

# Hybrid Professional Master's Degree

## Electrotherapy in Rehabilitation Medicine





## Hybrid Professional Master's Degree

### Electrotherapy in Rehabilitation Medicine

Course Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months.

Certificate: TECH Technological University

Teaching Hours: 1,620 hours.

Website: [www.techtitute.com/us/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-electrotherapy-rehabilitation-medicine](http://www.techtitute.com/us/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-electrotherapy-rehabilitation-medicine)

# Index

01

Introduction

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*p. 4*

02

Why Study this Hybrid  
Professional Master's Degree?

---

*p. 8*

03

Objectives

---

*p. 12*

04

Skills

---

*p. 18*

05

Course Management

---

*p. 22*

06

Educational Plan

---

*p. 28*

07

Clinical Internship

---

*p. 32*

08

Where Can I Do the Clinical  
Internship?

---

*p. 38*

09

Methodology

---

*p. 42*

10

Certificate

---

*p. 50*

# 01

# Introduction

The progress of medicine has materialized in the design of increasingly effective diagnostic and therapeutic guidelines according to the specifics of each pathology. An example of a novel and highly beneficial clinical strategy for health promotion is Electrotherapy, thanks to which it has been possible to enhance muscle and bone recovery from various injuries through oxygenation. For this reason, and in view of the continuous changes being implemented in their employment, TECH has decided to create this program, which combines 100% online theoretical learning with a practical stay in a prestigious hospital so that doctors can learn about and apply these innovations in their work methodology.







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*With this Hybrid Professional Master's Degree you will be able to exercise in simulated environments, which will provide you with an immersive update programmed to train you in real situations in the field of Electrotherapy for Rehabilitation Medicine"*

The field of application of electrotherapy is very wide, so it is necessary to have an extensive knowledge of both the physiological functioning of the subject, as well as the most appropriate agent in each case. This knowledge ranges from muscle contraction mechanisms to somatosensory transmission mechanisms, which makes it essential for the rehabilitation physician to handle both the physiopathological aspects of the patient and the psychicochemical basis of electrotherapy.

And for this you can count on this Hybrid Professional Master's Degree, a complete and comprehensive program that covers the latest developments in this clinical practice through a curriculum designed exclusively for this University. It is an academic experience that combines theory and practice in an experience that will help the graduate to get up to date with the principles of Electrotherapy, its analgesic function and the different techniques that are marking the current clinical practice. In addition, you will learn about the latest advances related to the different types of currents, both galvanic and variable intensity, as well as their application in relation to the electromagnetic fields required for the management of various pathologies.

All this through 1,500 hours of theoretical content, which will be presented in a convenient and flexible 100% online format. In addition, once the program is completed, the graduate will have access to a 3-week stay in a clinical center of reference in the rehabilitation field, where he/she will be able to put into practice everything acquired during the first part of the program.

In this way, you will have the opportunity to take a complete, exhaustive and multidisciplinary academic experience with which, undoubtedly, you will not only get updated on everything related to Electrotherapy, but you will improve its use for a top level management of patients who come to your office to receive treatments such as those related to shock waves, neuromuscular electrostimulation or ultrasound therapy.

This **Hybrid Professional Master's Degree in Electrotherapy in Rehabilitation Medicine** contains the most complete and up-to-date scientific program on the market. Its most outstanding features are:

- ♦ Development of more than 100 clinical cases presented by experts in Electrotherapy in Rehabilitation Medicine
- ♦ 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
- ♦ New developments in the role of the rehabilitation physician
- ♦ Updated therapeutic procedures for the rehabilitation of injuries through the use of electrotherapy
- ♦ Practical exercises in which the self-assessment process can be carried out to improve learning
- ♦ Algorithm-based interactive learning system for decision-making in the situations that are presented to the student
- ♦ All of this will be complemented by 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
- ♦ In addition, you will be able to carry out a clinical internship in one of the best hospitals in the world

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*This is a unique opportunity to explore Electrotherapy from the basics to the most innovative concepts, perfecting the use of the tools that are marking the medical vanguard"*

In this Professional Master's Degree proposal, of a professionalizing nature and blended learning modality, the program is aimed at updating medical professionals who develop their functions in the Electrotherapy unit in Rehabilitation Medicine, and who require a high level of qualification. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge into medical practice, and the theoretical-practical elements will facilitate the updating of knowledge and will allow decision making in patient management.

