



## Hybrid Professional Master's Degree

# Musculoskeletal Ultrasound in Physiotherapy

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Technological University

Teaching Hours: 1,620 h

We bsite: www.techtitute.com/pk/physiotherapy/hybrid-professional-master-degree/hybrid-professional-musculoskeletal-ultrasound-physiotherapy/hybrid-professional-master-degree

## Index

02 03 Why Study this Hybrid Introduction Objectives Skills Professional Master's Degree? p. 4 p. 8 p. 12 p. 18 05 06 **Course Management Clinical Internship Educational Plan** p. 22 p. 28 p. 34 80 Methodology Where Can I Do the Clinical Certificate Internship? p. 40 p. 46 p. 54





## tech 06 | Introduction

Physiotherapy has been gradually incorporating to its work area numerous tools that have made its work more precise and effective. One of them is ultrasound for musculoskeletal injury diagnosis, which has become an indispensable technique for professionals. Therefore, you need access to the most updated knowledge in this area, so that you can provide your patients and users with the most effective procedures.

Throughout this Hybrid Professional Master's Degree, physiotherapists will be able to delve into latest developments in issues such as types of images and different tissue patterns in ultrasound, sciatic nerve exploration, forefoot dynamic tests, advantages and disadvantages of ultrasound or the most common tendon pathology, among others.

This way, professionals will be able to update their knowledge through an online teaching methodology, which will allow them to continue developing their personal and work life without interruption, and later on, to carry out an on-site stay, being able to put everything they have learned throughout the program.

This internship takes place in a prestigious clinical center for 3 intensive weeks, from Monday to Friday and for 8 consecutive hours. This ensures that students will be able to consolidate all skills obtained by coming into contact with real patients while being accompanied by leading specialists in physiotherapy, experts in ultrasound as a diagnostic method.

This **Hybrid Professional Master's Degree in Musculoskeletal Ultrasound in Physiotherapy** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Development of more than 100 clinical cases presented by physiotherapy professionals who are ultrasound experts using ultrasound as a diagnosis method
- 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
- Presentation of practical workshops on diagnostic techniques
- Interactive learning based system focused on effective decision making in clinical situations
- 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 perform a clinical internship in one of the best hospitals in the country



The theoretical-practical period is combined with a stay in a prestigious center so that you can update your knowledge in the most effective way"

### Introduction | 07 tech

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The best way to assimilate new knowledge is through practice, so this program is perfect for physiotherapists looking for a complete and immediate update"

In this proposal for a Master's Degree, of a professionalizing nature and blended learning modality, the program is aimed at updating physiotherapists who perform their functions in clinical centers and hospitals, and who require a high level of qualification. The contents are based on the latest scientific evidence, and oriented in an educational way to integrate theoretical knowledge into practice, and the theoretical-practical elements will facilitate knowledge update and decision-making in patient management.

Thanks to their multimedia content developed with the latest educational technology, they will allow the physiotherapy professional to obtain situated and contextual learning, i.e. a simulated environment that will provide immersive learning programmed to train in real situations. This program is designed around Problem-Based Learning, whereby the physician 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.

This program has been designed to bring physiotherapists closer to the best applications of ultrasound, allowing them to offer new services in their own clinics after completing their Certificate.

Thanks to innovative contents and a prestigious teaching staff, you will learn about latest developments in ultrasound-guided treatments.







