



Postgraduate Diploma Electrotherapy Application in Neurological Patients for Rehabilitation Physicians

» Modality: online

» Duration: 6 months

» Certificate: TECH Global University

» Accreditation: 19 ECTS

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-electrotherapy-application-neurological-patients-rehabilitation-physicians

Index

p. 34

Certificate







tech 06 | Introduction

The use of electromagnetic fields as a therapeutic tool has been used since ancient times, but it is since the end of the last century when it has experienced a great advance. This progress ran parallel to the ever-increasing knowledge of human physiology, which facilitated the design and development of different types of treatments based on the application of electromagnetic fields.

The field of electrotherapy has a wide range of applications, making it essential to have extensive knowledge of both the physiological functioning of the individual and the most appropriate therapeutic agent for each case. This knowledge spans from muscle contraction mechanisms to somatosensory transmission processes, making it crucial for the rehabilitation physician to understand both the pathophysiological mechanisms of the individual and the physicochemical foundations of electrotherapy.

In recent years, the number of research studies related to electrotherapy has increased, mainly those focused on invasive techniques. Among these, percutaneous analgesic techniques stand out, where needles are used as electrodes, as well as transcranial stimulation, either electrical or through the use of magnetic fields. Based on these latest applications, the scope of electrotherapy expands, allowing it to be applied to various patient populations, from individuals with chronic pain to neurological patients.

The objective of the Postgraduate Diploma in Electrotherapy Application for Neurological Patients for Rehabilitation Physicians is to provide an updated overview of the applications of electrotherapy in neuromusculoskeletal pathologies, based on scientific evidence when selecting the most appropriate type of current for each case. To this end, the neurophysiological bases are always presented at the beginning of each module, so that learning is complete. Each module is supported by practical applications of each type of current, so that the integration of the knowledge of the pathology and its treatment is complete.

Given the updated content of the Postgraduate Diploma in Electrotherapy Application for Neurological Patients for Rehabilitation Physicians, it is open to various health professionals, thus expanding the application of electrotherapy beyond the field of rehabilitation medicine.

The Postgraduate Diploma in Electrotherapy Application for Neurological Patients for Rehabilitation Physicians contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- The development of practical cases presented by experts in Electrotherapy
 Application for Neurological Patients for Rehabilitation Physicians. 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 updates on Electrotherapy Application for Neurological Patients.
- Practical exercises where the self-assessment process can be carried out to improve learning.
- Special emphasis on innovative methodologies in Electrotherapy Application for Neurological Patients.
- 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.



Introduction | 07 tech



This training could be the best investment you make in selecting a professional development program for two reasons: not only will you update your knowledge in Electrotherapy Application for Neurological Patients for rehabilitation physicians, but you will also earn a specialist qualification from TECH Global University"

The program includes faculty members who are professionals in the field of Electrotherapy Application for Neurological Patients for Rehabilitation Physicians, who bring their practical experience into this training, alongside 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 learning experience designed to prepare for real-life situations.

The design of this program is centered on Problem-Based Learning, in which students will address various professional practice scenarios presented throughout the course. To assist in this process, students will benefit from an innovative interactive video system created by renowned experts in Electrotherapy Application for Neurological Patients for Rehabilitation Physicians, with extensive teaching experience.

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

Take advantage of the opportunity to learn about the latest advancements in Electrotherapy Application for Neurological Patients for Rehabilitation Physicians and improve patient care.







tech 10 | Objectives



General Objective

- Update the knowledge of rehabilitation professionals in the field of electrotherapy
- Promote work strategies based on a comprehensive approach to patient care as a reference model for achieving excellence in healthcare
- Facilitate the acquisition of technical skills and competencies through a powerful audiovisual system, with opportunities for development through online simulation workshops and/or specialized training
- Encourage professional growth through continued education and research





Specific Objectives

- Update knowledge on electrotherapy in the rehabilitation of patients with neuromusculoskeletal pathology
- Update your knowledge of muscular contraction and its rehabilitation by physical means, applying electrotherapy as the main agent.
- Update your knowledge of current and developing therapeutic possibilities in the field of neuromusculoskeletal rehabilitation.
- Expand knowledge of new applications of ultrasound therapy in the rehabilitation of neuromusculoskeletal pathologies



