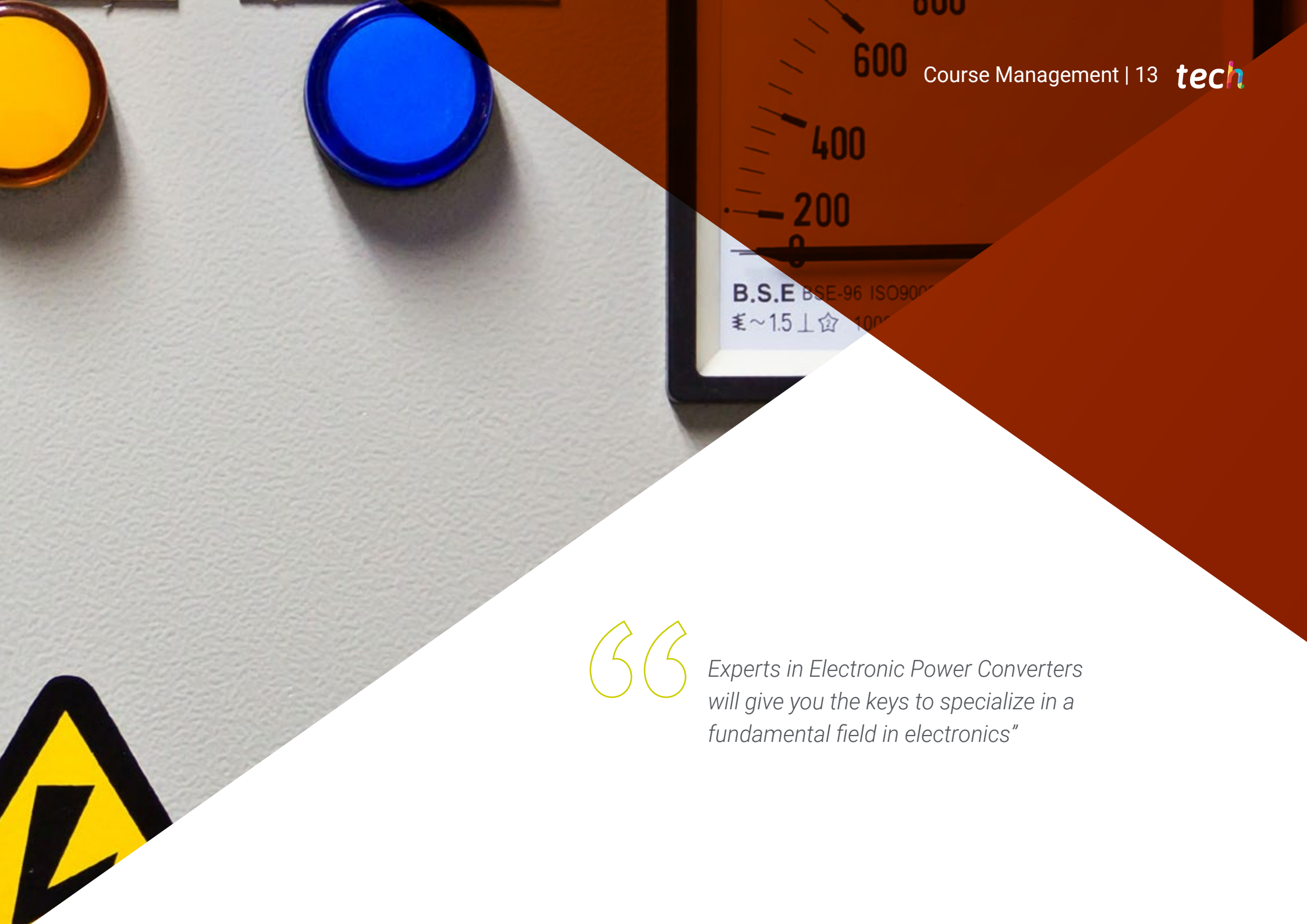
Specific Objectives

- 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 performance requirements for and generating specialized knowledge in order to be able to select the appropriate electronic circuit according to the system requirements
- Propose solutions to the design of power converters

03

Course Management

The faculty of this TECH Postgraduate Certificate are professionals with extensive experience in the sector, as well as in teaching and research, who have dedicated a large part of their professional careers to specialize in Electronic Power Converters. Professionals who understand the importance of offering quality programs for engineers to improve their skills and make them more competent in their field, and who have joined forces to create the best program on the current academic scene.