## tech 10 | Why Study this Hybrid Professional Master's Degree?

#### 1. Updating from the latest technology available

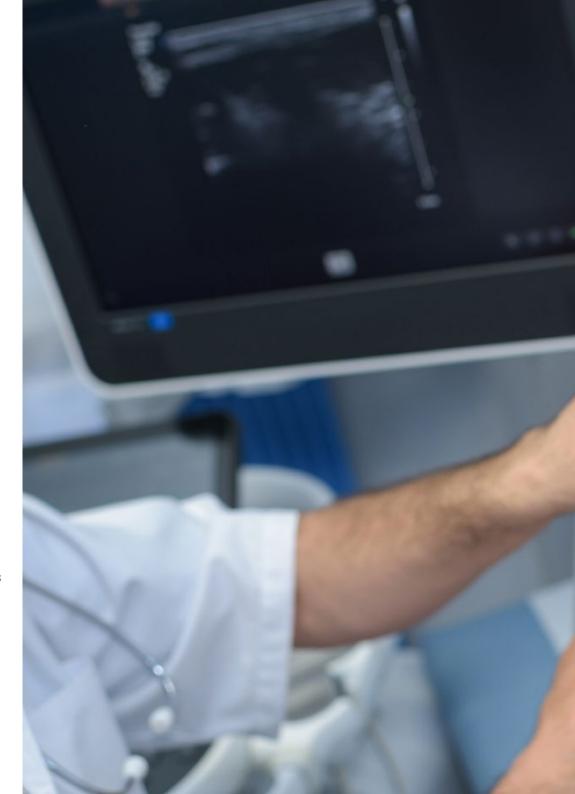
Undoubtedly, Musculoskeletal Ultrasound area has undergone important changes in recent years due to technological advances. This has resulted in better ultrasound image quality, reduced equipment size and improved patient care. For this reason, TECH has designed this Hybrid Professional Master's Degree, which seeks to bring specialists closer to all technical and scientific innovations in this area, through perfect combination of theory and practice. A unique experience that only this academic institution offers

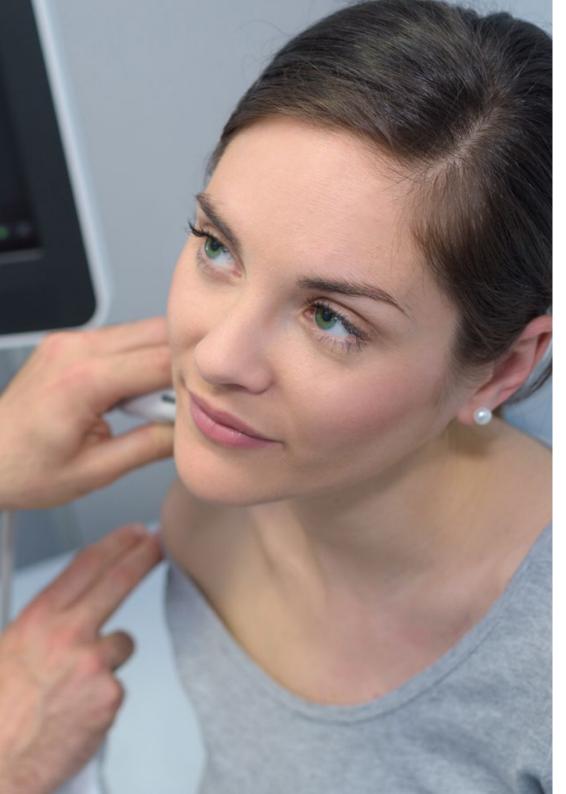
#### 2. Gaining In-Depth Knowledge from the Experience of Top Specialists

TECH has gathered in this program an excellent team of professionals who will show graduates the most recent advances in Musculoskeletal Ultrasound. Therefore, in theoretical phase, there is a teaching staff made up of professionals with extensive experience, while in practical phase, physiotherapists will be tutored by an expert belonging to the prestigious center where they carry out this stage. All this represents a first-class guarantee and an unprecedented guarantee of updating

#### 3. Entering First-Class Clinical Environments

In its maxim of offering a quality Certificate, this institution carefully selects all centers where graduates must carry out their practical work experience. With this, professionals have a guarantee of being able to obtain updated knowledge they are looking for, through a professional and avant-garde environment. This way, you will also be able to test a real day-to-day healthcare environment and with patients who require use of ultrasound scanners oriented to treatments performed by physiotherapists





