

Postgraduate Certificate Electric Power Converters





Postgraduate Certificate Electric Power Converters

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

Website: www.techtute.com/us/information-technology/postgraduate-certificate/electric-power-converters

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01

Introduction

The main objective of this TECH program is to develop specialized knowledge on current applications of power electronics. In particular, we deal with devices that allow for varying the waveform of the electrical signal, known as converters, which are present in sectors as varied as domestic, industrial, military or aerospace. Undoubtedly, a first class program for IT professionals who wish to specialize in such a competitive area.



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The higher specialization in Electronic Power Converters will enable you to be more effective in the design of different devices"

The importance of electronic circuits using power converters is illustrated by the number of electrical receivers (machines and devices) which, in many cases, are not compatible with the electrical power supply. The function of the converter is to adapt the amplitude, frequency or phase values to the values required by the receiving system so that they can be put into operation efficiently. The realization of these designs implies the specialization of IT professionals who wish to work in this field. For this reason, TECH has designed this Postgraduate Certificate in Electronic Power Converters aimed at these professionals.

The program deals with the different types of converters, according to their function, and delves into the characteristic parameters of each one of them 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 through electronic circuits based on diodes and thyristors, among others. The use of simulation software is proposed to analyze and estimate the behavior of the most prominent circuits.

In short, this is a 100% online Postgraduate Certificate 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 Certificate in Electric Power Converters** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- ◆ 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
- ◆ Its special emphasis on innovative methodologies in Electric 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 to create power converters thanks to this superior specialization that TECH offers you"

“

If you are looking for a first class program to help you become an expert in power converters, then look no further as this is the program for you”

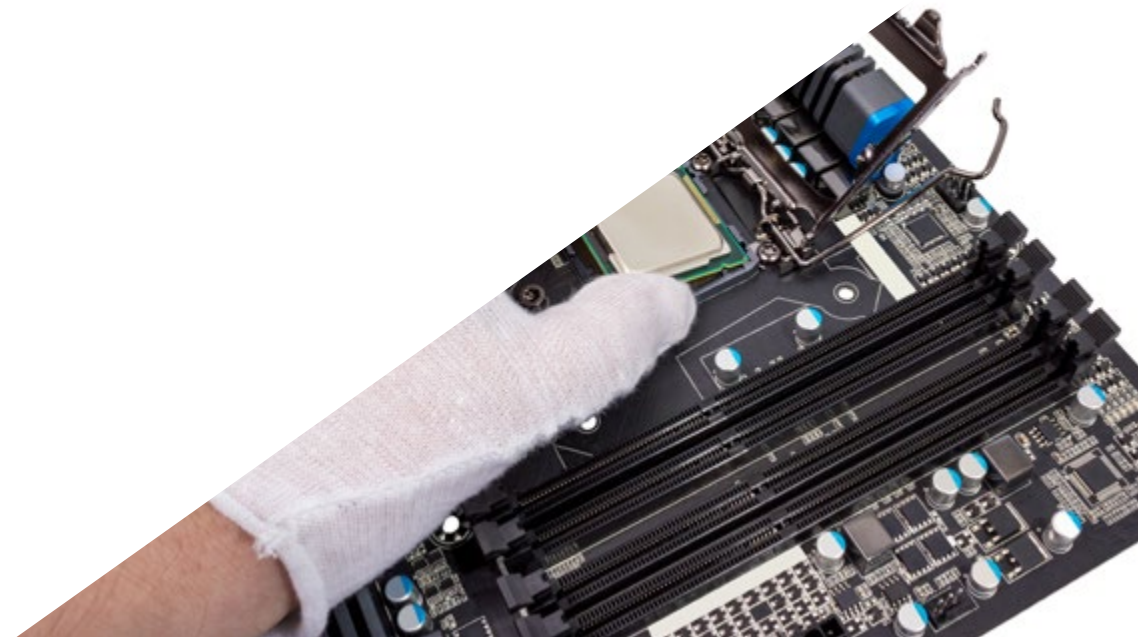
Its teaching staff includes professionals from the field of IT, who bring to this program the experience of their work, as well as renowned specialists from leading societies and prestigious universities.

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 learning 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 professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

TECH is a 21st century university and is committed to online teaching as its main method of learning.

The practical cases will help students to study in a contextual way, as if they were facing real-life situations.



