

# Postgraduate Certificate Electrostimulation for Muscle Strengthening

Endorsed by the NBA





## Postgraduate Certificate Electrostimulation for Muscle Strengthening

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

Website: [www.techtute.com/us/physiotherapy/postgraduate-certificate/electrostimulation-muscle-strengthening](http://www.techtute.com/us/physiotherapy/postgraduate-certificate/electrostimulation-muscle-strengthening)

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# 01

# Introduction

Electrostimulation is a technique widely used in areas such as fitness and aesthetics, which strengthens muscles, increases resistance, improves capillarization and serves to treat various pathologies. Therefore, there is a frequent demand for experts in this field, who have a mastery and advanced knowledge in this regard. This is the reason why TECH has created a program that seeks to update and enhance the skills of students in this field, through the in-depth study of topics such as the principles of muscle contraction, Electromyography or Low and Medium Frequency Electrostimulation, among other relevant aspects. All this, in a 100% online modality that gives total freedom of organization to the student to manage their time and studies. In addition, with a complete, dynamic and up-to-date content based on the latest developments in the field.





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*Become an expert in  
Electrostimulation for Muscle  
Strengthening in just 6 weeks”*



Electrostimulation is a technique widely used nowadays, as it is applied in many different fields. But its application is especially frequent in two areas, which are sports and aesthetics, which are so popular these days. In order to excel in this area, it has to be mastered in a practical way, as well as to have specific skills and knowledge, since in many occasions this method is used in order to treat multiple pathologies.

This is the reason why TECH has developed a Postgraduate Certificate in Electrostimulation for Muscle Strengthening, in order to enhance the skills of students in this area, dealing in depth with topics such as types of muscle contraction, types of muscles, the structure of the sarcomere, the Etiology of Neuromuscular Diseases or contraindications and recommendations for the use of electrostimulation, among many other aspects.

All this, in a convenient 100% online modality for the student, which seeks to give total freedom of organization of studies and schedules, in addition to allowing access to all content, from the first day and from anywhere, with any device with an Internet connection. In addition, with up-to-date, complete and dynamic contents that represent a unique opportunity in the educational market.

This **Postgraduate Certificate in Electrostimulation for Muscle Strengthening** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of practical case studies presented by experts in Electrostimulation for Muscle Strengthening
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies
- 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



*Stand out in a sector with great projection in the sports and aesthetic field, reaching your most demanding professional goals"*



*Acquire new knowledge in Etiology of Neuromuscular Diseases or Electromyography"*

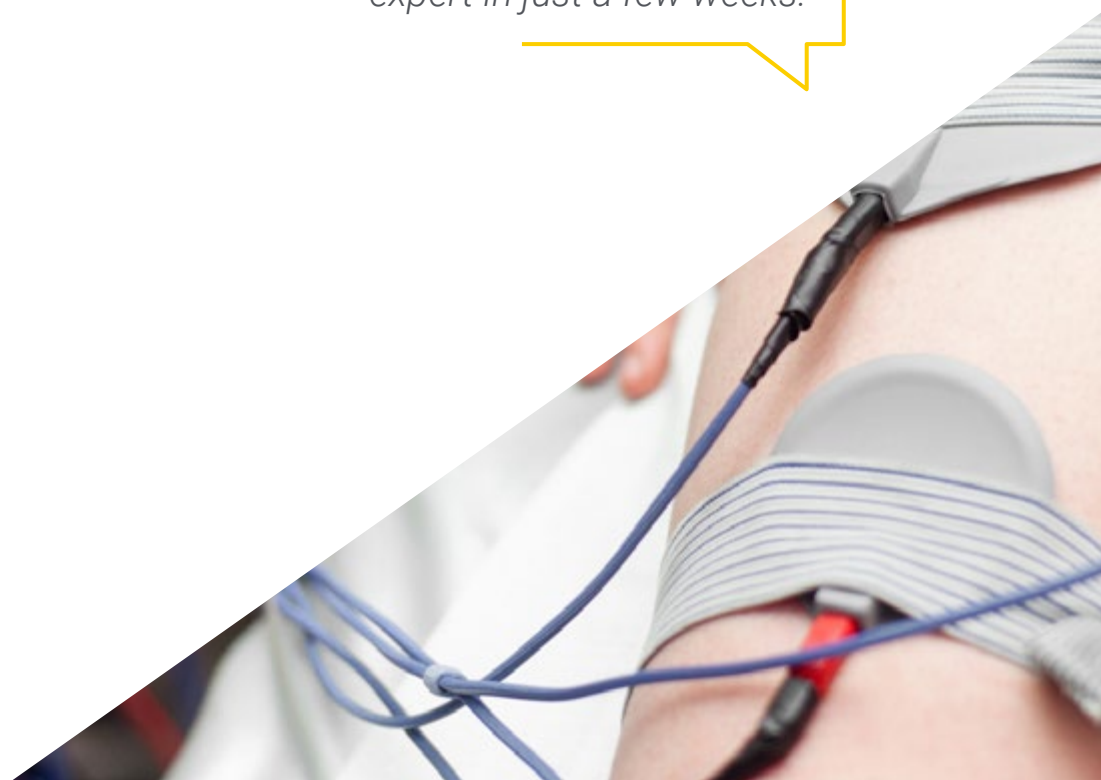
The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Delve into topics such as Low and Medium Frequency Electrostimulation and test your knowledge with a variety of practical activities.*