## Why Study this Hybrid Professional | 11 tech Master's Degree?

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

This academic institution has developed a Hybrid Professional Master's Degree that breaks with traditional pedagogy by offering a theoretical framework 100% online and a practical stay 100% face-to-face. A combination that will show professionals the most advanced and innovative concepts in Musculoskeletal Ultrasound focused on its use in this specialty. An excellent combination that provides a much more complete vision of this field and always from the best professionals

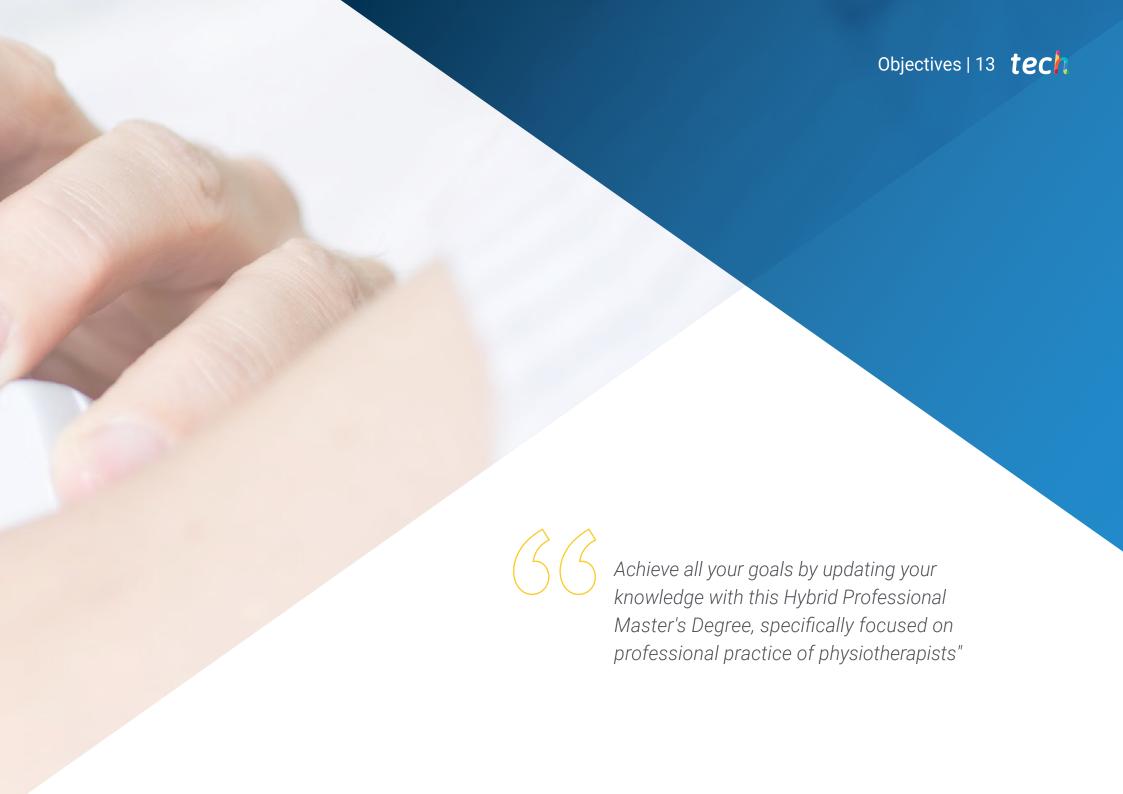
#### 5. Expanding the Boundaries of Knowledge

The professional who takes this Certificate will not only be able to update his knowledge, but will also be able to apply it in their clinical practice, as well as in the best centers in any part of the world. This is possible, thanks to this Hybrid Professional Master's Degree that will take you to know first hand, the most advanced and recent techniques, methods and procedures in Musculoskeletal Ultrasound field





The main objective of this Hybrid Professional Master's Degree in Musculoskeletal Ultrasound in Physiotherapy is to bring professionals closer to latest advances in diagnosis and monitoring of injuries and various pathologies using this tool. To achieve this, TECH has designed an academic program in which professionals will receive advice and support from the best professionals, first during online phase and, secondly, during practical stay, making this program the best on the market for updating their knowledge.



