

# Postgraduate Certificate Invasive Application of Current in Physiotherapy

Endorsed by the NBA





## Postgraduate Certificate Invasive Application of Current in Physiotherapy

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/physiotherapy/postgraduate-certificate/invasive-application-current-physiotherapy](http://www.techtitute.com/us/physiotherapy/postgraduate-certificate/invasive-application-current-physiotherapy)

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# 01

# Introduction

Invasive treatment is widely used in the field of physiotherapy for analgesic purposes. Moreover, nowadays its use is very popular, so many specialized centers demand professionals who know how to master these techniques. This is the reason why TECH has designed a program that seeks to expand the knowledge and improve the skills of students in this area, through the deepening of issues such as Types of Invasive Treatment, dry needling, Postpuncture treatments or the different Contraindications. All this, in a 100% online modality that gives total freedom of organization to the student and the most updated and complete contents of the academic market.





“Grow personally and professionally with a unique program and with the possibility of combining it with your daily activities”

Nowadays it is increasingly common for anyone to seek treatment from a physiotherapist, and one of the most common and popular techniques is the invasive application of current for analgesic purposes. For this reason, many centers request professionals who have mastered these methods and who have the knowledge and skills necessary to treat the pathologies that require it.

This is the reason why TECH has created a program in Invasive Application of Current in Physiotherapy, to enhance the professional profiles and skills of those students who want to face a future in this area, with guaranteed success. Therefore, the program covers topics such as Types of Invasive Treatment, Postpuncture, Percutaneous Electrical Stimulation, Practical Applications and Contraindications, among other important points.

In addition, the study plan follows a 100% online modality that seeks to give students total freedom to carry out their studies, without time limits, without affecting their daily work and with the possibility of accessing all the content from any device with an Internet connection. All this, thanks to the most innovative contents of the academic market and the latest technologies in teaching.

This **Postgraduate Certificate in Invasive Application of Current in Physiotherapy** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of case studies presented by experts in Invasive Current Application in Physiotherapy
- ♦ 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



*Enhance your professional profile and ensure a successful future in the field of Invasive Current Application in Physiotherapy"*

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*Update your knowledge in dry needling or the use of electrodes and get a better job in one of the areas with more potential”*

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 academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Become an expert in lumbar pain, upper quadrant and lower limb applications in only 6 weeks.*

*Learn about the latest advances in invasive current application and improve your ability to react to any inconvenience that may arise.*



# 02 Objectives

The objective of this program is to enhance skills and provide the most complete and innovative knowledge to those students who want to face a successful professional future in this area. All this, thanks to the most updated and complete theoretical and practical contents of the academic market and the possibility of accessing them at any time and with total freedom of organization.





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*Enroll now and achieve your most demanding  
Goals in the Physiotherapy field, thanks to TECH”*



## 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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- Describe the dry needling technique
- Understand the importance of post-puncture effects

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*Take advantage of the opportunity and enjoy the most dynamic contents and the most innovative tools, with which you will be able to face any challenge that comes your way”*

# 03

# Course Management

TECH has a team of renowned professionals who are specialized in Invasive Current Application in Physical Therapy and who have poured all their professional experience into this curriculum. In this way, they have created a content that adapts to the needs of the students and the sector in which they are looking to grow professionally.





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*Achieve your greatest goals with the help of professionals with an outstanding career, who will give you all their support and enrich you with their experience”*

## 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

### Ms. Merayo Fernández, Lucía

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

### Mr. Suso Martí, Luis

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

**Mr. Losana Ferrer, Alejandro**

- ◆ Clinical Physiotherapist and Trainer in New Technologies for Rehabilitation at Rebiotex
- ◆ Physiotherapist at CEMTRO Clinic
- ◆ Professional 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. Cuenca Martínez, Ferrán**

- ◆ Physiotherapist Expert in Pain Management
- ◆ Physiotherapist at FisisCranioClinic
- ◆ 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

**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 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



*A unique, key, and decisive educational experience to boost your professional development"*

# 04

## Structure and Content

The structure and content of this program have been designed meticulously by the outstanding professionals that make up the excellent team of TECH in the field of Physiotherapy. They have created the content based on the latest developments in the area, using the latest teaching technologies and under the pedagogical methodology of *Relearning*, which guarantees the best possible assimilation of the contents, in a natural, precise and agile way.







