Postgraduate Certificate

Ultrasound and Laser Therapy In Physical Activity and Sport

Endorsed by the NBA

tech technological university

tech technological university

Postgraduate Certificate

Ultrasound and Laser Therapy In Physical Activity and Sport

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

Website: **www.techtitute.com/pk/sports-science/postgraduate-certificate/ultrasound-laser-therapy-physical-activity-sport**

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01

Introduction

The latest techniques and tools are required for the treatment of injured athletes who need to recover quickly in order to be able to return to their usual practice safely and in optimal physical condition. For this reason, at TECH we want to specialize professionals in this field in the use of ultrasound and laser therapy, with the aim of expanding their training and improving the health of their users.

Train with us and improve your skills in the use of ultrasound and laser therapy, achieving remarkable benefits in injured athletes"

Athletes who suffer any type of injury should put themselves in the hands of professionals who have the necessary knowledge to perform interventions on their body with which to achieve significant improvements in recovery, allowing the quick and safe reincorporation of the athlete to their usual practice. In this context, the use of electrotherapy, based on the application of electromagnetic fields for the treatment of different pathologies, is becoming more and more frequent. Its application ranges from analgesic effects to the nerve fiber stimulation, including the modulation of the activity of different encephalic areas.

Within electrotherapy there are different tools that can be used in cases of injury or muscle pain. In this case, we present a complete program on ultrasound and laser therapy in physical activity and sport, which aims to specialize these professionals. A fundamental training to achieve an effective application of these techniques, improving both personally and professionally, so that our students can achieve success in the workplace in a short time. In this way, we offer you this program with an absolutely innovative methodology accompanied by a multitude of practical cases, which favors the understanding of the intensive theoretical part that we provide.

One of the main advantages of this program is that, since it is 100% online, it is the student who decides where and when to study. Without having to face any kind of limitation, either in terms of time or travel to a physical location. All this, with the intention of facilitating to the maximum the possibility of study for professionals who must combine their training with the rest of their daily obligations.

This **Postgraduate Certificate in Ultrasound and Laser Therapy In Physical Activity and Sport** 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 electrotherapy
- The graphic, schematic, and practical contents of which they are composed provide scientific and practical information on the disciplines that are essential for professional practice
- News on the role of the sports science professional in the application of ultrasonoterapia and laser
- Practical exercises where 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
- Its special emphasis on research methodologies on electrotherapy applied to sports sciences
- 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

Immerse yourself in the study of this high-level course and improve your skills as a sports professional"

This program is the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in ultrasound and laser therapy, you will obtain a degree from TECH"