## tech 14 | Objectives



## **General Objective**

• This program's general objectives are, on one hand, to identify different existing pathologies for a correct treatment with ultrasound-guided physiotherapy and, on the other hand, to provide professionals with specific education on uses of physiotherapist's framework competences





#### Module 1. Basic Ultrasound

- To learn about ultrasound and an ultrasound scanner, its history and application to physiotherapy
- To identify ultrasound patterns of locomotor system structures
- To study various devices available in ultrasound and learn how to use them beneficially
- To explain use of ultrasound by rehabilitation physician and its legal considerations
- \* To describe piezoelectric effect and physical basis of ultrasound
- To explain different equipment components
- To explain ultrasound image production
- To describe used terminology in ultrasound scanning
- To define image types obtained by ultrasound and different patterns of tissues

#### Module 2. Upper limb ultrasound: Shoulder

- \* To identify main structures of the shoulder visible on ultrasound
- To describe normal examination of the structures of shoulder anterior face
- To describe normal examination of structures of shoulder lateral face
- To describe normal examination of structures of shoulder posterior face
- To recognize the most common shoulder injuries, for a correct ultrasound-guided treatment and/or follow-up of their evolution
- \* To describe less common pathologies that may affect the shoulder joint
- To learn how to perform ultrasound-guided dynamic assessment tests for the shoulder

#### Module 3. Upper Limb Ultrasound: Elbow

- To describe elbow joint sonoanatomy
- To describe normal examination of structures of elbow anterior aspect
- To describe normal examination of elbow lateral aspect structure
- To describe normal examination of elbow posterior aspect structures
- To describe normal examination of elbow medial aspect structures
- To identify most common elbow injuries, for a correct ultrasound-guided treatment and/or follow-up of their evolution
- To learn how to perform dynamic ultrasound-guided elbow assessment tests
- To describe less common pathologies that may affect the elbow joint

#### Module 4. Upper Limb Ultrasound: Wrist

- To describe wrist joint sonoanatomy
- To describe normal examination of dorsal aspect structures of the wrist
- To describe normal examination of palmar aspect structures of the wrist
- To identify the most common wrist injuries, for a correct ultrasound-guided treatment and/or follow-up of their evolution
- To learn how to perform ultrasound-guided dynamic assessment tests for the wrist
- To describe less common pathologies that may affect the wrist joint

## tech 16 | Objectives

#### Module 5. Upper Limb Ultrasound: Hand

- To describe hand joint sonoanatomy
- To describe normal examination of dorsal aspect structures of the hand
- To describe normal examination of palmar aspect structures of the hand
- To identify the most common hand injuries, for a correct ultrasound-guided treatment and/or follow-up of their evolution
- To learn how to perform dynamic ultrasound-guided hand assessment tests
- To describe less common pathologies that can affect the hand

#### Module 6. Lower Limb Ultrasound: Hip

- To learn the ecoanatomy of the different structures of the hip
- To describe normal examination of anterior aspect structures of the hip
- To describe normal examination of lateral aspect structures of the hip
- To describe normal examination of posterior aspect structures of the hip
- To describe normal examination of medial aspect structures of the hip
- To identify the most common hip injuries, for a correct ultrasound-guided treatment and/or follow-up of their evolution
- To learn how to perform ultrasound-guided dynamic hip assessment tests
- To describe less common pathologies that can affect the hip

