

Postgraduate Certificate

Electrotherapy and Analgesia for the Rehabilitation Physician



Postgraduate Certificate Electrotherapy and Analgesia for the Rehabilitation Physician

- » Modality: online
- » Duration: 8 weeks
- » Certificate: TECH Global University
- » Accreditation: 5 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitude.com/us/medicine/postgraduate-certificate/electrotherapy-analgesia-rehabilitation-physician

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 14

04

Structure and Content

p. 16

05

Study Methodology

p. 20

06

Certificate

p. 30

01

Introduction

Electrotherapy is a branch of physiotherapy that relies on the application of electromagnetic fields for the treatment of various pathologies. Its application ranges from the generation of analgesia to the stimulation of nerve fibers, and even the modulation of activity in different areas of the brain.



“

This Postgraduate Certificate in Electrotherapy and Analgesia for the Rehabilitation Physician will provide you with a sense of security in your professional practice, helping you to grow both personally and professionally”

The use of electromagnetic fields as a therapeutic tool has been around since ancient times, but it is since the late 20th century that the management of different currents has experienced significant advances. These advancements have gone hand in hand with the increasingly detailed understanding of human physiology, which has facilitated the design and development of various treatment methods based on the application of electromagnetic fields.

The field of electrotherapy has a wide range of applications, requiring in-depth knowledge of both the physiological functioning of the subject and the most appropriate agent for each case. This knowledge spans from muscle contraction mechanisms to somatosensory transmission mechanisms, making it essential for the rehabilitation physician to understand both the pathophysiological mechanisms of the subject and the physicochemical foundations of electrotherapy.

In recent years, the number of research studies related to electrotherapy has grown, primarily focusing on invasive techniques. Notable among these are percutaneous analgesic techniques, in which needles are used as electrodes, as well as transcranial stimulation, either electrical or using magnetic fields. Based on these recent applications, the scope of electrotherapy has expanded, making it applicable to various populations, from individuals with chronic pain to neurological patients.

The goal of the Postgraduate Certificate in Electrotherapy and Analgesia for the Rehabilitation Physician is to provide updated information on the applications of electrotherapy in neuromusculoskeletal pathologies, always based on scientific evidence when selecting the most suitable type of current for each case. At the beginning of each module, the neurophysiological foundations of each type of current are introduced to ensure a comprehensive learning experience. Each module is complemented with practical applications of each type of current to ensure full integration of the knowledge of pathology and its treatment.

Given the up-to-date content of the Postgraduate Certificate in Electrotherapy and Analgesia for the Rehabilitation Physician, its orientation extends to various healthcare professionals, thus broadening the application of electrotherapy beyond the field of rehabilitative medicine.

This **Postgraduate Certificate in Electrotherapy and Analgesia for the Rehabilitation Physician** contains the most complete and up-to-date scientific program on the market.

The most important features include:

- ♦ The development of practical cases presented by experts in Electrotherapy and Analgesia. 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
- ♦ The latest advances in Electrotherapy and Analgesia for the Rehabilitation Physician
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Special emphasis on innovative methodologies in Electrotherapy and Analgesia
- ♦ 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



Update your knowledge through the Postgraduate Certificate in Electrotherapy and Analgesia for the Rehabilitation Physician"

“

This Postgraduate Certificate may be the best investment you can make when selecting an updating program for two reasons: in addition to updating your knowledge in Electrotherapy and Analgesia for the Rehabilitation Physician, you will receive a course certificate from TECH Global University”

Increase your decision-making confidence by updating your knowledge through this program.

Make the most of this opportunity to learn about the latest advances in Electrotherapy and Analgesia for Medicine Medicine and improve your patient care.

The course includes a teaching staff of professionals from the field of Electrotherapy and Analgesia, who bring their practical experience into this training, along with 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 Studies, i.e., a simulated environment that will provide an immersive training program designed to train in real situations.

The design of this program is centered on Problem-Based Learning, where students will address various professional practice scenarios presented throughout the course. To support this, students will have access to an innovative interactive video system created by leading experts in the field of Electrotherapy and Analgesia for the Rehabilitation Physician, with extensive teaching experience.