Experts in Electronic Power Converters will give you the keys to specialize in a fundamental field in electronics"

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

Mr. De la Rosa Prada, Marcos

- Teacher of Vocational Training Cycles, Ministry of Education of the Community of Madrid
- Consultant at Santander Technology
- New Technologies Agent 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 Expert Certificate by EuropeanScrum.org
- Certificate in Pedagogical Aptitude, University of Extremadura

A unique, key, and decisive educational experience to boost your professional development"

04

Structure and Content

The multiple concepts that will be studied in this TECH Postgraduate Certificate have been organized in such a way that the students can learn, little by little, about Electronic Power Converters. Therefore, they have been structured to facilitate self-guided study by the students, who will learn in a contextual manner which converters they must apply in each situation they will face during their work. situation they will face during the development of their work.

The structure of this syllabus will make your learning process easier, making it more organic and contextual"

Module 1. Power Converters

1.1. Power Converter
- 1.1.1. Power Electronics
- 1.1.2. Applications of Power Electronics
- 1.1.3. Power Conversion Systems

1.2. Converters
- 1.2.1. Converters
- 1.2.2. Types of Converters
- 1.2.3. Characteristic Parameters
- 1.2.4. Fourier Series

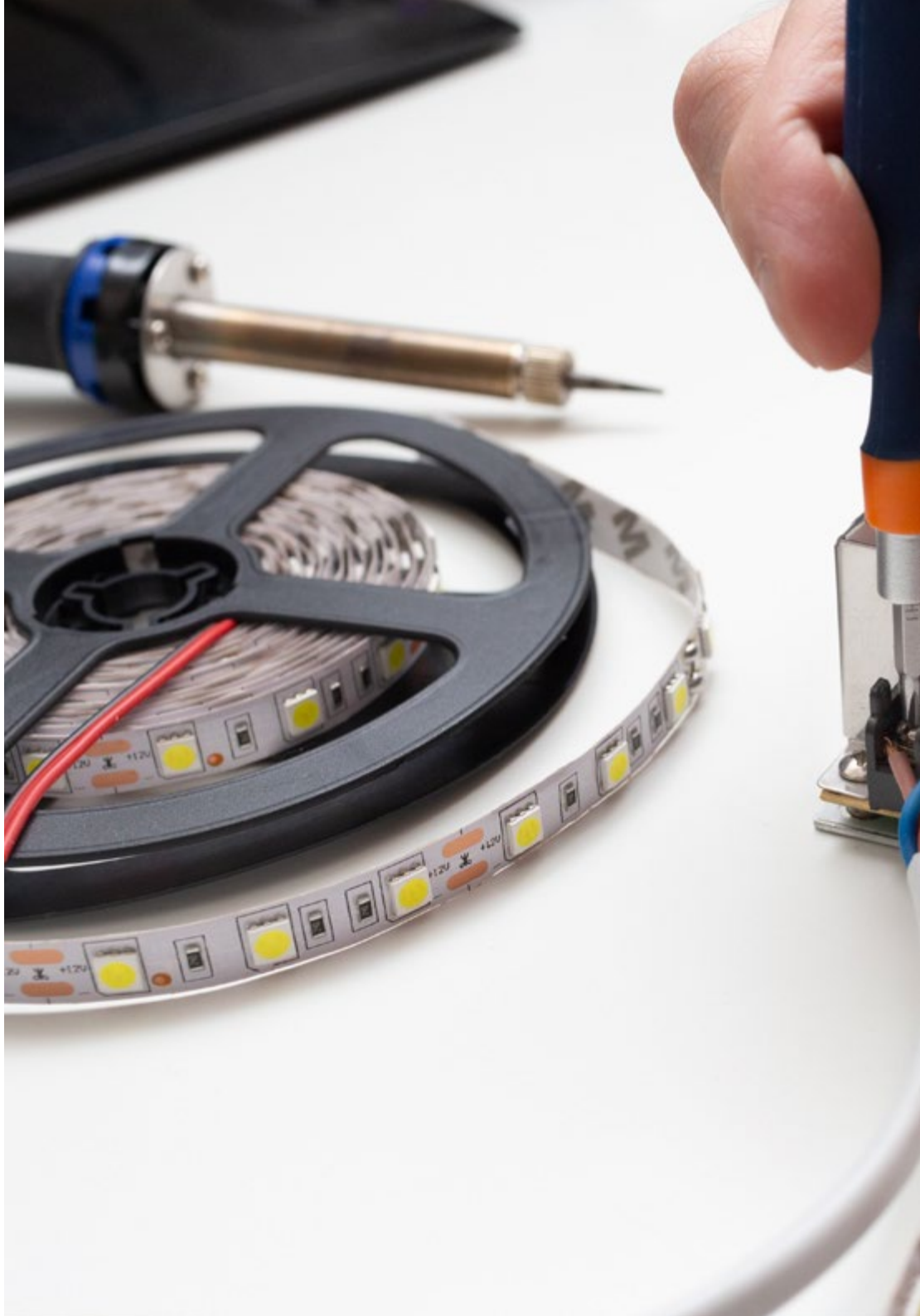
1.3. AC/DC Conversion. Single-Phase Uncontrolled Rectifiers
- 1.3.1. AC/DC Converters
- 1.3.2. Diode
- 1.3.3. Uncontrolled Half-Wave Rectifier
- 1.3.4. Full-Wave Uncontrolled Rectifier