#### Module 7. Lower Limb Ultrasound: Thigh

- To learn echoanatomy of the different structures of the thigh
- To describe normal examination of anterior thigh structures
- To describe normal examination of lateral aspect structures of the thigh
- To describe normal examination of posterior thigh structures
- To describe normal examination of medial aspect structures of the thigh
- To identify the most common thigh injuries, for a correct ultrasound-guided treatment and/or follow-up of their evolution
- To learn how to perform dynamic ultrasound-guided thigh assessment tests
- To describe less common pathologies that can affect the thigh
- To identify the most common thigh muscles and muscle injuries

#### Module 8. Lower Limb Ultrasound: knee

- To recognize tendon and ligament structures of the knee and their most frequent injuries
- To describe normal examination of anterior aspect structures of the knee
- To describe normal examination of lateral aspect structures of the knee
- \* To describe normal examination of posterior aspect structures of the knee
- To describe normal examination of medial aspect structures of the knee
- To identify the most common knee injuries, for a correct ultrasound-guided treatment and/or follow-up of their evolution
- To learn how to perform dynamic ultrasound-guided knee assessment tests
- To describe less common pathologies that can affect the knee

#### Module 9. Lower Limb Ultrasound: Leg

- To learn echoanatomy of the different structures of the leg in all its compartments
- To identify the leg muscles and the most common leg muscle injuries
- To describe normal examination of anterior leg structures
- To describe normal examination of lateral leg structures
- To describe normal examination of posterior leg structures
- To learn how to perform dynamic ultrasound-guided leg assessment tests
- To describe less common pathologies that can affect the leg

#### Module 10. Lower Limb Ultrasound: Ankle

- To learn ankle sonoanatomy
- To describe normal examination of anterior aspect structures of the ankle
- To describe normal examination of lateral aspect structures of the ankle
- To describe normal examination of posterior aspect structures of the ankle
- To describe normal examination of medial aspect structures of the ankle
- To learn how to perform dynamic ultrasound-guided ankle assessment tests
- To identify the most common injuries of the ankle, for a correct ultrasound-guided treatment and/or follow-up of its evolution
- \* To describe less common pathologies that may affect the ankle

#### Module 11. Lower Limb Ultrasound: Foot

- To recognize the main lesions in this region, for a correct ultrasound-guided treatment and follow-up of their evolution
- To describe normal examination of dorsal aspect structures of the foot
- To describe normal examination of palmar aspect structures of the foot
- To describe less frequent pathologies that can affect the foot
- \* To learn how to perform dynamic ultrasound-guided foot assessment tests

#### Module 12. Lower Limb Ultrasound: Forefoot

- \* To describe normal examination of dorsal aspect structures of the forefoot
- To describe normal examination of palmar aspect structures of the forefoot
- To identify the most common lesions of the forefoot, for a correct treatment and/or follow up of their evolution
- To describe less common pathologies that can affect the forefoot
- To learn how to perform dynamic ultrasound-guided assessment tests of the forefoot



You will be able to come into contact with real patients, while receiving constant supervision from the best specialists at a specialized clinical center"





## tech 20 | Skills



#### **General Skills**

- 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
- 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 complexity of making judgments based on information that, while incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments
- Communicate its conclusions, knowledge and rationale behind them, to specialized and non-specialized audiences in a clear and unambiguous manner
- Acquire the learning skills that will enable further studying in a largely self-directed or autonomous manner