02 Objectives

The Postgraduate Certificate in Electrotherapy and Analgesia in Rehabilitative Medicine is designed to assist the rehabilitation physician in their daily practice related to the application of electrotherapy.





“

This training will allow you to update your knowledge in Electrotherapy and Analgesia in Rehabilitative Medicine, using the latest educational technology to contribute to quality and safety in decision-making within this innovative field”



General Objectives

- Update your knowledge of the rehabilitation professional in the field of electrotherapy
- Promote work strategies based on a comprehensive approach to the patient as a standard model for achieving excellent care
- Facilitate the acquisition of technical skills and expertise through a powerful audiovisual system, with the option of development through online simulation workshops and/or specialized training
- Encourage professional stimulation through continuous education and research





Specific Objectives

- ♦ Update knowledge on electrotherapy in the rehabilitation of patients with neuromusculoskeletal pathology
- ♦ Update knowledge on electrotherapy in the rehabilitation of patients with neurological pathology
- ♦ Update knowledge on neurological injury and its rehabilitation using electrotherapeutic agents

*Update your knowledge through
the Postgraduate Certificate in
Electrotherapy and Analgesia
for the Rehabilitation Physician.*

03

Course Management

The program includes a teaching staff of leading specialists in Electrotherapy and Analgesia in Rehabilitative Medicine, who bring their professional experience to this training. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.



“

Learn from leading professionals about the latest advancements in procedures within the field of Electrotherapy and Analgesia in Rehabilitative Medicine”

Management



Mr. León Hernández, Jose Vicente

- ♦ Doctorate in Physiotherapy from the Rey Juan Carlos University
- ♦ Degree in Chemical Sciences from the Complutense University of Madrid, specializing in Biochemistry
- ♦ University Course in Physiotherapy from the Alfonso X el Sabio University
- ♦ Master's Degree in the Study and Treatment of Pain from the Rey Juan Carlos University



Coordinators

Dr. Cuenca Martínez, Ferrán

- ♦ Degree in Physiotherapy
- ♦ Master's Degree in "Advanced Physiotherapy in Pain Management"
- ♦ Doctoral Degree

Mr. Gurdíel Álvarez, Francisco

- ♦ Degree in Physiotherapy
- ♦ Expert in Orthopedic Manual Therapy and Myofascial Pain Syndrome
- ♦ Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management

Mr. Losana Ferrer, Alejandro

- ♦ Physiotherapist
- ♦ Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management
- ♦ Expert in Neuro-Orthopedic Manual Therapy
- ♦ University Advanced Training in Therapeutic Exercise and Invasive Physiotherapy for Musculoskeletal Pain

Ms. Merayo Fernández, Lucía

- ♦ Degree in Physiotherapy
- ♦ Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management

Mr. Suso Martí, Luis

- ♦ Degree in Physiotherapy
- ♦ Master's Degree in "Advanced Physiotherapy in Pain Management"
- ♦ Doctoral Degree

04

Structure and Content

The structure of the contents has been designed by a team of professionals from the best educational centers, universities, and companies in the national territory, aware of the relevance of current specialization in order to intervene in the training and support of students, and committed to quality teaching through New Educational Technologies.



“

*This Postgraduate Certificate in
Electrotherapy and Analgesia contains
the most complete and up-to-date
scientific program on the market”*