02 Objectives

The main objective of this TECH Postgraduate Certificate in Electric Power Converters is to offer computer scientists the necessary superior training to become a true specialist in this area. Thus, students will acquire that superior training which will allow them to stand out in the field. An objective that will be achieved thanks to a first class theoretical program and the quality of the teaching staff.





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Learning about Electric Power Converters will allow you to work more effectively in your area of work”

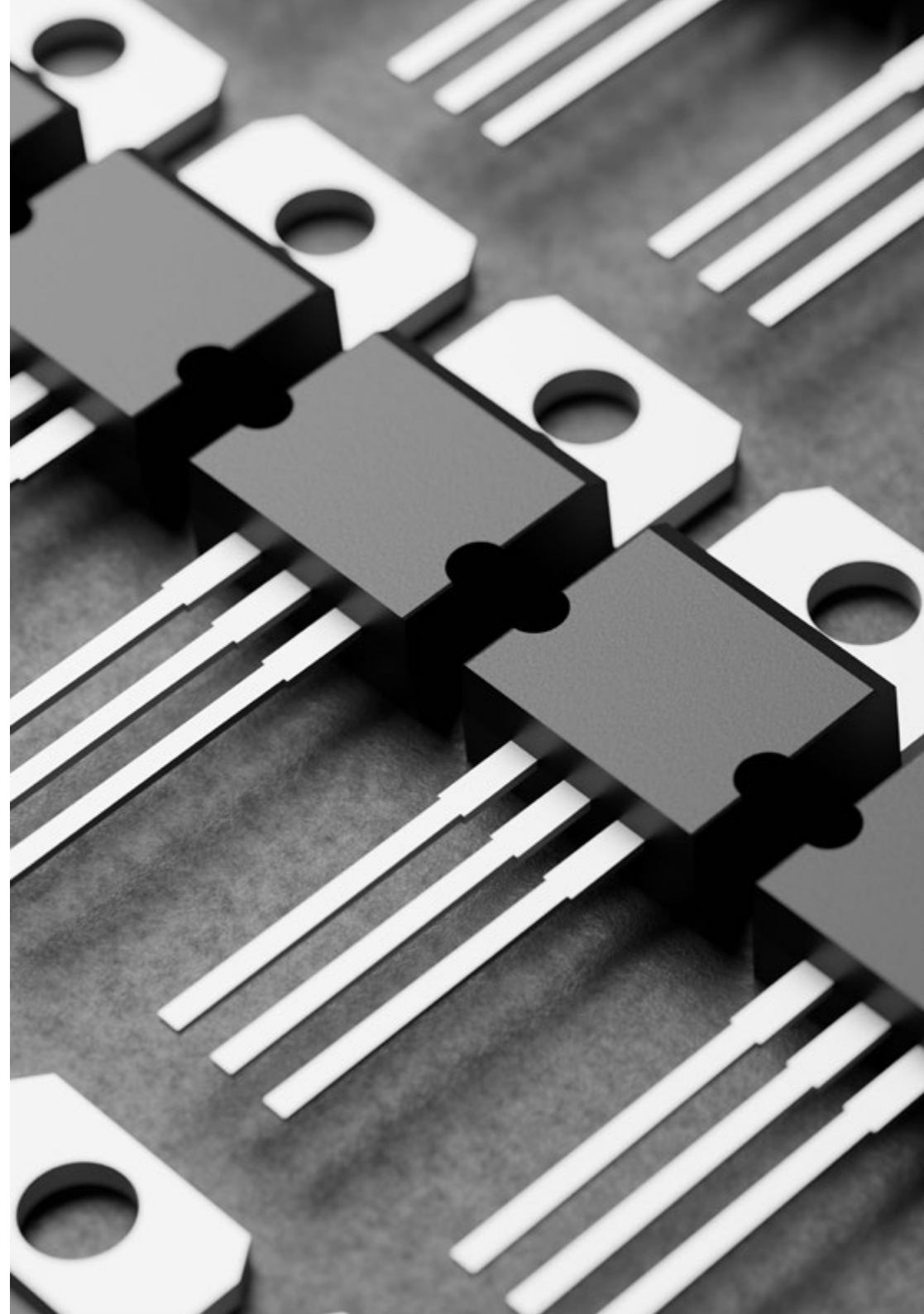


General Objectives

- ◆ Determine the need for electric power converters in most real-world applications
- ◆ Analyze the different types of converters we can find based on their function
- ◆ Design and implement electric power converters according to the need of use
- ◆ Analyze and simulate the behavior of the most commonly used electric converters in electric circuits



Reach your academic goals and take a step closer to achieving that job promotion you desire"





Specific Objectives

- ◆ Analyze the converter function, classification and characteristic parameters
- ◆ Identify real applications that justify the use of electric power 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

03

Course Management

This TECH Postgraduate Certificate in Electric Power Converters has been designed by professionals with extensive experience in the sector, who understand the importance of continued study during working life to improve the qualification of computer scientists and enable them to access more relevant positions. Teachers who have selected the most complete information and have programmed high-level practical activities, which will be fundamental to improve student learning.