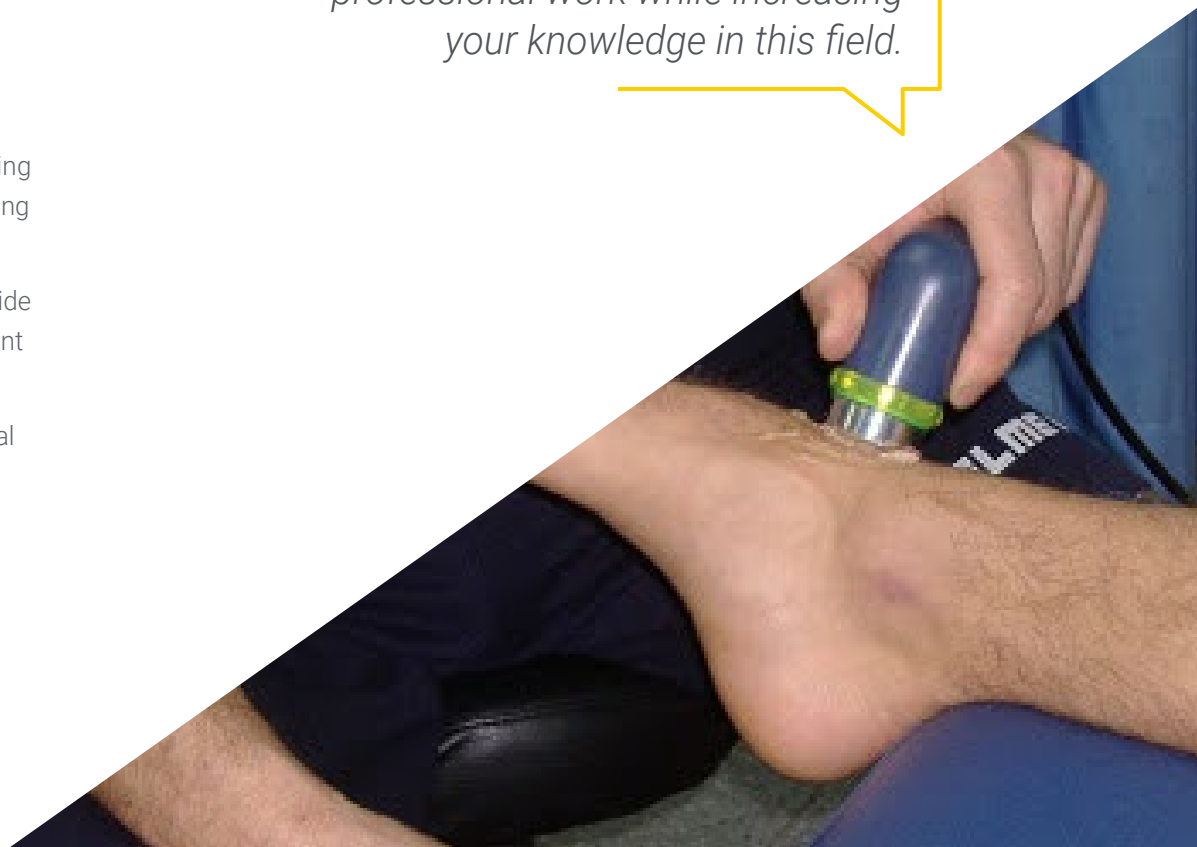
This program offers training in simulated environments, which provides an immersive learning experience designed to train for real-life situations.

This 100% online course will allow you to combine your studies with your professional work while increasing your knowledge in this field.

The teaching staff includes professionals from the field of sports science, who bring their experience to this training 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 throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in ultrasound and laser therapy.



02

Objectives

The Postgraduate Certificate in Ultrasound and Laser Therapy in Physical Activity and Sport is oriented to help sports science professionals in their daily practice in situations in which the application of electrotherapy is necessary.

This program is designed for you to update your knowledge in electrotherapy, with the use of the latest educational technology, to contribute with quality and safety to decision making in this new field"

General Objectives

- Update the knowledge of sports science professionals 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 audio-visual system, and the possibility of development through online simulation workshops and/or specific training
- Encourage professional stimulus through continuing education and research

Specific Objectives

- Update knowledge about electrotherapy in the field of rehabilitation of patients with neurological pathology
- Update the concepts about the physiology of electrotherapy in the neuromusculoskeletal patient

The sports field requires prepared professionals and we give you the keys to position yourself among the professional elite"

03

Course Management

Our team of teachers, experts in electrotherapy, has a wide prestige in the profession and are professionals with years of teaching experience who have come together to help you give a boost to your profession. To this end, they have developed this program with the latest developments in the field that will allow you to specialize and increase your skills in this sector.

Learn from the best professionals and become a successful professional yourself”