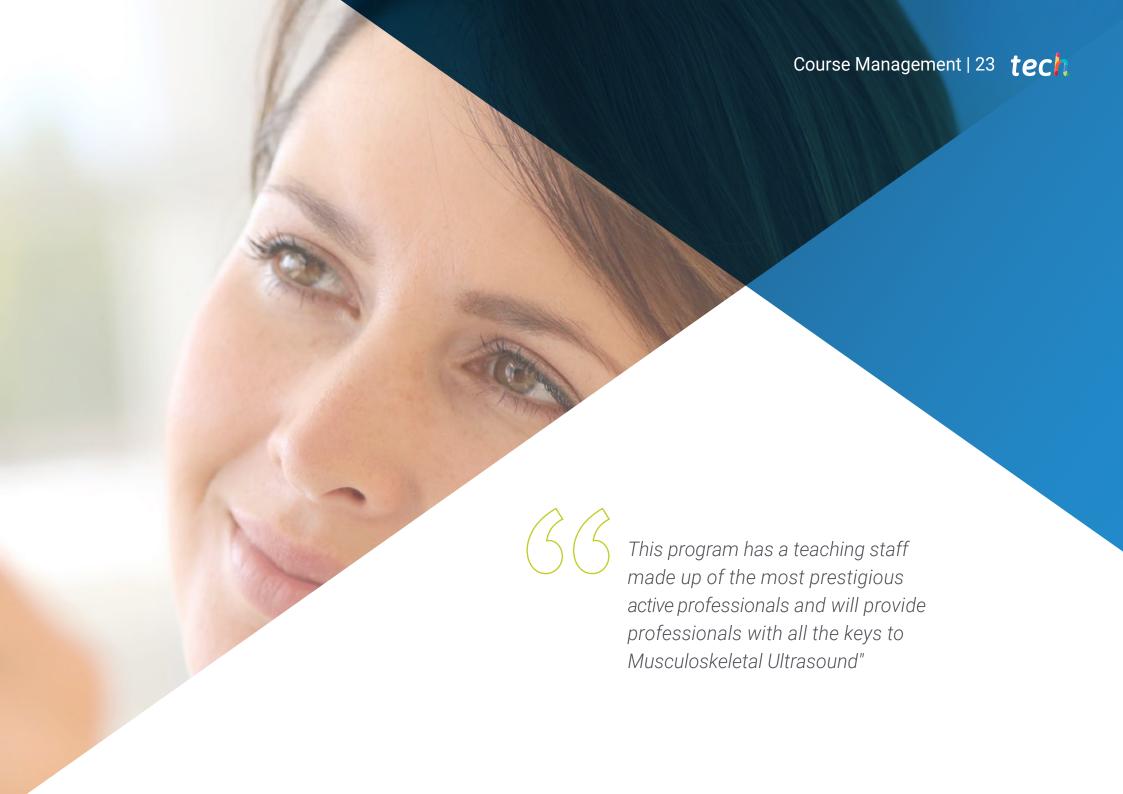




### **Specific Skills**

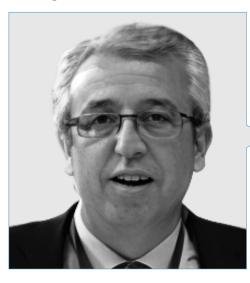
- Understand and relate each one of the physical bases of the production of ultrasound
- Identify the ultrasound patterns of the different structures of the locomotor system
- Differentiate ultrasound patterns for the subsequent identification of normality and lesions in ultrasound
- Define the legal framework in which ultrasound for physiotherapists operates
- Identify the main structures of the shoulder that are visible in ultrasound
- Integrate dynamic ultrasound-guided assessment tests into a normal system
- Know the sonoanatomy of the elbow, wrist and hand joints
- Identify the most common lesions to perform a correct ultrasound-guided treatment and/or follow-up of their evolution
- Learn the echo anatomy of the different structures of the hip
- Identify the muscles of the thigh and the most common muscular lesions
- Recognize the tendon and ligament structures of the knee and their most common injuries
- Learn the echo anatomy of the different structures of the leg in all its compartments
- Identify the muscles of the leg and the most common muscular lesions
- Learn the sonoanatomy of the ankle and foot
- Recognize the main lesions in these regions to perform a correct ultrasound-guided treatment and follow-up of their evolution