Module 1. Electrotherapy and Analgesia

- 1.1. Definition of Pain. Concept of Nociception
 - 1.1.1. Definition of Pain
 - 1.1.1.1. Characteristics of Pain
 - 1.1.1.2. Other Concepts and Definitions Related to Pain
 - 1.1.3. Types of Pain
 - 1.1.2. Concept of Nociception
 - 1.1.2.1. Peripheral Part of the Nociceptive System
 - 1.1.2.2. Central Part of the Nociceptive System
- 1.2. Main Nociceptive Receptors
 - 1.2.1. Nociceptor Classification
 - 1.2.1.1. According to Conduction Speed
 - 1.2.1.2. According to Location
 - 1.2.1.3. According to Stimulation Modality
 - 1.2.2. Functioning of Nociceptors
- 1.3. Main Nociceptive Pathways
 - 1.3.1. Basic Structure of the Nervous System
 - 1.3.2. Ascending Spinal Pathways.
 - 1.3.2.1. Spinothalamic Tract (TET)
 - 1.3.2.2. Spinoreticular Tract (TER)
 - 1.3.2.3. Spinoencephalic Tract (TER)
 - 1.3.3. Ascending Trigeminal Pathways
 - 1.3.3.1. Trigeminothalamic Tract or Trigeminal Lemniscus
 - 1.3.4. Sensitivity and Nerve Pathways
 - 1.3.4.1. Exteroceptive Sensitivity
 - 1.3.4.2. Proprioceptive Sensitivity
 - 1.3.4.3. Interoceptive Sensitivity
 - 1.3.4.4. Other Fascicles Related to Sensory Pathways
- 1.4. Transmitting Mechanisms of Nociceptive Regulation
 - 1.4.1. Transmission at the Spinal Cord Level (APME)
 - 1.4.2. Characteristics of APME Neurons
 - 1.4.3. Redex Lamination
 - 1.4.4. Biochemistry of Transmission at the APME Level
 - 1.4.4.1. Presynaptic and Postsynaptic Channels and Receptors
 - 1.4.4.2. Transmission at the Ascending Spinal Pathways Level
 - 1.4.4.3. Spinothalamic Tract (TET)
 - 1.4.4.4. Transmission at the Thalamic Level
 - 1.4.4.5. Ventral Posterior Nucleus (NVP)
 - 1.4.4.6. Medial Dorsal Nucleus (NMD)
 - 1.4.4.7. Intralaminar Nuclei
 - 1.4.4.8. Posterior Region
 - 1.4.4.9. Transmission at the Cerebral Cortex Level
 - 1.4.4.10. Primary Somatosensory Area (S1)
 - 1.4.4.11. Secondary or Association Somatosensory Area (S2)
 - 1.4.5. Gate Control
 - 1.4.5.1. Segmental Modulation
 - 1.4.5.2. Suprasegmental Modulation
 - 1.4.5.3. Considerations
 - 1.4.5.4. Review of Gate Control Theory
 - 1.4.6. Descending Pathways
 - 1.4.6.1. Modulatory Centers in the Brainstem
 - 1.4.6.2. Diffuse Noxious Inhibitory Control (DNIC)
- 1.5. Modulatory Effects of Electrotherapy
 - 1.5.1. Pain Modulation Levels
 - 1.5.2. Neuronal Plasticity
 - 1.5.3. Pain Theory through Sensory Pathways
 - 1.5.4. Electrotherapy Models



- 1.6. High-Frequency and Analgesia
 - 1.6.1. Heat and Temperature
 - 1.6.2. Effects
 - 1.6.3. Application Techniques
 - 1.6.4. Dosage
- 1.7. Low-Frequency and Analgesia
 - 1.7.1. Selective Stimulation
 - 1.7.2. TENS and Gate Control
 - 1.7.3. Post-Excitatory Depression of the Sympathetic Nervous System
 - 1.7.4. Endorphin Release Theory
 - 1.7.5. TENS Dosage
- 1.8. Other Parameters Related to Analgesia
 - 1.8.1. Electrotherapy Effects
 - 1.8.2. Dosage in Electrotherapy

“

*A unique, essential and decisive
learning experience to boost your
professional development”*

05 Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.



“

TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

“

*At TECH you will NOT have live classes
(which you might not be able to attend)”*



The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“

TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want”

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.



A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule”