Management

Dr. León Hernández, Jose Vicente

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

Professors

Mr. Suso Martí, Luis

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

Mr. Cuenca Martínez, Ferrán

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

Mr. Gurdiel Álvarez, Francisco

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

Ms. Merayo Fernández, Lucía

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

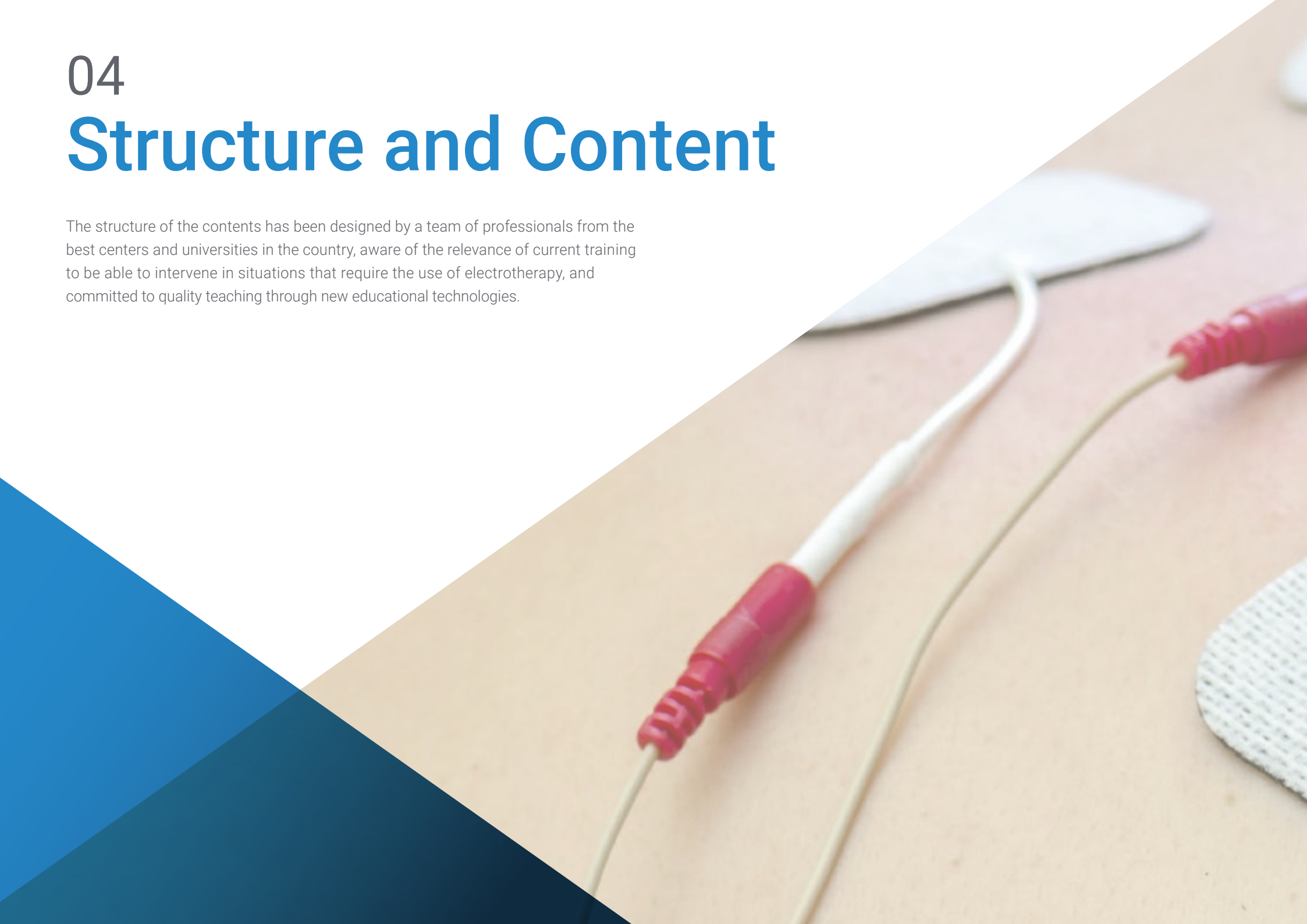
Mr. Losana Ferrer, Alejandro

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

04

Structure and Content

The structure of the contents has been designed by a team of professionals from the best centers and universities in the country, aware of the relevance of current training to be able to intervene in situations that require the use of electrotherapy, and committed to quality teaching through new educational technologies.