Thanks to their multimedia content developed with the latest educational technology, they will allow the professional to obtain situated and contextual learning, that is, a simulated environment that will provide immersive learning programmed to train in real situations. The design of this program focuses on Problem Based Learning, through which the student will have to try to solve the different professional practice situations that will arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

*You will have the best theoretical, practical and additional content to expand each section of the program according to your total and absolute level of demand.*

*Would you like to master the keys to galvanic currents through the innovative use of TENS? Then, this program is the ideal one for you. Are you going to let it go?.*





# 02

## Why Study this Hybrid Professional Master's Degree?

The continuous advances in the field of medicine, regardless of the specialty in which they work, force professionals to constantly update their knowledge in order to always offer the highest clinical quality. The same is true in the field of electrotherapy, which over the years has seen the implementation of increasingly effective and specific rehabilitation strategies and guidelines according to the patient's needs. For this reason, the program of this Hybrid Professional Master's Degree, which combines theory and practice in such an effective and complete way, becomes a unique opportunity to implement in your practice the most innovative strategies for the application of therapies in accordance with the latest developments in modern Medicine







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*What better opportunity to get up to date on the contraindications of electrostimulation than through practice? This TECH program is your ideal choice"*

### 1. Updating from the latest technology available

Being part of this program will provide the graduate with the opportunity to access the latest clinical technology available, since TECH places special emphasis on the use of this technology by its centers when choosing them as destinations for the practical stay. In this way, it guarantees a comprehensive update of knowledge, from the purely theoretical to those related to the use of the most innovative and sophisticated clinical tools such as TENS or those related to transcranial magnetic stimulation.

### 2. Gaining In-Depth Knowledge from the Experience of Top Specialists

Thanks to the support of the team of professionals that make up this Hybrid Professional Master's Degree, both in its theoretical format and, later, during the stay, the graduate can update his or her knowledge based on the experience of experts in the sector. This allows you not only to get more out of the program, but also to gain different insights into current clinical practice.

### 3. Entering First-Class Clinical Environments

Not all universities offer their graduates the opportunity to be part of real clinical environments, beyond the simulated ones. It is a sign of the commitment of this academic center to the progress of Medicine TECH, with this Hybrid Professional Master's Degree, gives its students the opportunity to be part of a multidisciplinary team in the field of Electrotherapy, to work on improving their skills through the active management of patients with various pathologies.







#### **4. Combining the Best Theory with State-of-the-Art Practice**

TECH considers that having the most advanced and up-to-date theoretical knowledge is a fundamental requirement in medical practice, but, in addition, mastering the guidelines for handling the tools is indispensable. For this reason, it offers programs such as this Hybrid Professional Master's Degree, which combines both concepts in an unparalleled multidisciplinary experience.

#### **5. Expanding the Boundaries of Knowledge**

The possibility that arises with this program to take the practical stay in centers of international importance allows the graduate to expand the frontiers of his knowledge towards the practice in other countries, allowing him, in addition, to catch up with the clinical guidelines that are marking the day to day in prestigious centers in different parts of the world.



*You will have full practical immersion  
at the center of your choice"*

# 03 Objectives

This Hybrid Professional Master's Degree has been developed with the objective of providing the graduate with the information that will allow them to update their practice in Electrotherapy and boost their ability to act in their daily practice through the most innovative clinical rehabilitation strategies. Through an efficiency-focused approach, professionals will be able to take their knowledge to the highest level of actualization. In this sense, a series of general and specific objectives have been established that will guide students to achieve their goals in a guaranteed manner.





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*Add to your online study the realization of clinical practices with the highest standards of quality and technological level in an elite hospital center”*



## General Objective

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- The overall objective of this Hybrid Professional Master's Degree in Electrotherapy in Rehabilitation Medicine is to ensure that the professional updates the diagnostic and therapeutic procedures of the specialty in a theoretical and practical way, through a hospital stay designed with clinical and academic rigor, under the guidance of renowned professionals in a hospital center of the highest scientific quality and technological innovation. In this program the professional will address the main interventions of the specialist, which will allow him to improve and enhance his skills in the medical care of his patients





## Specific Objectives

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### Module 1. Principles of Electrotherapy

- ♦ Learn about the evolution of electrotherapy and the physical basis of electric current
- ♦ Study the basis of nervous and muscular physiopathology
- ♦ Identify the main parameters of electric current and those applied to electrotherapy
- ♦ Know the waveform-dependent currents

### Module 2. Electrotherapy and Analgesia

- ♦ Study the main nociceptive receptors and pathways
- ♦ Detect updated pain treatments with pharmacological and non-pharmacological methods
- ♦ Know the regulatory mechanisms of nociceptive transmission
- ♦ Assimilate the modulating effects of Electrotherapy

### Module 3. Galvanic currents. Iontophoresis

- ♦ Master the biophase fundamentals of electroplating
- ♦ Master the updated methodology and instrumentation for electroplating
- ♦ Establish the contraindications and precautions of iontophoresis

### Module 4. Variable intensity currents

- ♦ Master the fundamentals and classification of TENS type current
- ♦ Identify the types and application of electrodes, depending on the importance of the pulse width
- ♦ Know the analgesic effects of high and low frequency and Brunt type TENS
- ♦ Identify the effects of currents of varying intensities



### Module 5. High Frequency Electrotherapy

- ♦ Update knowledge on the physical fundamentals of high frequency
- ♦ Establishing the physiological and therapeutic effects of high frequency
- ♦ Identify and analyze the fundamentals and applications of short waves, microwaves and tecartherapy