Take advantage of the opportunity and take the step to update yourself on the latest developments in Electrotherapy Application for Neurological Patients for Rehabilitation Physicians"







tech 14 | Course Management

Guest Director



Ms. Sanz Sánchez, Marta

- Physiotherapy supervisor at the 12 de Octubre Hospital.
- Graduate in Physiotherapy from the School of Nursing and Physiotherapy of the University of Comillas (Madrid).
- Diploma in Physiotherapy from the School of Nursing and Physiotherapy of the University of Alcalá de Henares.(Madrid). Octubre 94– June 97
- Course on Urinary Incontinence in Women (Alcalá de Henares). 20 Hours.
- Sohier Method Specialist Technician Course (Toledo). 150 Hours.
- Course on Palpatory Anatomy and Orthopedic Tests (Alcalá de Henares). 30 Hours.
- Course of Physiotherapy in Myofascial Pain Syndrome (Toledo). 60 Hours.
- * Associate Professor at UCM from 2018 to present.

Guest Director



Mr. Hernández, Elías

- Physiotherapy supervisor at the 12 de Octubre Hospital.
- Diploma in Physiotherapy from the European University of Madrid, 2002
- Degree in Physiotherapy from the Ponficia de Comillas University, 2012
- Master's Degree in Osteopathy from Gimbernat University School 2008
- Physiotherapist at Guadalajara University Hospita
- Physiotherapist at 12 de Octubre University Hospital
- Collaborating Professor at the Complutense University of Madrid, 2010
- First Conference on Electrotherapy Technology Update, Practical Application High Power Laser, High Intensity Electromagnetic Stimulation and Diathermy 2018.

Co-management



Dr. 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.
- Diploma 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

Mr. Cuenca Martínez, Ferrán

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

Mr. Gurdiel 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. Suso Martí, Luis

- Degree in Physiotherapy
- * Master's Degree in Advanced Physiotherapy in 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

Teachers

Mr. Izquierdo García, Juan

- Postgraduate Certificate in Physiotherapy Universidad Rey Juan Carlos. 2004
- Expert in Manual Therapy in Muscular and Neuromeningeal Tissue. 60 ECTS Rey Juan Carlos University. Alcorcón- Madrid. 2005
- University Specialist in Heart Failure, 30 ECTS. Murcia University. 2018
- Master's Degree in Healthcare Management. Mid-Atlantic University. 2019
- 12 de Octubre University Hospital of Madrid, Physiotherapist of the Cardiac Rehabilitation Unit.

Mr. Román Moraleda, Carlos

- 12 de Octubre University Hospital, permanent statutory staff since May 2015 Paseo Imperial health center, primary care (SERMAS). From October 2009 to May 2015
- La Paz University Hospital, lymphatic drainage unit, from January 2008 to September 2009.
- José Villarreal Day Care Center, Madrid City Council, from October 2007 to January 2008.
- Postgraduate Certificate in Physiotherapy from the University Alfonso X El Sabio.
 1999 / 2002
- Postgraduate Diploma in Manual Lymphatic Drainage from the European University of Madrid. Course of 08/09. 200 hrs
- Master's Degree in Osteopathy (Eur. Ost DO). Francisco de Vitoria University-School of Osteopathy FBEO. 1500 hrs (2010–2015)
- Associate Professor in the Faculty of Nursing, Physiotherapy and Podiatry.
 Complutense University of Madrid. Since December from 2020