We have the most complete and up-to-date scientific program on the market. We want to put at your disposal the best training"

Module 1. Ultrasound Therapy in Physiotherapy

1.1. Physical Principles of Ultrasound Therapy
- 1.1.1. Definition of Ultrasound Therapy
- 1.1.2. Main Physical Principles of Ultrasound Therapy

1.2 Physiological Effects of Ultrasound Therapy
- 1.2.1. Mechanisms of Action of Therapeutic Ultrasound
- 1.2.2. Therapeutic Effects of Ultrasound Therapy

1.3 Main Parameters of Ultrasound Therapy
- 1.3.1. Introduction
- 1.3.2. Main Parameters

1.4. Practical Applications
- 1.4.1. Ultrasound Treatment Methodology.
- 1.4.2. Practical Applications and Indications of Ultrasound Therapy
- 1.4.3. Ultrasound Therapy Research Studies

1.5. Ultrasonophoresis
- 1.5.1. Definition of Ultrasonophoresis
- 1.5.2. Mechanisms of Ultrasonophoresis
- 1.5.3. Factors on Which the Effectiveness of Ultrasonophoresis Depends
- 1.5.4. Ultrasonophoresis Considerations to Take into Account
- 1.5.5. Research Studies on Ultrasonophoresis

1.6. Contraindications to Ultrasound Therapy
- 1.6.1. Absolute Contra-indications
- 1.6.2. Relative Contra-indications
- 1.6.3. Precautions
- 1.6.4. Recommendations
- 1.6.5. Contraindications to Ultrasonophoresis

1.7. High Frequency Ultrasound Therapy. High Frequency Pressure Waves (HFPW)
- 1.7.1. Definition of HFPW Therapy
- 1.7.2. Parameters of HFPW Therapy and HIFU Therapy

1.8. Practical Applications of High Frequency Ultrasound Therapy
- 1.8.1. Indications for HFPW and HIFU Therapy
- 1.8.2. HFPW and HIFU Therapy Research Studies

1.9. Contraindications to High Frequency Ultrasound Therapy
- 1.9.1. Introduction
- 1.9.2. Main Contraindications

Module 2. Infrared Laser

2.1. Laser. Physical Principles
- 2.1.1. Laser. Definition
- 2.1.2. Laser Parameters
- 2.1.3. Laser. Classification
- 2.1.4. Laser. Physical Principles

2.2. Laser. Physiological Effects
- 2.2.1. Interrelationship between Laser and Living Tissues
- 2.2.2. Biological Effects of Low and Medium Power Lasers
- 2.2.3. Direct Effects of Laser Application
  - 2.2.3.1. Photothermal Effect
  - 2.2.3.2. Photochemical Effect
  - 2.2.3.3. Photoelectric Stimulus
- 2.2.4. Indirect Effects of Laser Application
  - 2.2.4.1. Microcirculation Stimulation
  - 2.2.4.2. Trophism Stimulus and Repair

2.3. Laser. Therapeutic Effects
- 2.3.1. Analgesia
- 2.3.2. Inflammation and Edema
- 2.3.3. Reparation
- 2.3.4. Dosimetry
  - 2.3.4.1. Recommended Treatment Dose in Low Level Laser Application according to WALT

2.4. Laser. Clinical Applications
- 2.4.1. Laser Therapy in Osteoarthritis
- 2.4.2. Laser Therapy in Chronic Low Back Pain
- 2.4.3. Laser Therapy in Epicondylitis
- 2.4.4. Laser Therapy in Rotator Cuff Tendinopathy
- 2.4.5. Laser Therapy in Cervicalgias
- 2.4.6. Laser Therapy in Musculoskeletal Disorders
- 2.4.7. Other Practical Laser Applications
- 2.4.8. Conclusions

2.5. Laser. Contraindications
- 2.5.1. Precautions
- 2.5.2. Contraindications
  - 2.5.2.1. Conclusions

2.6. Infrared Radiation. Physical Principles
- 2.6.1. Introduction
  - 2.6.1.1. Definition
  - 2.6.1.2. Classification
- 2.6.2. Infrared Radiation Generation
  - 2.6.2.1. Luminous Emitters
  - 2.6.2.2. Non-Luminous Emitters
- 2.6.3. Physical Properties