### Module 6. Electromagnetic Fields

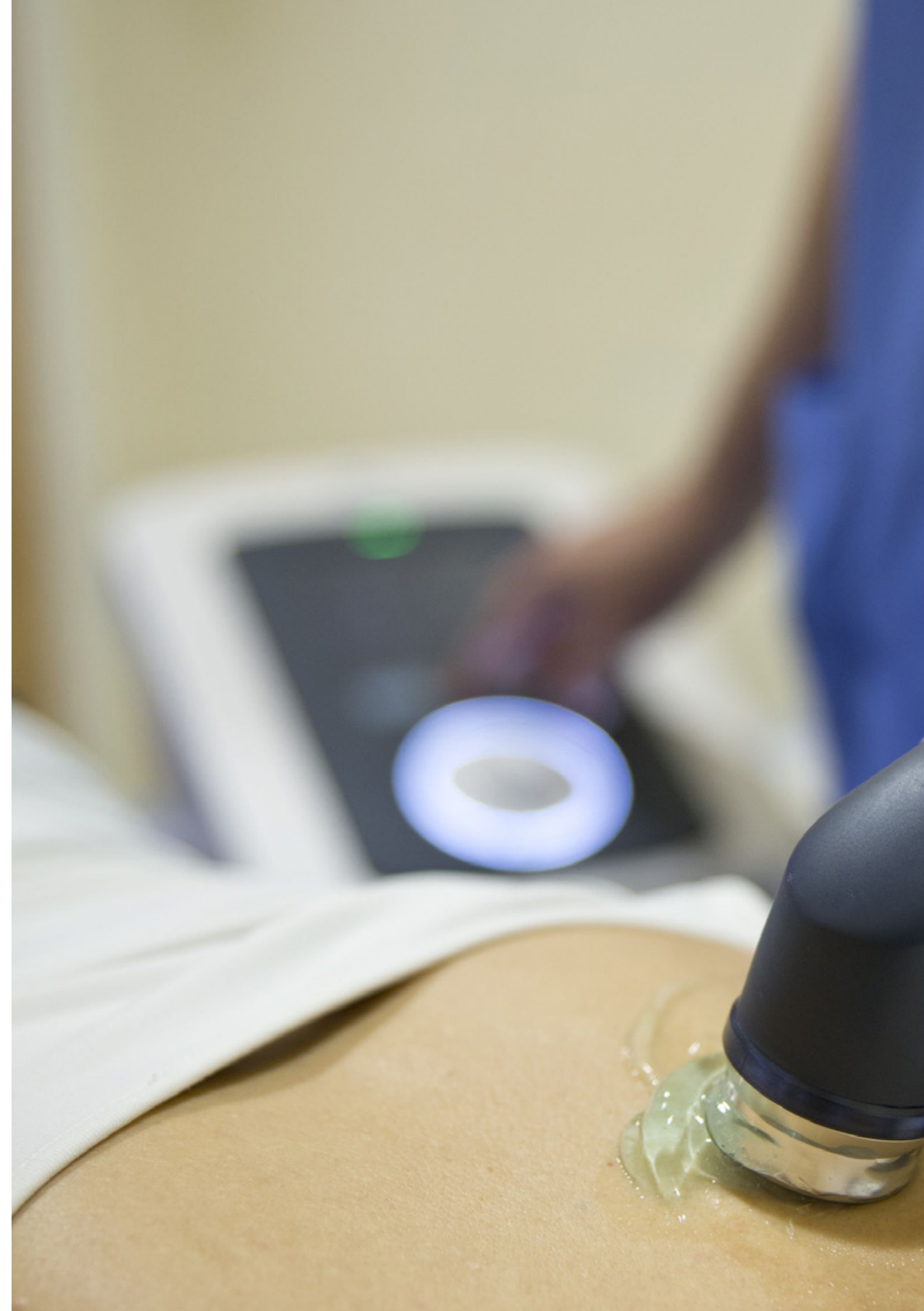
- ♦ Broaden and update knowledge of laser physics principles
- ♦ Identify the physiological and therapeutic effects of infrared
- ♦ Know the main parameters of magnetic fields, as well as the types of emitters and their application

### Module 7. Ultrasound therapy

- ♦ Determine the physical principles of ultrasound therapy, as well as the physiological effects
- ♦ Analyze the parameters and methodologies of ultrasound therapy
- ♦ Study the applications of ultrasound therapy in tendon and muscle pathologies
- ♦ Delve into the use of ultrasound therapy in peripheral nerve disorders

### Module 8. Neuromuscular electrostimulation

- ♦ Expand knowledge of the principles of muscle contraction
- ♦ Identify the main neuromuscular injuries
- ♦ Handle the main excitomotor currents and interferential currents
- ♦ Establishing the benefits of electrostimulation training







### **Module 9. Shock Waves**

- ♦ Analyze the recommendations of scientific societies on shock waves
- ♦ Identify the types of generators and existing focal applicators
- ♦ Know the indications, recommendations, contraindications and side effects of shock waves

### **Module 10. CNS and PNS electrotherapy**

- ♦ Establish the criteria for nerve injury assessment
- ♦ Delve into the main trends in neurological rehabilitation
- ♦ Apply electrotherapy in cases of motor rehabilitation
- ♦ Manage the basis of non-invasive brain stimulation

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*It delves into the most relevant theory in this field, subsequently applying it in a real work environment”*

# 04 Skills

This Hybrid Professional Master's Degree will provide the medical specialist with the necessary resources and skills to defend himself with total guarantee in the field of Electrotherapy in rehabilitation, applying the most innovative and effective clinical strategies for each case that arises in his practice. This is thanks not only to the very complete theoretical curriculum, but also to its action combined with the practical stay, in which you will be able to use what you have developed in the first period, working intensively in the mastery of the most effective and efficient clinical guidelines for a prompt and guaranteed recovery.