## tech 24 | Course Management

#### Management



#### Dr. Castillo Martín, Juan Ignacio

- Head of the Physical Medicine and Rehabilitation Department at the Hospital Universitario 12 de Octubr
- Physician specializing in Physical Medicine and Rehabilitation at the Ruber Juan Bravo Hospital Complex
- Rehabilitation Physician at the Traffic Accidents Unit of the Ruber Juan Bravo Hospital Complex
- Rehabilitation Physician at Hospital Recoletas Cuenca
- Coordinator in the continuing education of the Spanish Society of Cardiology in Exercise Testing with Oxygen Consumption
- Associate Professor at UCM, School of Medicine
- Teaching coordinator in continuing education courses of the Consejería de Sanidad de Comunidad de Madrid: Tertiary prevention in chronic cardiac patients. Cardiac Rehabilitation
- Degree in Medicine and Surgery. University of Salamanca
- Master's Degree in Cardiac Rehabilitation. SEC-UNED
- Master in and Disability Assessment UAM
- Master in Child Disability. UCM
- PhD in Neuroscience. University of Salamanca
- Member of the Spanish Society of Cardiology

#### **Professors**

#### Dr. Santiago Nuño, Fernando

- Physiotherapist, Osteopath, Podiatrist and Co-Director of La Clinica Nupofis
- Physiotherapist and Podiatrist at the Armstrong International Clinic
- Orthopedist at Ortoaccesible
- Professor of Musculoskeletal Ultrasound and Ultrasound-guided Infiltrations at the UCM and at the UEM
- Doctor in Podiatry from the UDC
- Specialized Physiotherapist in Traumatology, Neurology and Rehabilitation of Sports Injuries at Armstrong International Clinic
- Master's Degree in Advanced Clinical Podiatry at CEU-UCH
- CEU-UCH Master's Degree in Clinical Management, Medical and Healthcare Management
- Master's Degree in Musculoskeletal Ultrasound by CEU-UCH
- Master's Degree in Manual Therapy Specialist by UCM
- Online Master's Degree in Podiatry Research by URJC
- Master's Degree of Specialist and Supervisor of Orthopedic Products by UCM

#### Dr. Rivillas Gómez, Alberto

- Specialist in Physical Medicine and Rehabilitation
- Rehabilitation Physician at the European Musculoskeletal Institute
- Physician at the Knee Unit of the European Musculoskeletal Institute
- Resident Physician of Physical Medicine and Rehabilitation at Hospital Universitario
   12 de Octubre

#### Dr. Carmona Bonet, María A

- Teacher in university studies of Medicine
- Collaborating physician in practical teaching for medical studies
- D. from the Universidad Complutense de Madrid with the thesis Shockwave treatment of long-standing skin ulcers

#### Dr. Juano Bielsa, Álvaro

- Specialized Physician in Physical Medicine and Rehabilitation at the Hospital Universitario 12 de Octubre
- Specialized Physician in Physical Medicine and Rehabilitation at the Hospital HLA Universitario Moncloa
- Specialized Physician in Physical Medicine and Rehabilitation at the Traffic Accidents Unit of the Hospital HLA Universitario Moncloa
- Speaker at the Rehabilitation Scientific Conferences

#### Dr. Uzquiano Guadalupe, Juan Carlos

- Medical Specialist in Physical Medicine and Rehabilitation at the Institut Guttmann
- Associate Professor in the Master's Degree in Neurorehabilitation at Institut Guttmann
- Collaborator in the practical teaching of the Department of Radiology, Rehabilitation and Physiotherapy of the UCM
- Specialist in Physical Medicine and Rehabilitation at Hospital 12 de Octubre
- Master's Degree in Clinical Reasoning and Practice by UAH
- Master's Degree in Musculoskeletal Ultrasound and Echoguided Interventional Ultrasound by CEU San Pablo University
- Expert in Child Rehabilitation by the UFV

## tech 26 | Course Management

#### Dr. López Sáez, Mireya

- Specialized Doctor in Physical Medicine and Rehabilitation
- Specialized Physician in Physical Medicine and Rehabilitation at the Hospital Universitario 12 de Octubre
- Collaborating physician in practical teaching for these university students in Medicine
- Member of the Illustrious Official College of Physicians of the Community of Madrid