2.7. Infrared Physiological Effects
- 2.7.1. Physiological Effects Produced on the Skin
- 2.7.2. Infrared and Chromophores in Mitochondria
- 2.7.3. Radiation Absorption in Water Molecules
- 2.7.4. Infrared at the Cell Membrane
- 2.7.5. Conclusions

2.8. Therapeutic Effects of Infrared
- 2.8.1. Introduction
- 2.8.2. Local Effects of Infrared
  - 2.8.2.1. Erythematous
  - 2.8.2.2. Anti-inflammatory
  - 2.8.2.3. Scarring
  - 2.8.2.4. Sweating
  - 2.8.2.5. Relaxation
  - 2.8.2.6. Analgesia
- 2.8.3. Systemic Infrared Effects
  - 2.8.3.1. Cardiovascular System Benefits
  - 2.8.3.2. Systemic Muscle Relaxation
- 2.8.4. Dosimetry and Infrared Application
  - 2.8.4.1. Infrared Lamps
  - 2.8.4.2. Non-Luminous Lamps
  - 2.8.4.3. Luminous Lamps
  - 2.8.4.4. Monochromatic Infrared Energy (MIRE)
- 2.8.5. Conclusions

2.9. Practical Applications
- 2.9.1. Introduction
- 2.9.2. Clinical Applications
  - 2.9.2.1. Osteoarthritis and Infrared Radiation
  - 2.9.2.2. Lumbago and Infrared Radiation
  - 2.9.2.3. Fibromyalgia and Infrared
  - 2.9.2.4. Infrared Saunas in Cardiopathies
- 2.9.3. Conclusions

2.10. Infrared Contraindications
- 2.10.1. Precautions/Adverse Effects
  - 2.10.1.1. Introduction
  - 2.10.1.2. Consequences of Poor Infrared Dosing
  - 2.10.1.3. Precautions
  - 2.10.1.4. Formal Contraindications
- 2.10.2. Conclusions

Study at Tech and start multiplying your job possibilities"

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.

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"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