tech 20 | Structure and Content

Module 1. High-Frequency Electrotherapy

- 1.1. Physical Fundamentals of High Frequency
- 1.2. Physiological Effects of High Frequency
 - 1.2.1. Athermal Effects
 - 1.2.2. Thermal Effects
- 1.3. Therapeutic Effects of High Frequency
 - 1.3.1. Athermal Effects
 - 1.3.2. Thermal Effects
- 1.4. Shortwave Fundamentals
 - 1.4.1. Short Wave: Capacitive Application Mode
 - 1.4.2. Short Wave: Inductive Application Mode
 - 1.4.3. Short Wave: Pulsed Emission Mode
- 1.5. Practical Applications of Shortwave
 - 1.5.1. Practical Applications of Continuous Shortwave
 - 1.5.2. Practical Applications of Pulsed Shortwave
 - .5.3. Practical Applications of Shortwave: Pathology Phase and Protocols
- 1.6. Contraindications of Shortwave
 - 1.6.1. Absolute Contra-indications
 - 1.6.2. Relative Contra-indications
 - 1.6.3. Precautions and Safety Measures
- 1.7. Practical Applications of the Microwave
 - 1.7.1. Microwave Basics
 - 1.7.2 Practical Microwave Considerations
 - 1.7.3. Practical Applications of Continuous Microwave
 - 1.7.4. Practical Applications of Pulsed Microwave
 - 1.7.5. Microwave Treatment Protocols
- 1.8. Contraindications of the Microwave
 - 1.8.1. Absolute Contra-indications
 - 1.8.2. Relative Contra-indications
- 1.9. Fundamentals of Techartherapy
 - 1.9.1. Physiological Effects of Techarterapy
 - 1.9.2. Dosage of Tecartherapy Treatment

- 1.10. Practical Applications of Techartherapy
 - 1.10.1. Arthrosis
 - 1.10.2. Myalgia
 - 1.10.3. Muscle Fiber Rupture
 - 1.10.4. Post-Puncture Pain from Myofascial Trigger Points
 - 1.10.5. Tendinopathy
 - 1.10.6. Tendon Rupture (Post-Surgical Period)
 - 1.10.7. Wound Healing
 - 1.10.8. Keloid Scars
 - 1.10.9. Edema Drainage
 - 1.10.10. Post-Exercise Recovery
- 1.11. Contraindications of Techartherapy.
 - 1.11.1. Absolute Contra-indications
 - 1.11.2. Relative Contra-indications

Module 2. Electrostimulation in Neurological Patients

- 2.1. Assessment of Nerve Injury. Principles of Muscle Innervation.
- 2.2. Intensity/Time (I/T) and Amplitude/Time (A/T) Curves.
- 2.3. Main Trends in Neurological Rehabilitation.
- 2.4. Electrotherapy for Motor Rehabilitation in the Neurological Patient.
- 2.5. Electrotherapy for Somatosensory Rehabilitation in the Neurologic Patient.
- 2.6. Practical Applications
- 2.7. Contraindications



Structure and Content | 21 tech

Module 3. General Principles of Electrotherapy

- 3.1. Physical Basis of Electric Current.
 - 3.1.1. Brief Historical Recollection.
 - 3.1.2. Definition and Physical Basis of Electrotherapy.3.1.2.1. Concepts of Potential
- 3.2. Main Parameters of the Electric Current.
 - 3.2.1. Pharmacology / Electrotherapy Parallelism
 - 3.2.2. Main Parameters of the Waves: Waveform, Frequency, Intensity, and Pulse Width
 - 3.2.3. Other Concepts: Voltage, Current and Resistance
- 3.3. Frequency-Dependent Classification of Currents
 - 3.3.1. Classification according to Frequency: High, Medium and Low
 - 3.3.2. Properties of Each Type of Frequency
 - 3.3.3. Choice of the Most Suitable Current in Each Case
- 3.4. Waveform-Dependent Current Classification
 - 3.4.1. General Classification: Direct and Alternating or Variable currents
 - 3.4.2. Classification of the Variable Currents: Interrupted and Uninterrupted
 - 3.4.3. Spectrum Concept
- 3.5. Current Transmission: Electrodes
 - 3.5.1. General Information on Electrodes
 - 3.5.2. Importance of Tissue Impedance
 - 3.5.3. General Precautions
- 3.6. Types of Electrodes
 - 3.6.1. Brief Recollection of the Historical Evolution of Electrodes
 - 3.6.2. Considerations on Maintenance and Use of Electrodes
 - 3.6.3. Main Types of Electrodes
 - 3.6.4. Electrophoretic Application
- 8.7. Bipolar Application
 - 3.7.1. Bipolar Application Overview
 - 3.7.2. Electrode Size and Area to be Treated
 - 3.7.2. Application of More Than Two Electrodes