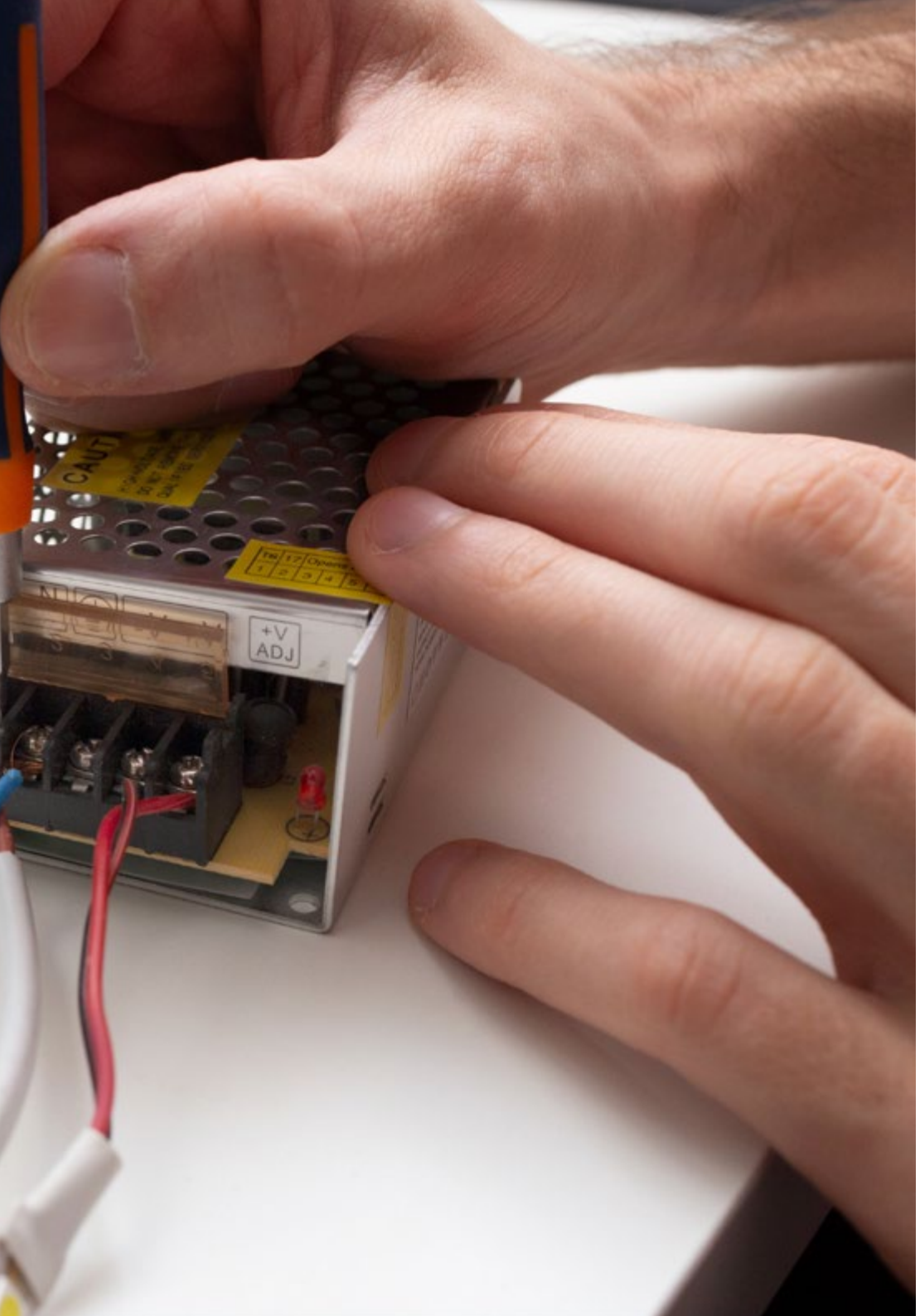
1.4. AC/DC Conversion. Single-Phase Uncontrolled Rectifiers
- 1.4.1. Thyristor
- 1.4.2. Half-Wave Controlled Rectifier
- 1.4.3. Full-Wave Controlled Rectifier