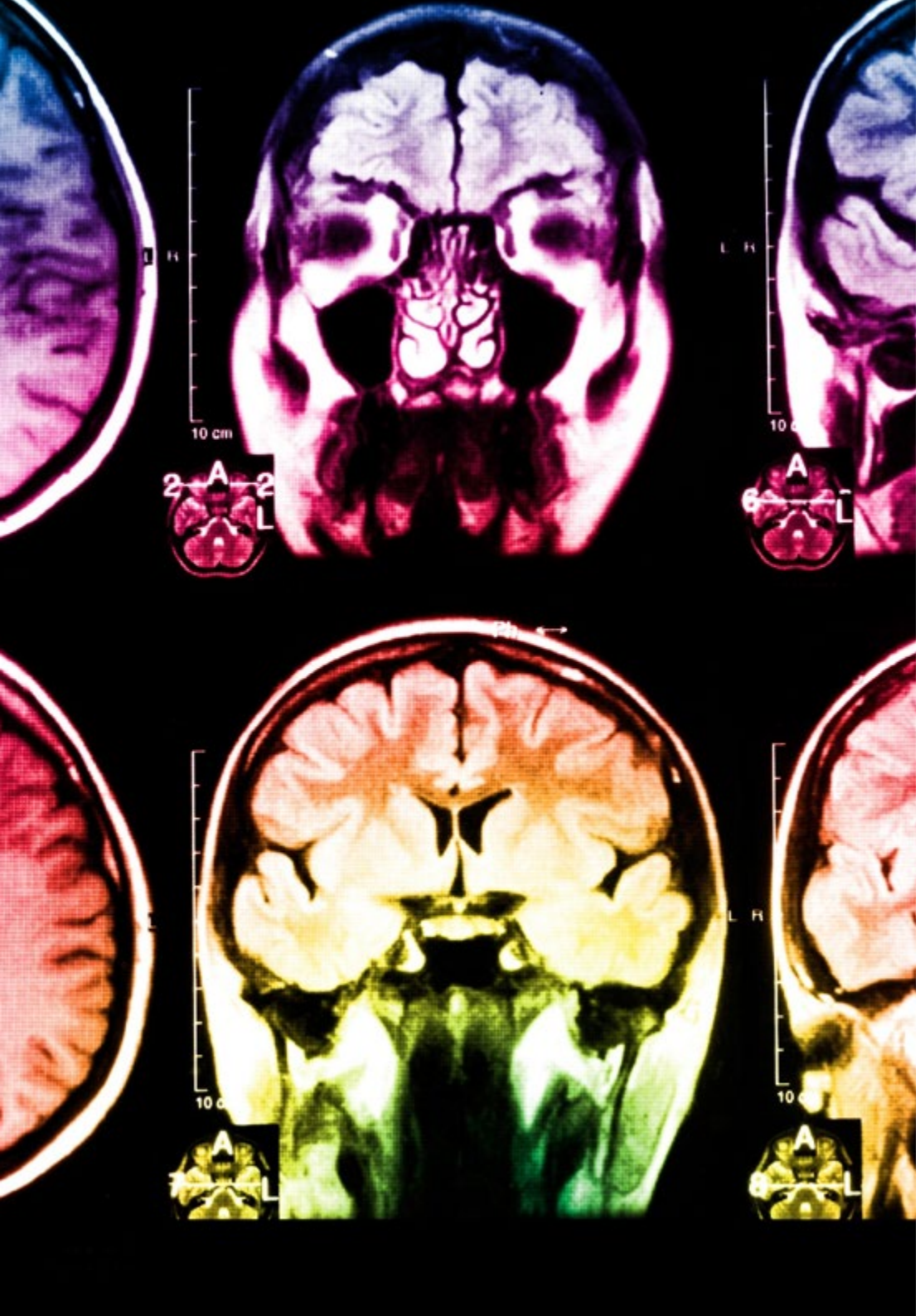
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



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. With this methodology, we have trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

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.

Classes

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

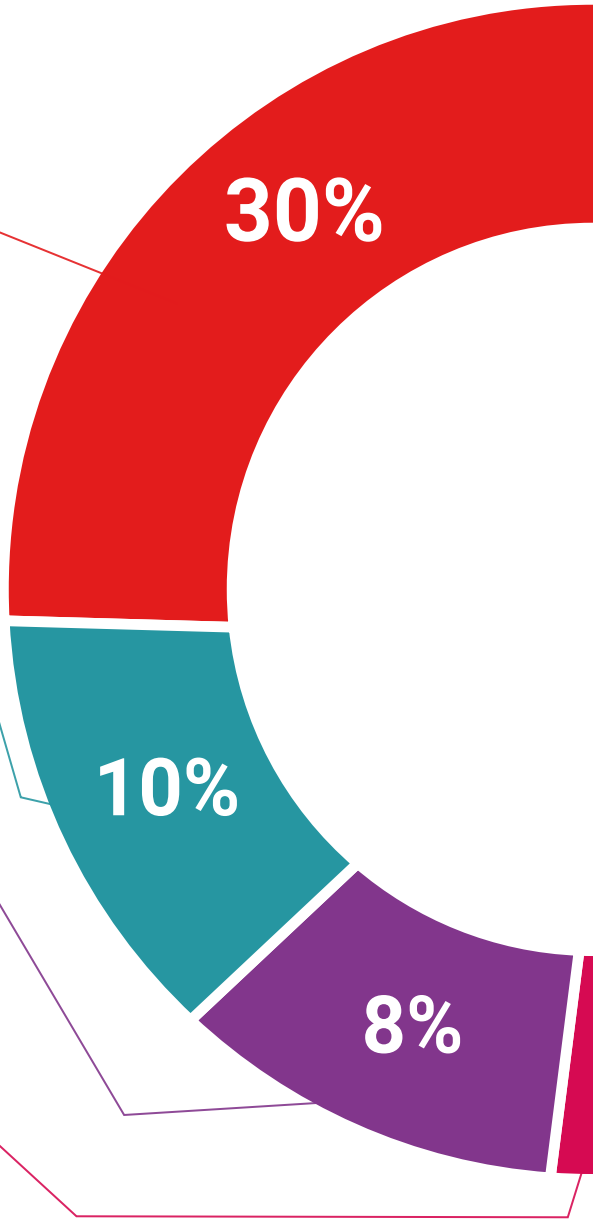
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