*Learn all about the recommendations and contraindications in the use of electrostimulation and become an expert in just a few weeks.*



# 02 Objectives

The objective of this program is to enhance the skills and competencies of students in the field of electrostimulation for muscle strengthening, facilitating their professional growth, and that they carry out an optimal work in their field of work. For this reason, the most up-to-date, dynamic and complete contents of the educational market are offered, in order to promote the improvement of these skills.







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*Prepare yourself to be able to face the current labor market situation with total guarantee of success"*



## General Objectives

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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
- Encourage the acquisition of technical skills and abilities, through a powerful audiovisual system, and the possibility of development through online workshops simulation and/or specific training
- Encourage professional stimulation through continuing education and research





## Specific Objectives

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- Broaden your knowledge of new applications of invasive electrotherapy for tissue regeneration
- Determine new high frequency applications in the rehabilitation of neuromusculoskeletal pathologies

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*You will achieve your goals in a short time and with the maximum efficiency, thanks to the most up-to-date contents in Electrostimulation, thanks to TECH”*

# 03

# Course Management

This program includes a team of renowned professionals who will facilitate the learning process at all times, contributing their professional experience, providing constant support and thanks to a content of the highest quality, which will enhance the skills and professional profile of each and every one of the students. In this way, students are guaranteed to obtain the skills they are looking for, with a program designed by leading experts in the field.







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*Learn everything you need to gain new and better skills, thanks to a program designed by leading working professionals”*

## Management



### Dr. León Hernández, Jose Vicente

- ♦ Physiotherapist expert in the Study and Treatment of Pain and Manual Therapy
- ♦ Doctorate in Physiotherapy from the Rey Juan Carlos University
- ♦ Master's Degree in the Study and Treatment of Pain 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
- ♦ Member and training coordinator at the Institute of Neuroscience and Movement Sciences

## Professors

### Mr. Suso Martí, Luis

- ♦ Physiotherapist
- ♦ Researcher at the Institute for Neurosciences and Movement Sciences
- ♦ Contributor to the popular science magazine NeuroRhab News
- ♦ Degree in Physiotherapy. University of Valencia
- ♦ Doctorate, Autonomous University of Madrid
- ♦ Degree in Psychology. Open University of Catalonia
- ♦ Master's Degree in "Advanced Physiotherapy in the Treatment of Cardiovascular Pain"

### Ms. Merayo Fernández, Lucía

- ♦ Physiotherapist Expert in Pain Management
- ♦ Physiotherapist in the Navarra Health Service
- ♦ Physiotherapist. Doctor San Martin Ambulatory
- ♦ Degree in Physiotherapy
- ♦ Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management