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*You will be able to practice the application of the different currents on real patients, perfecting your skills with the on-site management of various clinical cases"*





## General Skills

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- ♦ Possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
- ♦ Know how to apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study
- ♦ Integrate knowledge and face the challenge of making judgements based on incomplete or limited information. In addition, include reflections on the social and ethical responsibilities linked to implementing this knowledge and judgement
- ♦ Know how to communicate conclusions, knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way
- ♦ Acquire the learning skills that will enable further studying in a largely self-directed or autonomous manner
- ♦ Develop within the profession in terms of working with other health professionals, acquiring skills to work as a team







## Specific Skills

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- 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
  - Favor the acquisition of technical skills and abilities, through a powerful audiovisual system, and the possibility of development through online simulation workshops and/or specific training
  - Use rigorously, safely and confidently the diagnostic aids characterized by complex technology
  - Establish an effective therapeutic relationship with patients and families.
  - Manage scientific databases for carrying out reviews and bibliographic searches of scientific studies
  - Formulate, implement and evaluate standards, action guidelines and protocols specific to the practice of medicine
  - Carry out a critical and deep study on a topic of scientific interest in the field of Electrotherapy in Rehabilitation Medicine in the field of Electrotherapy in Rehabilitation Medicine
  - Communicate result findings after having analyzed, evaluated, and synthesized the data
- Manage healthcare resources with efficiency and quality criteria
  - Work as part of a team providing expert knowledge in the field of Critical Care
  - Educate users on health issues so that they acquire healthy lifestyles, in order to avoid situations that may compromise their health
  - Refresh the main concepts of each type of current
  - Master the therapeutic effects of each type of current



*You will master, in a guaranteed way, the physical principles of ultrasound therapy thanks to the updated knowledge you will obtain of the physiological effects of its use in different pathologies"*

05

# Course Management

For the direction and teaching of this Hybrid Professional Master's Degree, TECH has selected a team with expertise in different areas of medicine, especially in the therapeutic and rehabilitative sector. Thanks to this, the graduate will have an important support to keep up to date with the latest developments in Electrotherapy from the best experts, using their experience and trajectory to implement in their own practice the most innovative and effective clinical strategies for the management of different pathologies through the use of this technique.



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*In the Online Campus you will find a direct communication tool with the teaching team, so that you can contact its members whenever you need to solve any doubt"*



## Management



### Dr. Ignacio Del Villar Belzunce

- Head of the Rehabilitation and Physical Medicine Service of the Rey Juan Carlos I Hospital in Móstoles. Madrid
- Specialist in Physical Medicine and Rehabilitation from the University Hospital La Paz in Madrid
- Head of the Rehabilitation and Physical Medicine Department of the Rey Juan Carlos I Hospital in Móstoles
- Specialist Physician in the Rehabilitation and Physical Medicine Service of the Rey Juan Carlos I Hospital in Móstoles
- Professor of Ultrasound-guided interventional techniques in the locomotor system Quirón Salud
- Degree in Medicine and Surgery from the University of Zaragoza
- Specialist in Physical Medicine and Rehabilitation from the University Hospital La Paz in Madrid

## Professors

### Dr. Rosa Mercedes Pulido Poma

- ♦ Physician Rehabilitator in Fisiomédica
- ♦ Specialist in Physical Medicine and Rehabilitation at the Rehabilitation Service of the University Hospital Rey Juan Carlos. Móstoles
- ♦ Specialist in Physical Medicine and Rehabilitation at Hospital Santa Rosa, Lima
- ♦ Specialist in Physical Medicine and Rehabilitation at the Alberto L. Barton Hospital. Callao
- ♦ Surgeon, San Fernando School of Medicine National Higher University of San Marcos, Lima
- ♦ Specialist in Physical Medicine and Rehabilitation via MIR, Hospital General Universitario Gregorio Marañón, Madrid

### Dr. Jenny Gladys López Hermoza

- ♦ Assistant Physician in the Rehabilitation Service of the Rey Juan Carlos Hospital
- ♦ Resident Physician of Physical Medicine and Rehabilitation at the Fundación Jiménez Díaz University Hospital
- ♦ Surgeon from Universidad Nacional Mayor de San Marcos Lima-Peru, with homologation to Medical Degree in Spain
- ♦ Specialist in Family and Community Medicine at the ADM AFyC SURESTE of Madrid
- ♦ Degree in Medicine and Surgery from Universidad Nacional Mayor de San Marcos de Lima