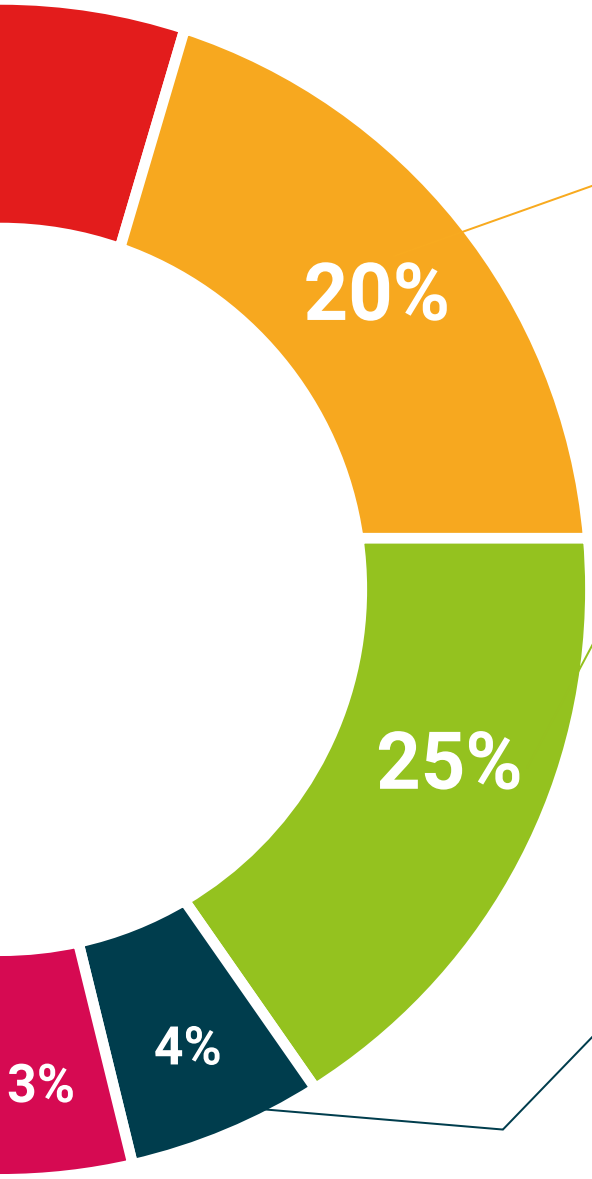
Practising Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

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.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this situation. Cases that are presented, analyzed, and supervised by the best specialists in the world.

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".

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.

06

Certificate

The Postgraduate Certificate in Ultrasound and Laser Therapy In Physical Activity and Sport guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

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

This **Postgraduate Certificate in Ultrasound and Laser Therapy In Physical Activity and Sport** 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** diploma issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** After the student has passed the assessments, they will receive their correspondingand and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Ultrasound and Laser Therapy In Physical Activity and Sport**

Official Nº of Hours: **225 h.**

Endorsed by the NBA


tech technological university

Awards the followi ng

CERTIFICATE

to

Mr./Ms. _____, with identification number _____ .

For having successfully passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Ultrasound and Laser Therapy In Physical Activity and Sport

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

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The Official Online University of the NBA

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

tech technological university

Postgraduate Certificate

Ultrasound and Laser Therapy In Physical Activity and Sport

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