**Dr. Cuenca - Martínez, Ferrán**

- ♦ Physiotherapist Expert in Pain Management
- ♦ Physiotherapist at FisioCranioClinic
- ♦ Physiotherapist at the Institute of Functional Rehabilitation La Salle
- ♦ Researcher at the Center for Higher University Studies (CSEU La Salle)
- ♦ Researcher at EXINH Research Group
- ♦ Researcher in the Motion in Brans Research Group of the Institute of Neuroscience and Movement Sciences (INCIMOV)
- ♦ Chief editor of The Journal of Move and Therapeutic Science
- ♦ Editor and publisher of NeuroRehab News magazine
- ♦ Author of several scientific articles in national and international journals
- ♦ PhD in Medicine and Surgery from the Autonomous University of Madrid.
- ♦ Graduate in Physiotherapy from the University of Valencia
- ♦ Master's Degree in Advanced Physiotherapy in Pain Treatment by the UAM

**Mr. Losana Ferrer, Alejandro**

- ♦ Clinical Physiotherapist and Trainer in New Technologies for Rehabilitation at Rebiotex
- ♦ Physiotherapist at CEMTRO Clinic
- ♦ Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management
- ♦ Expert in Neuroorthopedic Manual Therapy
- ♦ University Advanced Training in Therapeutic Exercise and Invasive Physiotherapy for Musculoskeletal Pain
- ♦ Graduate in Physiotherapy in La Salle

**Dr. Gurdíel Álvarez, Francisco**

- ♦ Physiotherapist at Powerexplosive
- ♦ Physiotherapist at Fisad Clinic
- ♦ Physiotherapist for Ponferradina Sports Society
- ♦ D. in Health Sciences from the Rey Juan Carlos University
- ♦ Degree in Physiotherapy by the University of Leon
- ♦ Degree in Psychology from UNED
- ♦ Master's Degree in Advanced Physiotherapy in the Treatment of Musculoskeletal Pain by the Autonomous University of Madrid
- ♦ Expert in Orthopedic Manual Therapy and Myofascial Pain Syndrome by the European University



*Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"*

# 04

# Structure and Content

The structure and content of this syllabus have been created by TECH's team of experts in Electrostimulation for Muscle Strengthening and under the effective pedagogical methodology of Relearning, which guarantees an optimal assimilation of the contents, in an enjoyable and dynamic way, without the need to spend too much time on the syllabus. All this, through teaching materials of the highest quality and with the most advanced teaching technologies.