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*Become an expert in
the field with the help of
prestigious professionals”*

Management



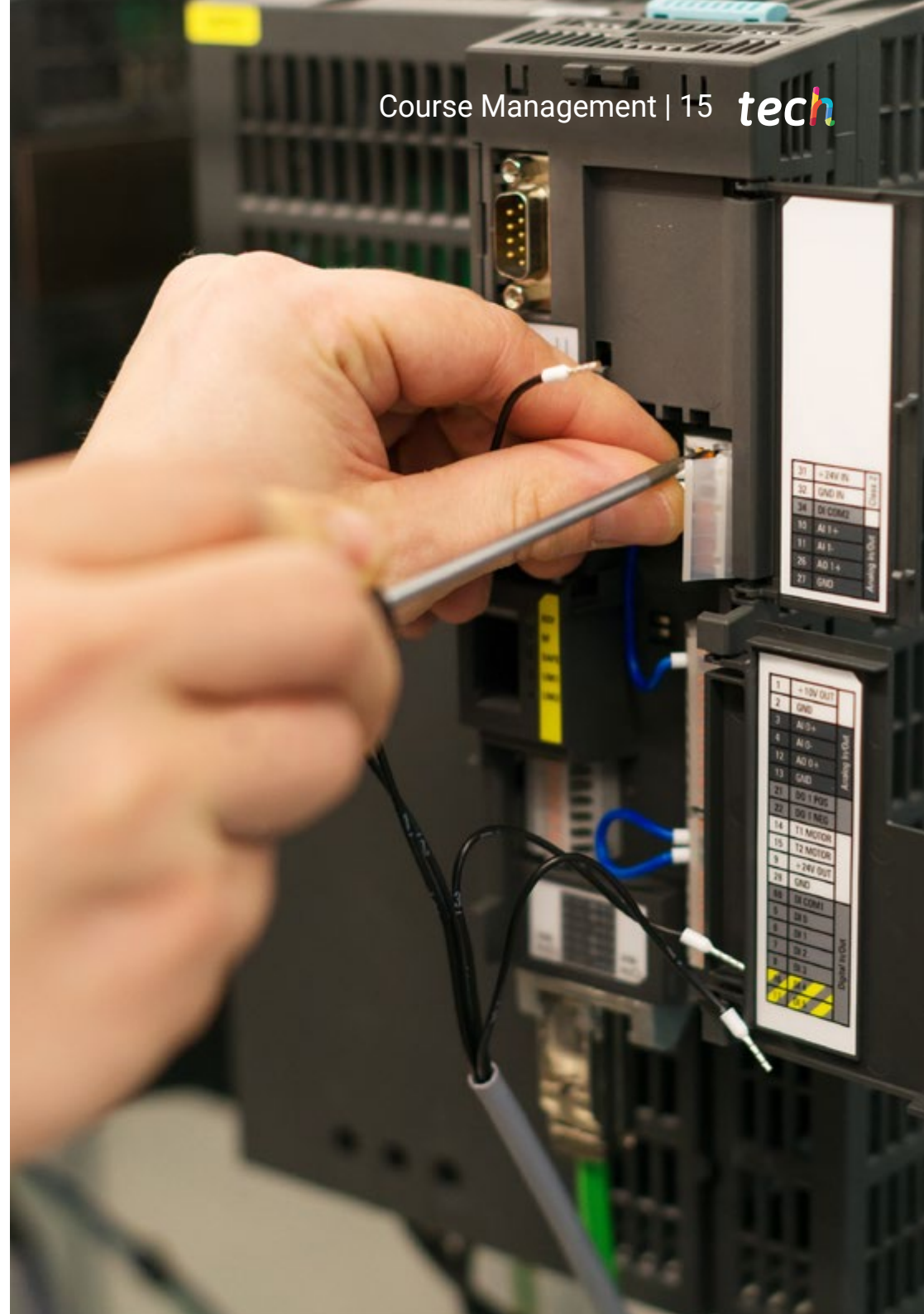
Ms. Casares Andrés, María Gregoria

- ◆ 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



04

Structure and Content

The structure of the content has been designed thinking of the academic needs of computer scientists in the field of electric power converters. In this way, students will be able to carry out a self-guided study through the most innovative concepts of the moment, which will be fundamental for their professional growth. A program that includes the most complete syllabus together with multiple practical cases that will help the student to better understand the theoretical aspects.