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*A content designed by and for you, with the experience and dedication of the best team of experts in the field of Invasive Current Application in Physiotherapy"*

## Module 1. Invasive Treatment in Electrotherapy

- 1.1. Invasive Treatment in Physical Therapy for Analgesic Purposes
  - 1.1.1. General Aspects
  - 1.1.2. Types of Invasive Treatment
  - 1.1.3. Infiltration Vs. Punctures
- 1.2. Fundamentals of Dry Needling
  - 1.2.1. Myofascial Pain Syndrome
  - 1.2.2. Myofascial Trigger Points
  - 1.2.3. Neurophysiology of Myofascial Pain Syndrome and Trigger Points
- 1.3. Post-puncture Treatments
  - 1.3.1. Adverse Effects of Dry Needling
  - 1.3.2. Post-puncture Treatments
  - 1.3.3. Combination of Dry Needling and TENS
- 1.4. Electrotherapy as an Adjunct to Dry Needling
  - 1.4.1. Non-Invasive Approach
  - 1.4.2. Invasive Approach
  - 1.4.3. Types of Electropuncture
- 1.5. Percutaneous Electrical Nerve Stimulation: PENS
  - 1.5.1. Neurophysiological Fundamentals of PENS Application
  - 1.5.2. Scientific Evidence for the Application of PENS
  - 1.5.3. General Considerations for PENS Implementation
- 1.6. Advantages of PENS Over TENS
  - 1.6.1. Current Status of PENS Implementation
  - 1.6.2. Application of PENS in Lower Back Pain
  - 1.6.3. Application of PENS in Other Regions and Pathologies
- 1.7. Use of Electrodes
  - 1.7.1. General Information on the Application of Electrodes
  - 1.7.2. Variations in the Application from of Electrodes
  - 1.7.3. Multipole Application
- 1.8. Practical Applications
  - 1.8.1. Justification for the Implementation of the PENS
  - 1.8.2. Applications in Lower Back Pain
  - 1.8.3. Upper Quadrant and Lower Limb Applications
- 1.9. Contraindications
  - 1.9.1. Contraindications Derived from TENS
  - 1.9.2. Contraindications Derived from Dry Needling
  - 1.9.3. General Considerations
- 1.10. Invasive Treatments for Regenerative Purposes
  - 1.10.1. Introduction
    - 1.10.1.1. Electrolysis Concept
  - 1.10.2. Intratissue Percutaneous Electrolysis
    - 1.10.2.1. Concept
    - 1.10.2.2. Effects
    - 1.10.2.3. Review of the *State-of-the-Art*
    - 1.10.2.4. Combination with Eccentric Exercises
- 1.11. Physical Principles of Galvanism
  - 1.11.1. Introduction
    - 1.11.1.1. Physical Characteristics of Direct Current
  - 1.11.2. Galvanic Current
    - 1.11.2.1. Physical Characteristics of Galvanic Current
    - 1.11.2.2. Chemical Phenomena of Galvanic Current
    - 1.11.2.3. Structure
  - 1.11.3. Iontophoresis
    - 1.11.3.1. Leduc's Experiment
    - 1.11.3.2. Physical Properties of Iontophoresis
- 1.12. Physiological Effects of Galvanic Current
  - 1.12.1. Physiological Effects of Galvanic Current
  - 1.12.2. Electrochemical Effects
    - 1.12.2.1. Chemical Behavior
  - 1.12.3. Electrothermal Effects
  - 1.12.4. Electrophysical Effects
- 1.13. Therapeutic Effects of Galvanic Current
  - 1.13.1. Clinical Application of Galvanic Current
    - 1.13.1.1. Vasomotor Action
    - 1.13.1.2. Effect on the Nervous System



- 1.13.2. Therapeutic Effects of Iontophoresis
  - 1.13.2.1. Penetration and Elimination of Cations and Anions
  - 1.13.2.2. Drugs and Indications
- 1.13.3. Therapeutic Effects of Intratissue Percutaneous Electrolysis
- 1.14. Types of Percutaneous Application of Galvanic Currents
  - 1.14.1. Introduction to Application Techniques
    - 1.14.1.1. Classification According to Electrode Placement
      - 1.14.1.1.1. Direct Galvanizing
    - 1.14.2. Indirect Galvanizing
    - 1.14.3. Classification According to the Technique Applied
      - 1.14.3.1. Intratissue Percutaneous Electrolysis
      - 1.14.3.2. Iontophoresis
      - 1.14.3.3. Galvanic Bath
- 1.15. Application Protocols
  - 1.15.1. Galvanic Current Application Protocols
  - 1.15.2. Intratissue Percutaneous Electrolysis Application Protocols
    - 1.15.2.1. Procedure
  - 1.15.3. Iontophoresis Application Protocols
    - 1.15.3.1. Procedure
- 1.16. Contraindications
  - 1.16.1. Contraindications of Galvanic Current
  - 1.16.2. Contraindications, Complications and Precautions of Galvanic Current



*Enjoy all the content, from day one, at any time and without leaving home, with any device with an Internet connection"*