### Dr. Miguel Bernardo Salmerón Celi

- ♦ Specialist in Physical Medicine and Rehabilitation (General Rehabilitation and Pelvic Floor Unit) at the University Hospital Rey Juan Carlos
- ♦ Specialist in Physical Medicine and Rehabilitation (General Rehabilitation and Shockwave Unit) at the University Hospital Rey Juan Carlos
- ♦ Specialist in the Traumatology Service of the University Hospital Rey Juan Carlos, Madrid
- ♦ Graduated in Medicine and Surgery from Universidad Privada de San Martín de Porres, Lima
- ♦ Specialty in Physical Medicine and Rehabilitation at the University Hospital La Fe in Valencia
- ♦ Diploma of Advanced Studies (DEA), program: Applied Sports Sciences, Faculty of Physiology. University of Valencia
- ♦ Member of: ISPRM, SETOC, SERMEF

### Dr. Gema Sánchez Gómez

- ♦ Specialist in Physical Medicine and Rehabilitation at the University Hospital Rey Juan Carlos
- ♦ Medical Specialist in Physical Medicine and Rehabilitation at Clínica Jaca
- ♦ Physical Medicine and Rehabilitation Specialist at Los Castillos Medical Center
- ♦ Resident Medical Intern in the specialty of Physical Medicine and Rehabilitation at the University Hospital Puerta de Hierro
- ♦ Graduate in Medicine from the UCM

**Dr. Irene Aguirre Sánchez**

- Medical Specialist in Physical Medicine and Rehabilitation at HURC
- FEA of Physical Medicine and Rehabilitation at the Nostra Senyora de Meritxell Hospital in Andorra
- FEA in the Physical Medicine and Rehabilitation Service of the Regional Hospital García Orcoyen of Navarra
- Expert in Musculoskeletal Ultrasound by Francisco de Vitoria University
- Expert in Physical Exercise and Health from the Public University of Navarre

**Dr. Daniel Torres Noriega**

- Rehabilitation Physician at Clínica Rehavitalis in Madrid
- Emergency and primary care physician at the Hospital de Manises in Valencia
- Prehospital Medical Assistance in Ambulancias Vallada in Valencia
- Graduated in Medicine and Surgery from Universidad Central de Venezuela
- Specialist in Physical and Rehabilitation Medicine at Ramón y Cajal University Hospital
- Master's Degree in Integration and Clinical Problem Solving in Medicine from the University of Alcalá de Henares, Spain
- Theoretical and practical program for the treatment of spasticity in stroke







**Dr. Iker Castaño Pérez**

- ◆ Specialist in Physical Medicine and Rehabilitation at the University Hospital Rey Juan Carlos
- ◆ Specialist in the Rehabilitation Service of the Niño Jesús University Children's Hospital
- ◆ Degree in Medicine from the University of Navarra
- ◆ Expert in Ultrasound Diagnosis of Locomotor System Injuries by SEMED-FEMEDE
- ◆ Member of: ICOMEM, Society Center, SEMED-FEMEDE

**Dr. Marta Galván Ortiz de Urbina**

- ◆ Department of Physical Medicine and Rehabilitation, University Hospital Rey Juan Carlos, Madrid
- ◆ Department of Physical Medicine and Rehabilitation, Fundación Jiménez Díaz, Madrid
- ◆ Bachelor's Degree in Medicine and Surgery Complutense University of Madrid
- ◆ Master's Degree in Medical Assessment of Disability and Bodily Injury for Social Protection
- ◆ Master's Degree in Clinical Phoniatics
- ◆ Musculoskeletal Ultrasound program. Expert in ultrasound diagnosis of Locomotor System injuries

# 06

## Educational Plan

The curriculum of this Hybrid Professional Master's Degree has been developed by the teaching team, which has selected the most complete and comprehensive information related to the field of Electrotherapy in Rehabilitation Medicine. In addition, they have designed dozens of hours of high quality additional material, which will be represented in different formats so that each graduate can expand each section of the syllabus according to their needs and requirements.



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*The use of the Relearning methodology in the development of the content of the theoretical program will allow you to update your knowledge without realizing it, in a progressive and natural way"*



### Module 1. Principles of Electrotherapy

- 1.1. Economic performance
- 1.2. Physical Basis of Electric Current
- 1.3. Basis of nerve physiopathology
- 1.4. Basis of muscle pathophysiology
- 1.5. Main Parameters of the Electric Current
- 1.6. Parameters applied to Electrotherapy
- 1.7. Classification of the most commonly used currents
- 1.8. Waveform-dependent currents
- 1.9. Current transmission. Electrodes
- 1.10. Bipolar and tetrapolar application. Importance of Polarity Alternation

### Module 2. Electrotherapy and Analgesia

- 2.1. Pain
- 2.2. Nociception
- 2.3. Main Nociceptive Receptors
- 2.4. Main Nociceptive Pathways
- 2.5. Pain treatments: pharmacological and non-pharmacological
- 2.6. Regulatory mechanisms of nociceptive transmission
- 2.7. Gate control: Electrotherapy and Analgesia
- 2.8. Modulating Effects of Electrotherapy
- 2.9. High Frequency and Analgesia
- 2.10. Low Frequency and Analgesia