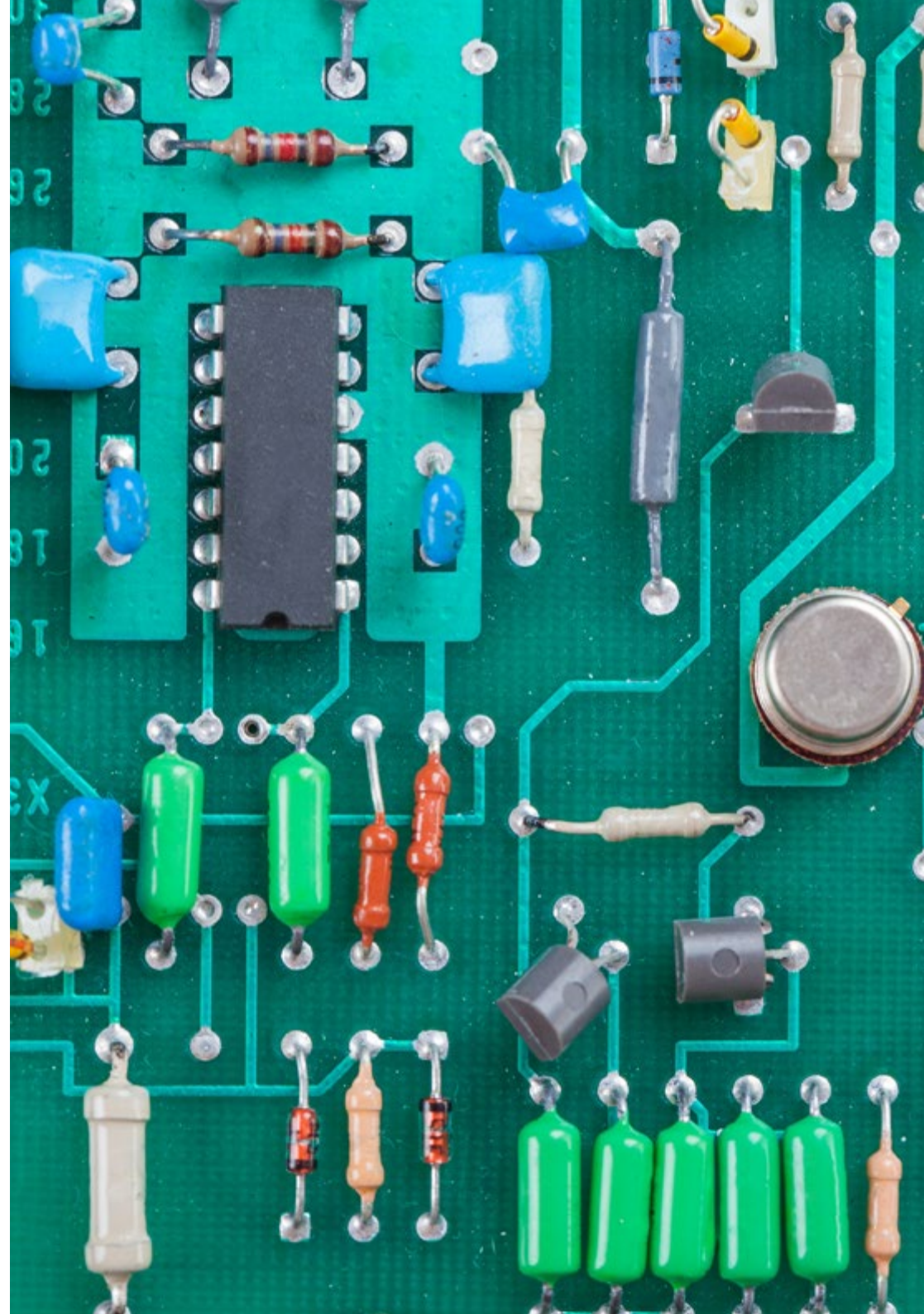


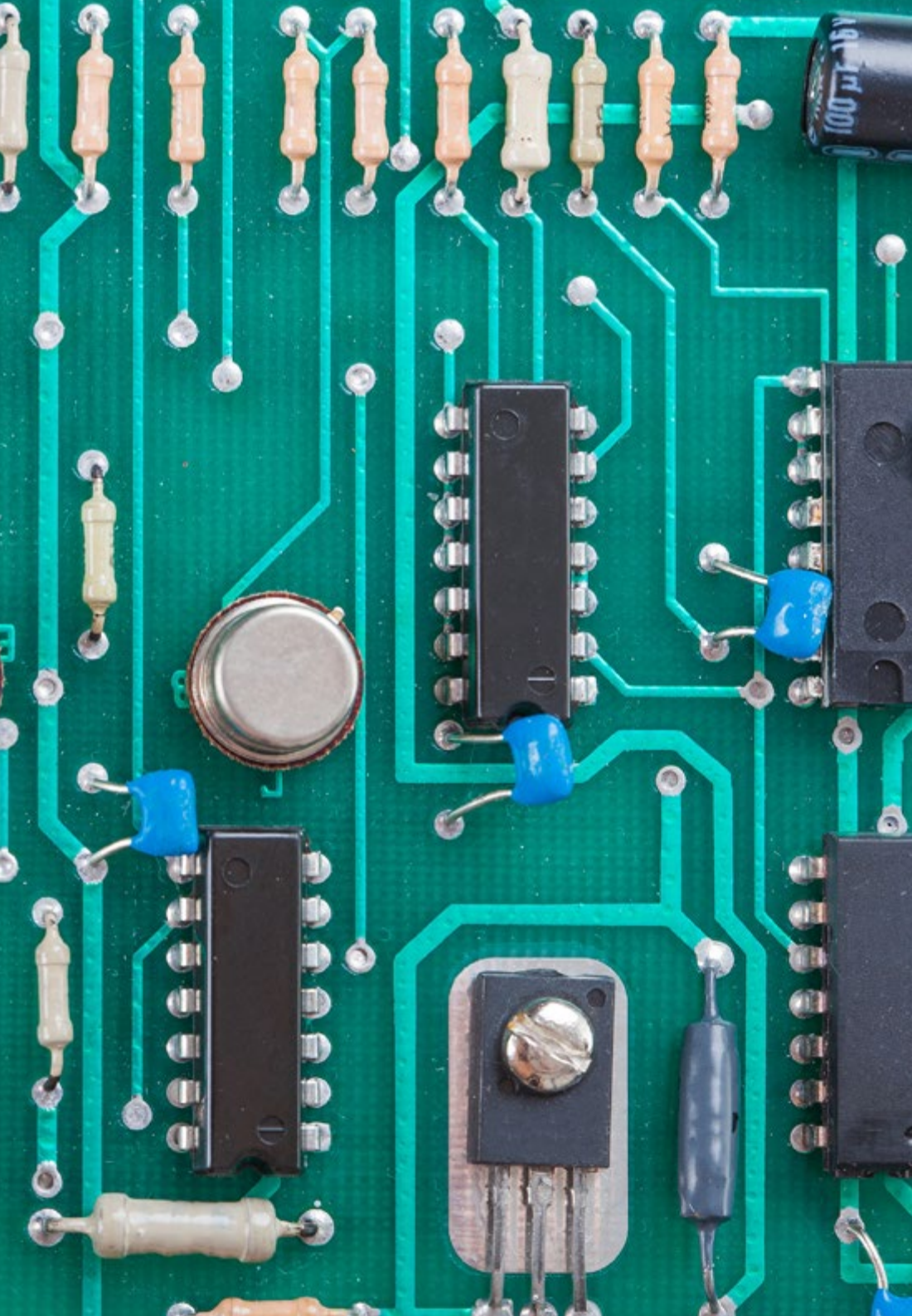
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*A first class academic overview
that will make your CV more
competitive in the job market”*

Module 1. Electric 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



*A first-class academic
overview that will further
support your qualification"*

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.



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

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 Electric 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.



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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 Electric 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 Electric Power Converters**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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



Postgraduate Certificate Electric Power Converters

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