tech 22 | Structure and Content

- 3.8. Four-pole Application
 - 3.8.1. Possibility of Combinations
 - 3.8.2. Application in Electrostimulation
 - 3.8.3. Tetrapolar Application in Interferential Currents
 - 3.8.4. General Conclusions
- 3.9. Importance of Polarity Alternation
 - 3.9.1. Brief Introduction to Galvanism
 - 3.9.2. Risks Derived from Load Accumulation
 - 3.9.3. Polar Behavior of Electromagnetic Radiation

Module 4. Non-Invasive Brain Stimulation

- 4.1. Introduction to Transcranial Neuromodulation
 - 4.1.1. Neurophysiological Principles
 - 4.1.2. General Information of Non-Invasive Brain Stimulation
- 4.2. Transcranial Magnetic Stimulation
 - 4.2.1. Introduction to Transcranial Magnetic Stimulation
 - 4.2.2. Mechanisms of Action
- 4.3. Stimulation Protocols
 - 4.3.1. Safety
 - 4.3.2. Applications
- 4.4. Transcranial Direct Current
 - 4.4.1. Introduction to Transcranial Direct Current
 - 12.4.2. Mechanism of Action
 - 4.4.3. Safety
- 4.5. Procedures
 - 4.5.1. General Aspects
 - 4.5.2. Evidence
 - 4.5.3. Applications