### Module 3. Galvanic currents. Iontophoresis

- 3.1. Biophase fundamentals of electroplating
- 3.2. Biological effects of electroplating
- 3.3. Electroplating methodology and instrumentation
- 3.4. Physical Fundamentals of Iontophoresis
- 3.5. Physiological Effects of Iontophoresis

- 3.6. Iontophoretic application and dosage
- 3.7. Medication in iontophoresis: selection of the appropriate ion
- 3.8. Clinical Applications Evidence based on the use of iontophoresis
- 3.9. Contraindications and precautions of iontophoresis
- 3.10. Other galvanic current application techniques: galvanic bath and electrolysis

### Module 4. Variable intensity currents

- 4.1. Fundamentals of Current Type used in TENS
- 4.2. Classification of Current Type used in TENS
- 4.3. Concept of accommodation
- 4.4. Analgesic effects of high- and low-frequency and Burst-type TENS
- 4.5. Electrodes: types and application. Importance of Pulse Width
- 4.6. TENS applications and contraindications
- 4.7. Fundamentals and parameters of interferential currents
- 4.8. Effects of high and low frequency
- 4.9. Electrodes: type and application. Importance and adjustment of the frequency spectrum. Concept of accommodation
- 4.10. Interferential applications and contraindications

### Module 5. High Frequency Electrotherapy

- 5.1. Physical Fundamentals of High Frequency
- 5.2. Physiological Effects of High Frequency
- 5.3. Therapeutic Effects of High Frequency
- 5.4. Shortwave: fundamentals and applications
- 5.5. Shortwave: indications and contraindications
- 5.6. Microwaves: fundamentals and applications
- 5.7. Microwave: indications and contraindications
- 5.8. Tecartherapy: basics
- 5.9. Tecartherapy: applications
- 5.10. Tecartherapy: indications and contraindications

## Module 6. Electromagnetic fields

- 6.1. Laser: physical principles
- 6.2. Physiological and therapeutic effects of lasers
- 6.3. Practical applications and contraindications
- 6.4. Infrared radiation: physical principles
- 6.5. Infrared physiological and therapeutic effects
- 6.6. Practical applications and contraindications
- 6.7. Magnetotherapy: physical principles, main parameters of magnetic fields, types of emitters and their application
- 6.8. Physiological and therapeutic effects of magnetotherapy
- 6.9. Clinical applications and contraindications
- 6.10. High intensity inductive therapy

## Module 7. Ultrasound therapy

- 7.1. Physical Principles of Ultrasound Therapy
- 7.2. Physiological Effects of Ultrasound Therapy
- 7.3. Ultrasound therapy parameters and methodology
- 7.4. Ultrasonoterapia (US) en hombro y codo
- 7.5. Hand and wrist ultrasound therapy (US)
- 7.6. Hip and knee ultrasound therapy (US)
- 7.7. Ultrasound therapy (US) on ankle and foot
- 7.8. Ultrasound therapy (US) in lumbar region
- 7.9. Ultrasonophoresis
- 7.10. High Frequency Ultrasound Therapy. OPAF. Practical applications and contraindications

## Module 8. Neuromuscular electrostimulation

- 8.1. Principles of muscle contraction
- 8.2. Main Neuromuscular Injuries
- 8.3. Electric Currents
- 8.4. Principles of electromyography
- 8.5. Main Excitomotor Currents. Neo-Faradic Currents

- 8.6. Main interferential currents. Kotz currents
- 8.7. Clinical applications of electrostimulation
- 8.8. Described benefits of electrostimulation training
- 8.9. Body map of the electrodes location for electrostimulation
- 8.10. Contraindications and precautions of electrostimulation

## Module 9. Shock Waves

- 9.1. Recommendations from scientific societies
- 9.2. Physical principles of shock waves
- 9.3. Biological effects of shock waves
- 9.4. Types of focal generators and applicators
- 9.5. Pressure wave generator and applicators
- 9.6. Indications and recommendations
- 9.7. Contraindications and side effects
- 9.8. Types of indications I: standard approved indications
- 9.9. Types of indications II: common empirically proven clinical indications and uses
- 9.10. Types of Indications III: Exceptional and Experimental Indications

## Module 10. CNS and PNS electrotherapy

- 10.1. Assessment of Nerve Injury. Principles of Innervation
- 10.2. Main Trends in Neurological Rehabilitation
- 10.3. Electrotherapy for Motor Rehabilitation in the Patient
- 10.4. Electrotherapy for Somatosensory Rehabilitation in the Neurologic Patient
- 10.5. Electromodulation
- 10.6. Non-Invasive Brain Stimulation: Introduction
- 10.7. Transcranial Magnetic Stimulation
- 10.8. Transcranial Direct Current
- 10.9. Practical Applications
- 10.10. Contraindications

07

# Clinical Internship

Once the theoretical part of this program has been passed, the graduate will have access to a practical stay of 120 hours in a reference clinical center, where they will not only find the most avant-garde technology in the field of Rehabilitation Medicine, but will also have the support of a team versed in this area. In addition, you will have at your disposal an internship tutor who will guide you to get the most out of this experience.