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



Interactive Summaries

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

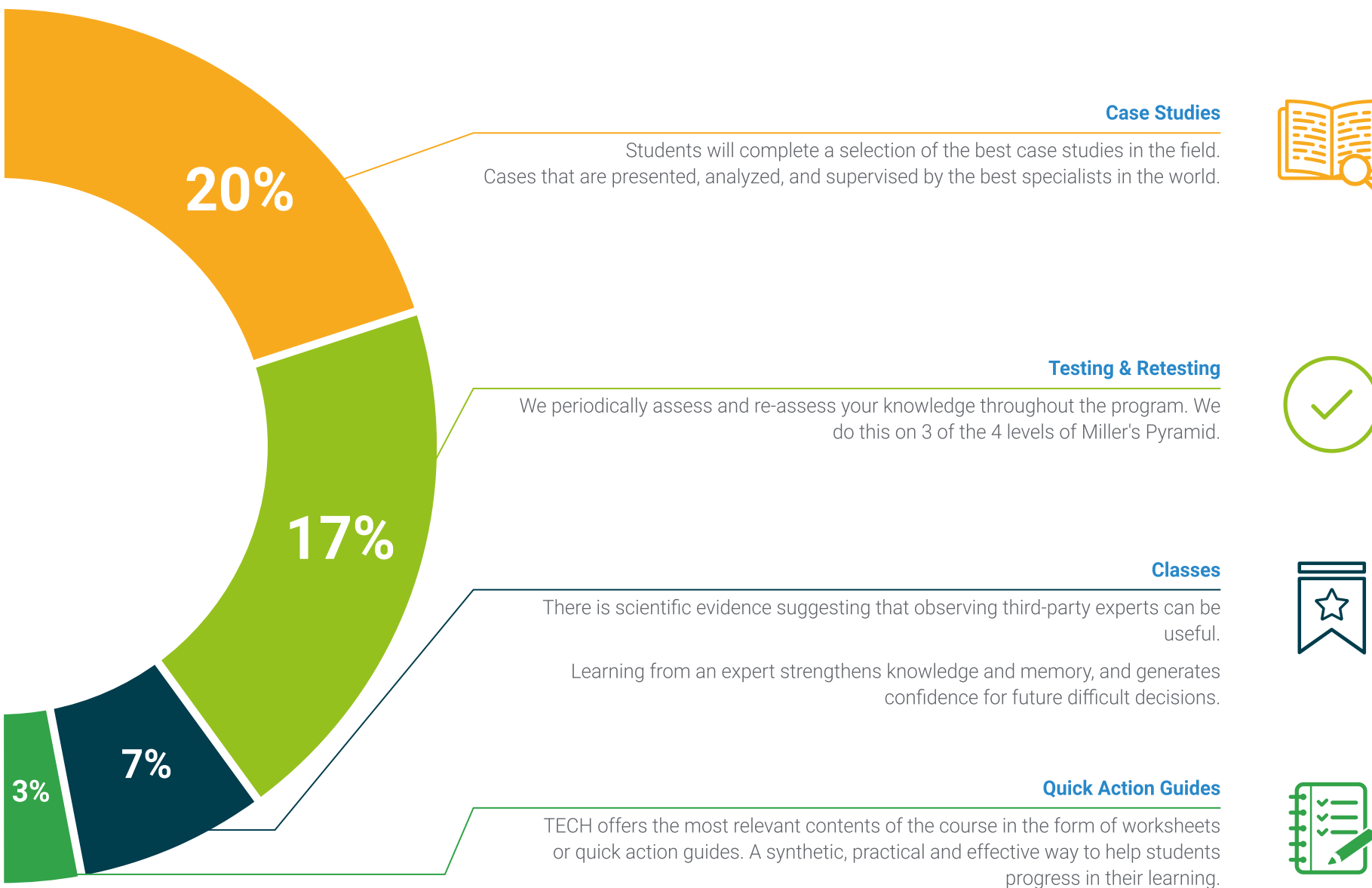
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





06 Certificate

The Postgraduate Certificate in Electrotherapy and Analgesia for the Rehabilitation Physician guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the 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 private qualification will allow you to obtain a diploma for the **Postgraduate Certificate in Electrotherapy and Analgesia for the Rehabilitation Physician** 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** private qualification, 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 Electrotherapy and Analgesia for the Rehabilitation Physician**

Modality: **online**

Duration: **8 weeks**

Accreditation: **5 ECTS**





Postgraduate Certificate Electrotherapy and Analgesia for the Rehabilitation Physician

- » Modality: online
- » Duration: 8 weeks
- » Certificate: TECH Global University
- » Accreditation: 5 ECTS
- » Schedule: at your own pace
- » Exams: online

Postgraduate Certificate

Electrotherapy and Analgesia for the Rehabilitation Physician