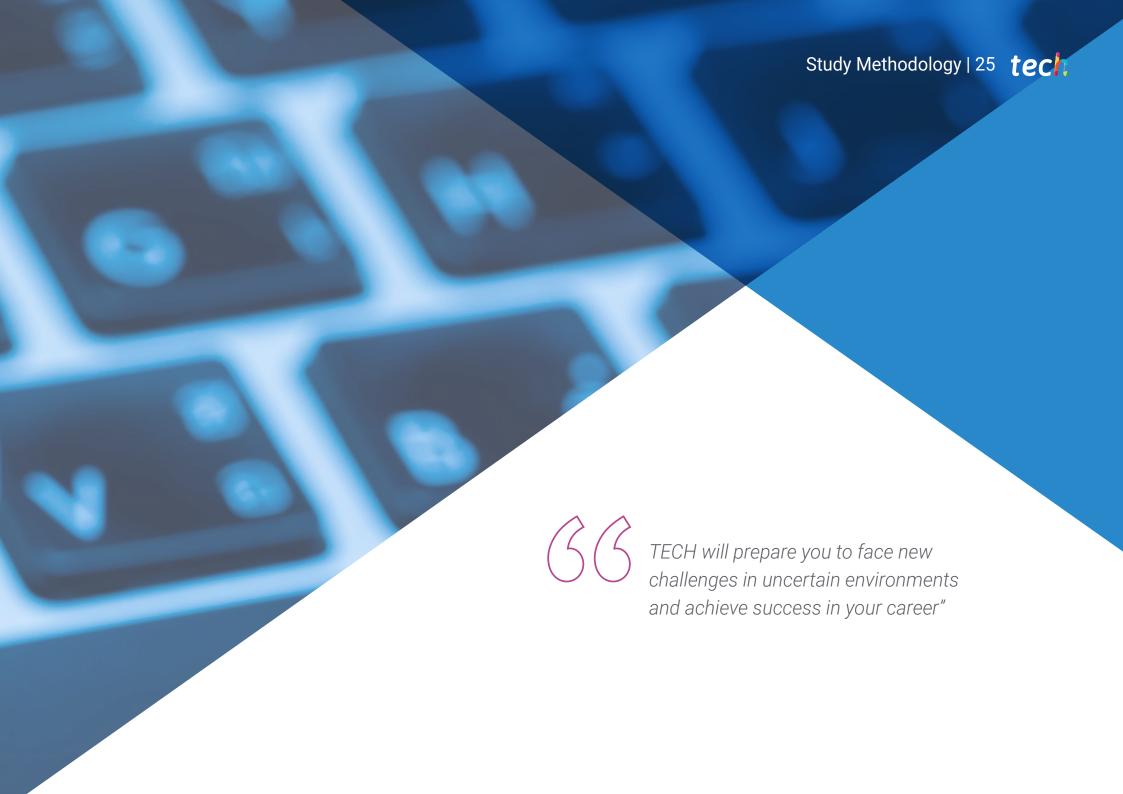
Structure and Content | 23 tech

- 4.6. Other Forms of Transcranial Electrical Stimulation
 - 4.6.1. General Aspects
 - 4.6.2. Updating of Applications
- 4.7. Transcranial Neuromodulation Combined with other Therapeutic Interventions
 - 4.7.1. Combination Types
 - 4.7.2. Applications
 - 4.7.3. Precautions



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



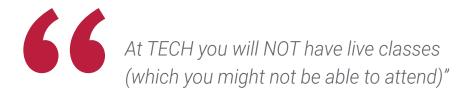


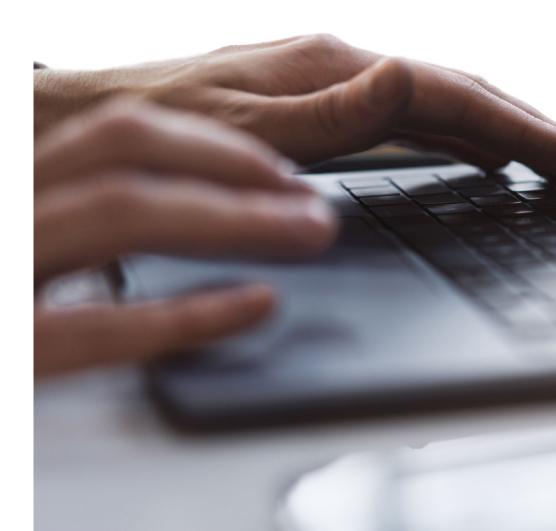
The student: the priority of all TECH programs

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.







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"

tech 28 | Study Methodology

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 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.



tech 32 | Study Methodology

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

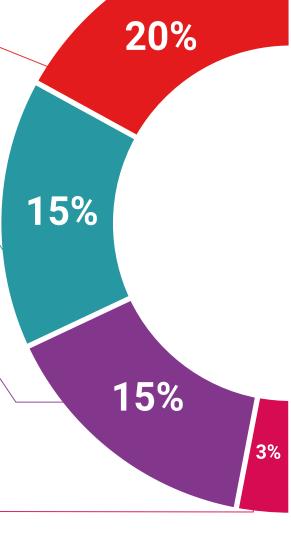
You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



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.

Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Testing & Retesting



We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

Classes



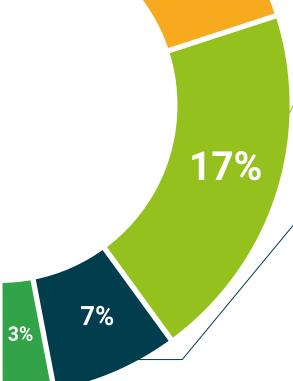
There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an expert strengthens knowledge and memory, and generates confidence for future difficult decisions.

Quick Action Guides



TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.







tech 34 | Certificate

This private qualification will allow you to obtain a Postgraduate Diploma in Electrotherapy Application in Neurological Patients for Rehabilitation Physicians 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 Diploma in Electrotherapy Application in Neurological Patients for **Rehabilitation Physicians**

Modality: online

Duration: 6 months

Accreditation: 19 ECTS



Neurological Patients for Rehabilitation Physicians

This is a private qualification of 570 hours of duration equivalent to 19 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



^{*}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



Postgraduate Diploma **Electrotherapy Application** in Neurological Patients for Rehabilitation Physicians

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Global University
- » Accreditation: 19 ECTS
- » Schedule: at your own pace
- » Exams: online