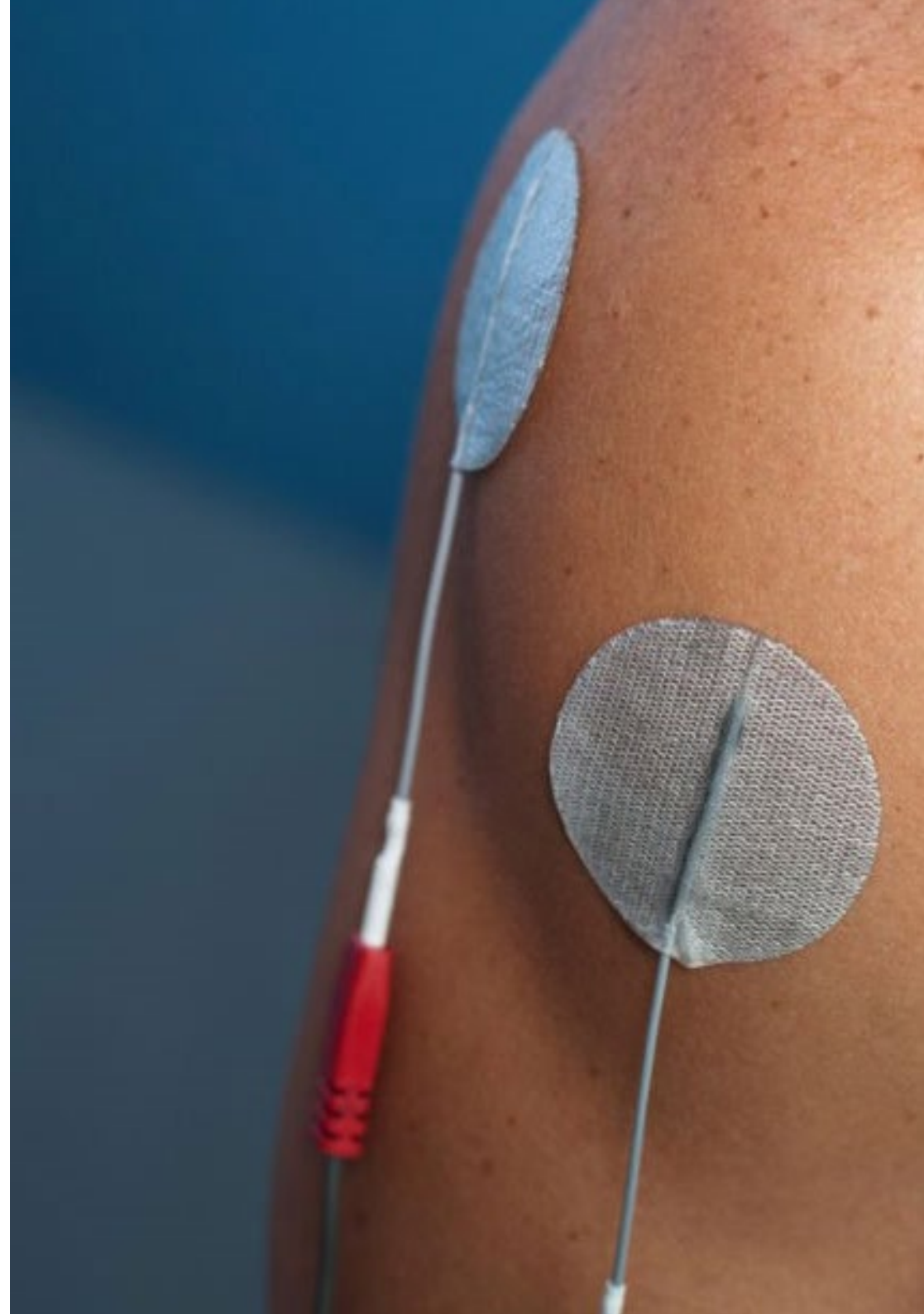


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*A syllabus designed by experts in electrostimulation, with an outstanding professional trajectory, who will support you with any doubts or queries throughout the process”*

## Module 1. Electrostimulation for Muscle Strengthening

- 1.1. Principles of Muscle Contraction
  - 1.1.1. Introduction to Muscle Contraction
  - 1.1.2. Types of Muscles
  - 1.1.3. Muscle Characteristics
  - 1.1.4. Muscle Functions
  - 1.1.5. Neuromuscular Electro Stimulation
- 1.2. Sarcomere Structure
  - 1.2.1. Introduction
  - 1.2.2. Sarcomere Functions
  - 1.2.3. Sarcomere Structure
  - 1.2.4. Sliding Filament Theory
- 1.3. Motor Plate Structure
  - 1.3.1. Motor Unit Concept
  - 1.3.2. Concept of Neuromuscular Junction and Motor Plate
  - 1.3.3. Structure of the Neuromuscular Junction
  - 1.3.4. Neuromuscular Transmission and Muscle Contraction
- 1.4. Type of Muscle Contraction
  - 1.4.1. Concept of Muscle Contraction
  - 1.4.2. Types of Contraction
  - 1.4.3. Isotonic Muscle Contraction
  - 1.4.4. Isometric Muscle Contraction
  - 1.4.5. Relationship between Strength and Endurance in Contractions
  - 1.4.6. Auxotonic and Isokinetic Contractions
- 1.5. Types of Muscle Fibers
  - 1.5.1. Types of Muscle Fibers
  - 1.5.2. Slow-Twitch Fibers or Type I Fibers
  - 1.5.3. Fast-Twitch Fibers or Type II Fibers
- 1.6. Main Neuromuscular Injuries
  - 1.6.1. Neuromuscular Disease Concept
  - 1.6.2. Etiology of Neuromuscular Diseases
  - 1.6.3. Neuromuscular Junction Injury and NMD
  - 1.6.4. Major Neuromuscular Injuries or Diseases