# 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.





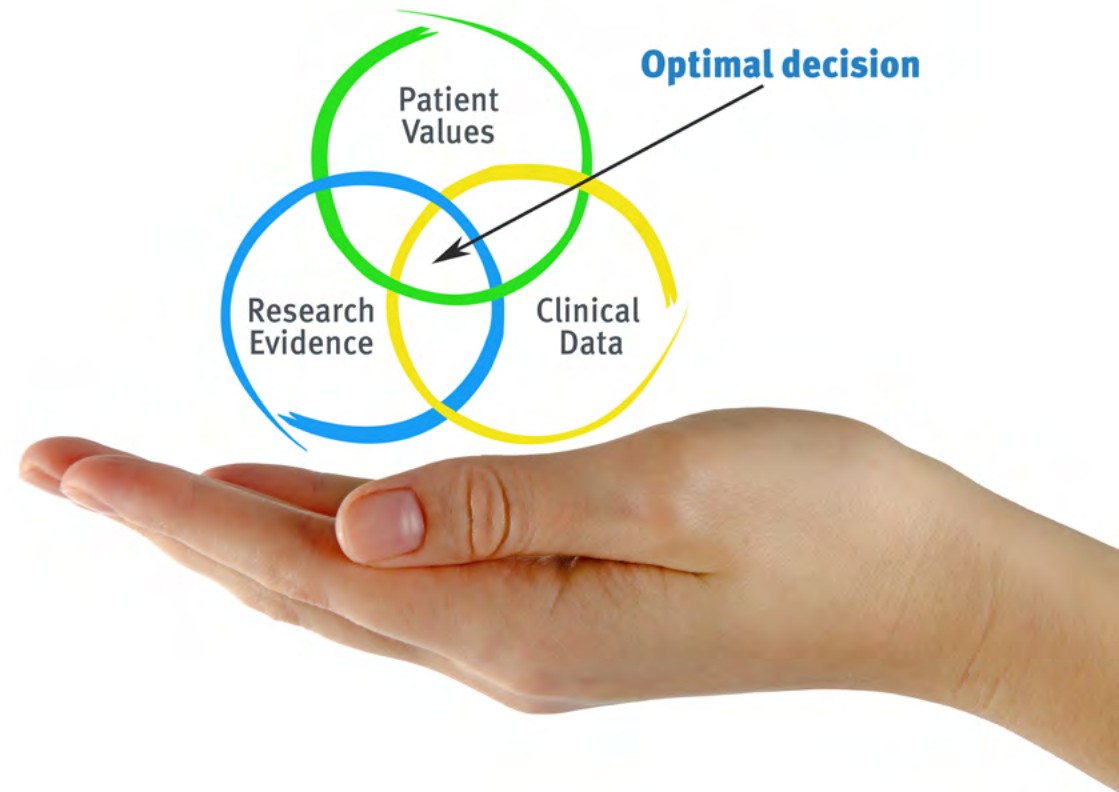
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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.

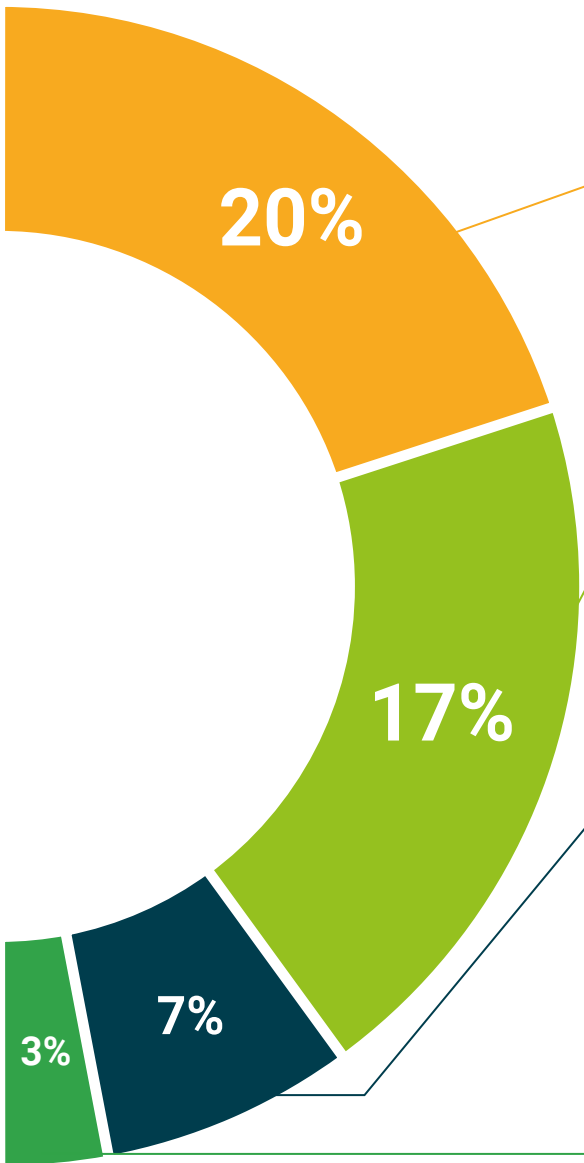
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### 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 Invasive Application of Current in Physiotherapy guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 **Postgraduate Certificate in Invasive Application of Current in Physiotherapy** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Invasive Application of Current in Physiotherapy**

Official Number of Hours: **150**

**Endorsed by the NBA**



\*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.



## Postgraduate Certificate

Invasive Application of  
Current in Physiotherapy

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Postgraduate Certificate Invasive Application of Current in Physiotherapy

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