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*Do your clinical internship in  
one of the best hospitals on  
the international scene"*

The practical period of this Hybrid Professional Master's Degree in Electrotherapy in Rehabilitation Medicine will take place in a prestigious center within the sector, characterized not only by its trajectory, but also by the effectiveness of its treatments. In this way, the graduate will have access to 3 weeks of stay, distributed from Monday to Friday in 8-hour shifts and in which he/she will be supervised at all times by an assistant specialist. In this way, you will not only be able to mimic the work environment, but also get to know in detail the place where your profession develops in the current medical context.

In this completely practical Internship Program, the activities are aimed at developing and perfecting the skills necessary to provide healthcare care in areas and conditions that require highly qualified professionals, and are oriented towards specific expertise for practicing the activity, in a safe environment for the patient and with highly professional performance.

It is, therefore, a unique academic opportunity to catch up through practice in a prestigious clinic on the international scene, giving the student the possibility to broaden their skills alongside the best experts in Rehabilitation Medicine and raising their professional talent to the top.

The practical education will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other fellow trainees that facilitate teamwork and multidisciplinary integration as transversal competencies for from Electrotherapy from practice (learning to be and learning to relate).







The procedures described below will form the basis of the practical part of the training, and their completion is subject to both the suitability of the patients and the availability of the center and its workload, with the proposed activities being as follows:

Module	Practical Activity
<b>Electrotherapy-based treatments</b>	Control acute or chronic pain in patients through the application of transcutaneous electrical nerve stimulation
	Perform rehabilitation plans with Interferential Electrotherapy to achieve excellent muscle stimulation, increase blood flow or reduce edema in the tissues
	Practice muscle training therapy or electrical muscle stimulation to treat muscle atrophy, contractures and stimulate paralyzed muscles
<b>Other Electrotherapy treatments</b>	Use magnetotherapy as a rehabilitation method in injured patients, paying special attention to its contraindications
	Elaborate rehabilitation plans, using electrotherapy as an adjuvant treatment to dry needling
	Combine transcranial neuromodulation with other therapeutic interventions to optimize patient recovery
<b>High frequency electrotherapy and ultrasound therapy</b>	Use high-frequency electrotherapy devices, assessing contraindications based on the patient's characteristics and the extent of the lesion
	Intervene in tecartherapy processes, setting the parameters to be taken into account in each patient
	Apply ultrasonophoresis in patients who require it, also taking into account its contraindications
<b>Electrostimulation</b>	Diagnose the main neuromuscular injuries that may require electrostimulation
	Practicing electrostimulation in urogynecology



## Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for trainees will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



## General Conditions for Practical Training

The general terms and conditions of the internship program agreement shall be as follows:

**1. TUTOR:** During the Hybrid Professional Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

**2. DURATION:** The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

**3. ABSENCE:** If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

**4. CERTIFICATION:** Professionals who pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

**5. EMPLOYMENT RELATIONSHIP:** the Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

**6. PRIOR EDUCATION:** Some centers may require a certificate of prior education for the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

**7. DOS NOT INCLUDE:** The Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

# Where Can I Do the Clinical Internship?

This Hybrid Professional Master's Degree program includes in its itinerary a practical stay in a prestigious hospital center where the student will put into practice everything learned in Electrotherapy in Rehabilitation Medicine. In this sense, and in order to bring this program closer to more professionals, TECH offers students the opportunity to study it in different and prestigious centers. In this way, this institution strengthens its commitment to quality and accessible education for all.







“

*Complete your theoretical education with the best practical stay in the market. Only in this way will you achieve success in your daily practice"*



The student will be able to take the practical part of this Hybrid Professional Master's Degree in the following centers:



**Medicine**

### ASPAYM Principado de Asturias


Country	City
Spain	Asturias

Address: Av. Roma, 4, 33011 Oviedo, Asturias

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

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**Related internship programs:**  
 Neurological Physiotherapy  
 Neurodegenerative Diseases



**Medicine**

### Hospital HM Modelo


Country	City
Spain	La Coruña

Address: Rúa Virrey Osorio, 30, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

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**Related internship programs:**  
 - Anaesthesiology and Resuscitation  
 - Palliative Care



**Medicine**

### Hospital Maternidad HM Belén


Country	City
Spain	La Coruña

Address: R. Filantropía, 3, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

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**Related internship programs:**  
 - Update in Assisted Reproduction  
 - Hospitals and Health Services Management



**Medicine**

### Hospital HM San Francisco


Country	City
Spain	León

Address: C. Marqueses de San Isidro, 11, 24004, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

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**Related internship programs:**  
 Update in Anesthesiology and Resuscitation  
 Trauma Nursing



**Medicine**

### Hospital HM Regla


Country	City
Spain	León

Address: Calle Cardenal Landázuri, 2, 24003, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

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**Related internship programs:**  
 - Update on Psychiatric Treatment in Minor Patients