1.5. Three-Phase Rectifiers
- 1.5.1. Three-Phase Rectifiers
- 1.5.2. Three-Phase Controlled Rectifiers
- 1.5.3. Three-Phase Uncontrolled Rectifiers

1.6. DC/AC Conversion. Single-Phase Inverters
- 1.6.1. DC/AC Converters
- 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 Converters
- 1.8.2. DC/DC Converters Classification
- 1.8.3. DC/DC Converters Control
- 1.8.4. Reducing Converter

1.9. DC/DC Conversion. Elevating Converter
- 1.9.1. Elevating Converter
- 1.9.2. Reducing-Elevating Converter
- 1.9.3. Cúk Converter

1.10. AC/AC Conversion
- 1.10.1. AC/AC Converters
- 1.10.2. AC/AC Converters Classification
- 1.10.3. Voltage Regulators
- 1.10.4. Cycloconverters

A high-quality syllabus, with which you will be able to learn the main power converters"

05

Methodology

This academic program offers students a different way of learning. Our methodology follows a cyclical learning process***: 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 way of learning 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

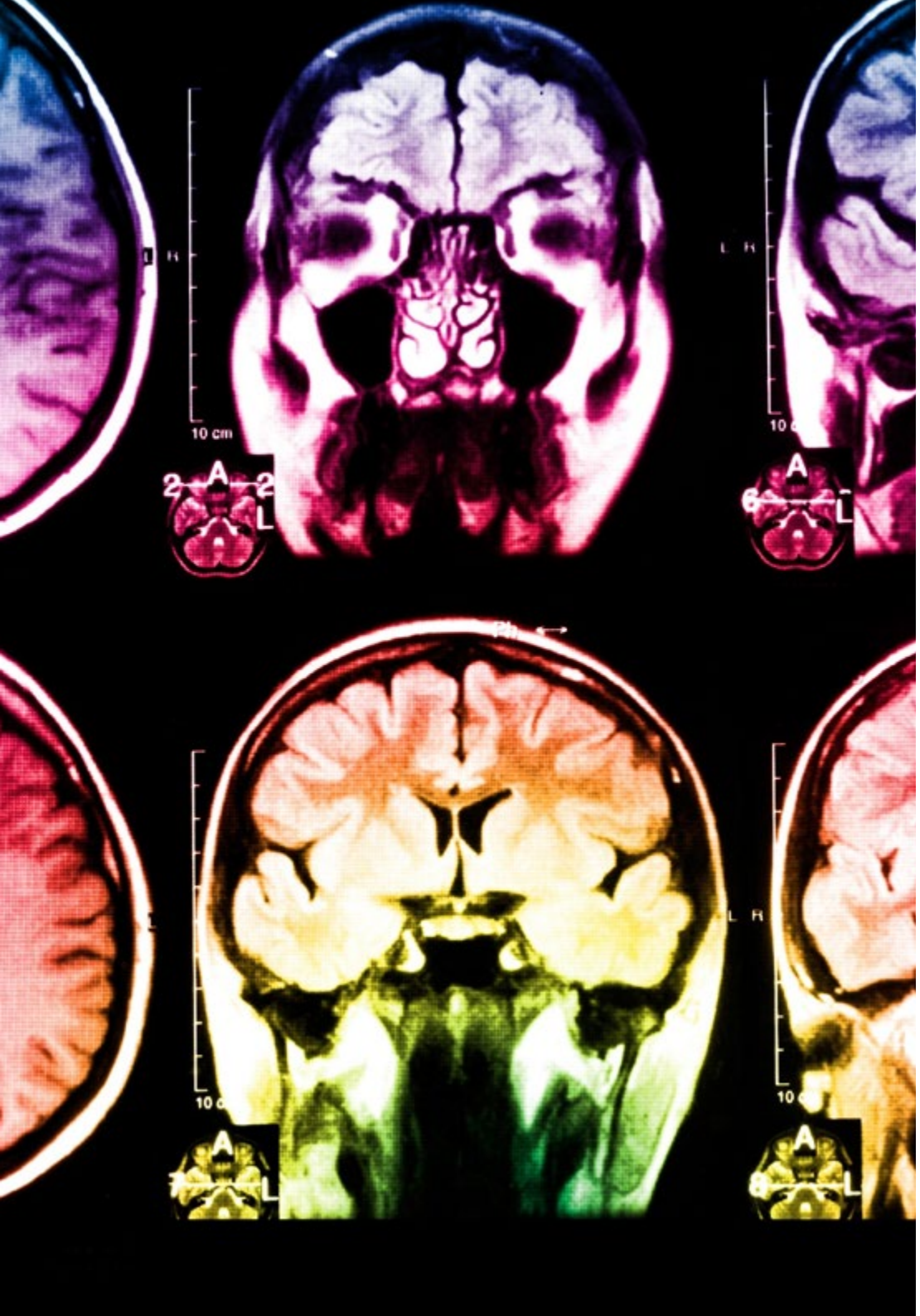
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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 prepare 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 prepared 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 education, 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.