- 1.7. Principles of Electromyography
  - 1.7.1. Electromyography Concept
  - 1.7.2. Development of Electromyography
  - 1.7.3. Electromyographic Study Protocol
  - 1.7.4. Electromyography Methods
- 1.8. Main Excitomotor Currents. Neo-Faradic Currents
  - 1.8.1. Definition of Excitomotor Current and Main Types of Excitomotor Currents
  - 1.8.2. Factors Influencing the Neuromuscular Response
  - 1.8.3. Excitomotor Currents Most Commonly Used Neo-Faradic Currents
- 1.9. Excitomotor Interferential Currents. Kotz Currents
  - 1.9.1. Kotz Currents or Russian Currents
  - 1.9.2. Most Relevant Parameters in Kotz Currents
  - 1.9.3. Strengthening Protocol Described with Russian Current
  - 1.9.4. Differences between Low Frequency and Medium Frequency Electrostimulation
- 1.10. Electrostimulation Applications in Uro-Gynecologic
  - 1.10.1. Electrostimulation and Urogynecology
  - 1.10.2. Types of Electrostimulation in Urogynecology
  - 1.10.3. Placement of Electrodes
  - 1.10.4. Mechanism of Action
- 1.11. Practical Applications
  - 1.11.1. Recommendations for the Application of Excitomotor currents
  - 1.11.2. Techniques of Application of Excitomorphic Currents
  - 1.11.3. Examples of Work Protocols Described in Scientific Literature
- 1.12. Contraindications
  - 1.12.1. Contraindications for the Use of Electrostimulation for Muscle Strengthening
  - 1.12.2. Recommendations for Safe Electrostimulation Practice

# 05

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.







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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. Physiotherapists/kinesiologists 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. Gervas, 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 of professional physiotherapy 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. Physiotherapists/kinesiologists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the physiotherapist/kinesiologist 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.



*The physiotherapist/kinesiologist will learn through real cases and by solving 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 we trained more than 65,000 physiotherapists/kinesiologists with unprecedented success in all clinical specialties, regardless of the workload. 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 training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for 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 our 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 really 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.



#### Physiotherapy Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current Physiotherapy techniques and procedures. 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 them as many times as you want.



#### 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 unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".

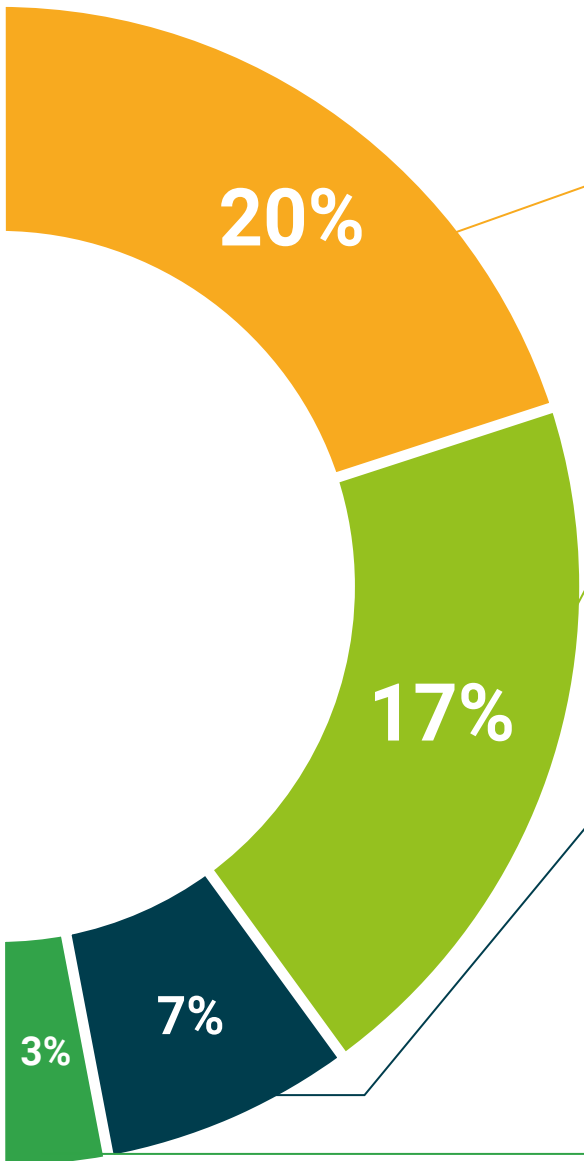


#### Additional Reading

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.



# 06 Certificate

The Postgraduate Certificate in Electrostimulation for Muscle Strengthening guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.





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

This program will allow you to obtain your **Postgraduate Certificate in Electrostimulation for Muscle Strengthening** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Electrostimulation for Muscle Strengthening**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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



## Postgraduate Certificate

### Electrostimulation for Muscle Strengthening

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- » Certificate: TECH Global University
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