**Medicine**

### Hospital HM Nou Delfos


Country	City
Spain	Barcelona

Address: Avinguda de Vallcarca, 151, 08023 Barcelona

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

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**Related internship programs:**  
 - Aesthetic Medicine  
 - Clinical Nutrition in Medicine



**Medicine**

### Hospital HM Madrid

Country	City
Spain	Madrid

Address: Pl. del Conde del Valle de Súchil, 16, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

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**Related internship programs:**  
 - Palliative Care  
 - Anaesthesiology and Resuscitation



Medicine

### Hospital HM Torrelodones

Country: Spain  
City: Madrid

Address: Av. Castillo Olivares, s/n, 28250, Torrelodones, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

### Hospital HM Sanchinarro

Country: Spain  
City: Madrid

Address: Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

### Hospital HM Puerta del Sur

Country: Spain  
City: Madrid

Address: Av. Carlos V, 70, 28938, Móstoles, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Palliative Care
- Clinical Ophthalmology



Medicine

### Policlínico HM Las Tablas

Country: Spain  
City: Madrid

Address: C. de la Sierra de Atapuerca, 5, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Trauma Nursing
- Diagnosis in Physiotherapy



Medicine

### Policlínico HM Moraleja

Country: Spain  
City: Madrid

Address: P.º de Alcobendas, 10, 28109, Alcobendas, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Rehabilitation Medicine in Acquired Brain Injury Management



Medicine

### Policlínico HM Virgen del Val

Country: Spain  
City: Madrid

Address: Calle de Zaragoza, 6, 28804, Alcalá de Henares, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Diagnosis in Physiotherapy
- Physiotherapy in Early Care



Medicine

### Policlínico HM Imi Toledo

Country: Spain  
City: Toledo

Address: Av. de Irlanda, 21, 45005, Toledo

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Electrotherapy in Rehabilitation Medicine
- Hair Transplantation



09

# Methodology

This 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.



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*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”*

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.



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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

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 evaluate 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.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

*Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*





At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*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.*

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.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.





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.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### 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"



#### 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.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### 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.



#### Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in 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.



# 10 Certificate

The Hybrid Professional Master's Degree in Electrotherapy in Rehabilitation Medicine guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree issued by TECH Technological University.





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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

This **Hybrid Professional Master's Degree in Electrotherapy in Rehabilitation Medicine** contains the most complete and up-to-date program in the professional and academic landscape.

After the student has passed the assessments, they will receive their corresponding Hybrid Professional Master's Degree Certificate issued by TECH Technological University via tracked delivery\*.

In addition to the diploma, students will be able to obtain an academic transcript, as well as a certificate outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

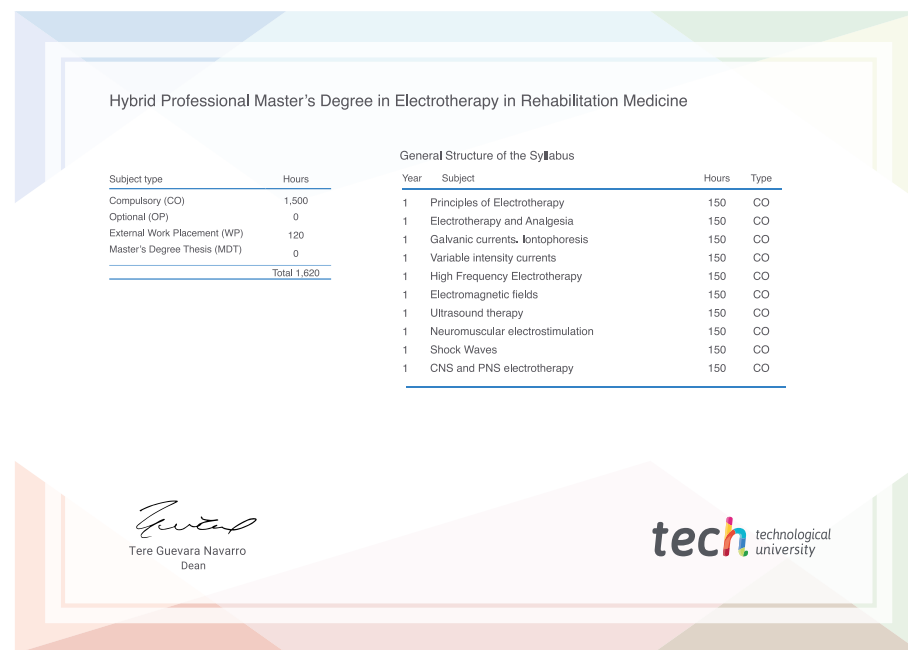
Program: **Hybrid Professional Master's Degree in Electrotherapy in Rehabilitation Medicine**

Course Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months.**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost



**Hybrid Professional Master's Degree**  
Electrotherapy in  
Rehabilitation Medicine

Course Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months.

Certificate: TECH Technological University

Teaching Hours: 1,620 hours.



# Hybrid Professional Master's Degree

## Electrotherapy in Rehabilitation Medicine