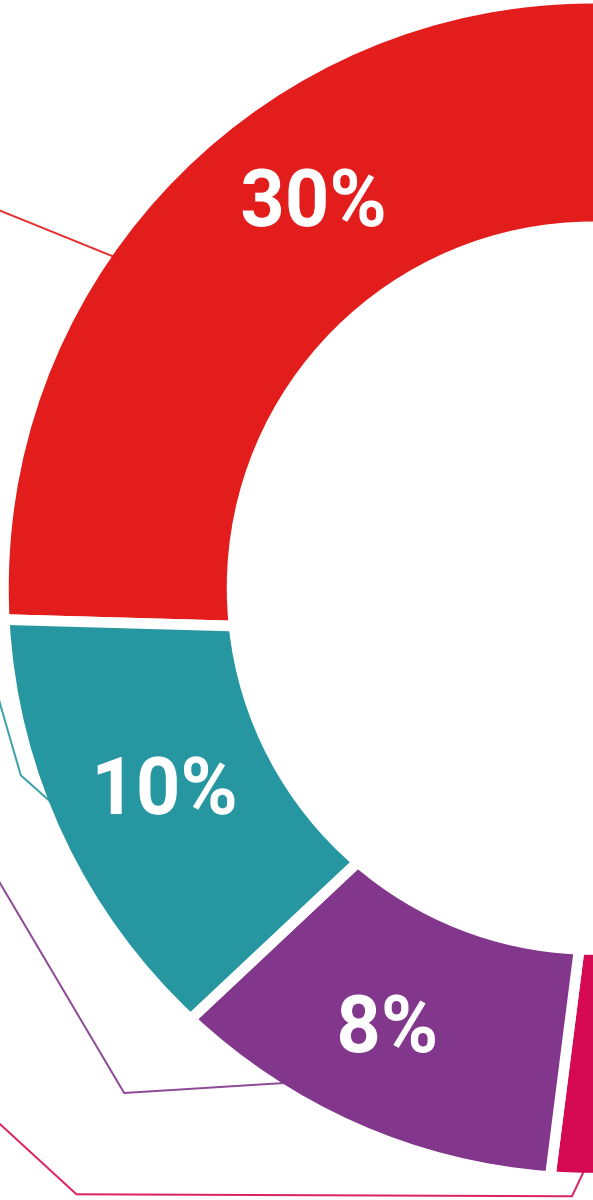
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

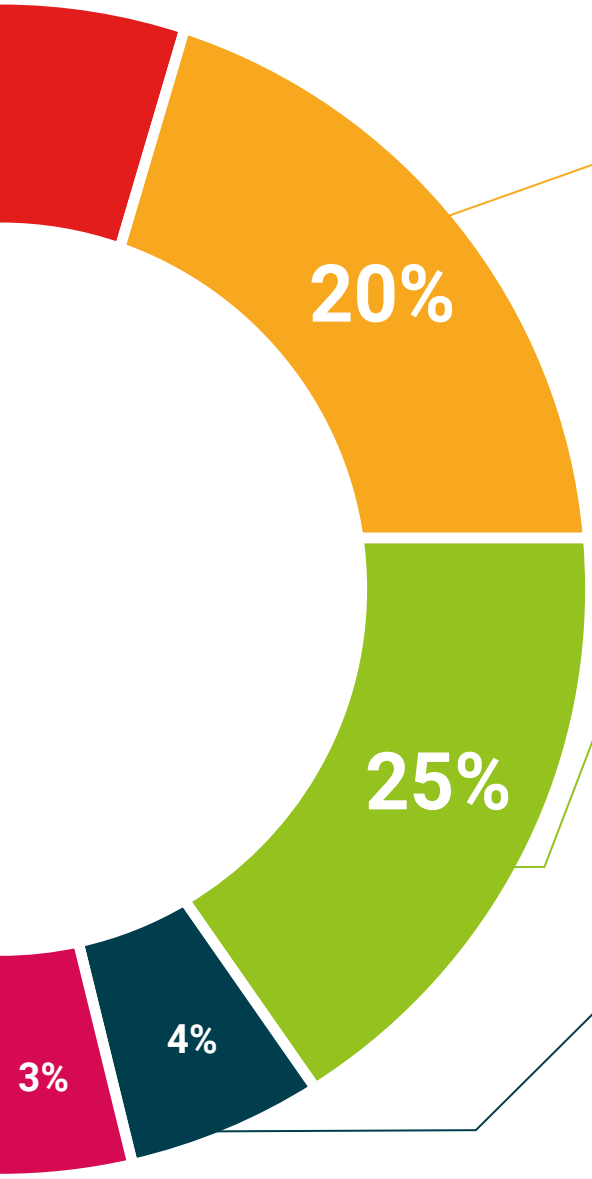
Practising Skills and Abilities

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 Electronic Power Converters 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 Electronic Power Converters** 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 Electronic Power Converters**

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 Electronic Power Converters

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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