#### Dr. García Gómez, Nuria

- Physical Medicine and Rehabilitation Physician at 12 de Octubre Hospital
- Collaborator of the Department of Physical Medicine and Rehabilitation and Medical Hydrology of the UCM
- Specialist in Family and Community Medicine at Hospital General Universitario Gregorio Marañón General Hospital Gregorio Marañón
- Physician in health care centers in the southeastern health area of Madrid. Degree in Medicine and Surgery from the UAH
- Postgraduate Diploma in Neurorehabilitation by the Institute of Continuing Education of the UB

#### Dr. Sevilla Torrijos, Gustavo

- FEA in the Rehabilitation Department of the Hospital Universitario 12 de Octubre
- FEA in the Rehabilitation Service of the University Hospital of Torrejón
- FEA of Rehabilitation of the Hospital de Guadarrama
- Specialist in Integral Assistance in Emergency and Health Emergencies by the European University Miguel de Cervantes
- Course in Diagnostic Imaging in Musculoskeletal Pain
- Updating Course in Localized Neuropathic Pain
- Course in Osteoarthritis and Pain Awareness
- Member of the Spanish Society of Rehabilitation and Physical Medicine (SERMEF)

#### Dr. Casado Hernández, Israel

- Podiatrist and Podiatric Researcher
- · Vitalpie Director
- Podiatrist in grassroots soccer clubs such as Getafe CF and AD Alcorcón
- · Associate professor in university studies
- Author of more than 20 scientific articles and 7 book chapters
- Doctor's Degree in Epidemiology and Research Clinical Symptoms Methodology in Health Science from the URJC
- Degree in Podiatric Medicine from the Complutense University of Madrid
- Master's Degree in Podiatry Research by URJC

#### Mr. García Expósito, Sebastián

- Expert in Radiodiagnostic Techniques and Applications
- · Radiodiagnostic Technician at Sanitas Women's Center
- Radiodiagnostic Technician at Hospital de la Zarzuela
- Degree in Bioimaging Production from UNLZ

#### Ms. Moreno, Cristina Elvira

- Physiotherapist Expert in Musculoskeletal Ultrasound
- Physiotherapist at Nupofis clinic
- Physiotherapist at Clínica Fisios Islas21
- Physiotherapist at Clinica Más Fisio
- Physiotherapist at the Fibromyalgia Association, AFIBROM
- Graduate in Physiotherapy by UCM
- Master in Musculoskeletal Ultrasound in Physiotherapy by CEU San Pablo University

#### D. Nieri, Martín Alejandro

- Diagnostic Imaging Technician Expert in Musculoskeletal Ultrasonography
- Diagnostic Imaging Technician at the Son Espases University Hospital
- CEO of Ultrasound & Teleradiology Support Services SL
- Director of the Ultrasound Quality Control Department at the Ultrasound & Teleradiology
   Assistance Service SL
- Freelance Diagnostic Imaging Technician
- Lecturer in Ultrasound training courses
- Participation in various Ultrasound projects

#### Dr. Pérez Calonge, Juan José

- Expert Podiatrist in Integral Foot Surgery
- Podiatrist at Clínica Podológica Gayarre
- Co-author of the article Technique for direct examination of onychomycosis by potassium hydroxide microscopy
- PhD in Health Sciences from the UPNA
- Official Master's Degree in Health Expertise by the UCM
- Official Master's Degree in Advanced Podiatry by the CEU
- Expert in Surgery, UCM
- Course in Foot Infiltration by UCM

#### Ms. Sánchez Marcos, Julia

- Physiotherapist, Osteopath and Pilates teacher at the Nupofis Clinic
- Physiotherapist and Osteopath at the Isabel Amoedo Physiotherapy Clinic
- Physiotherapist at Hospital Vithas Nuestra Señora de Fátima
- Physiotherapist at ASPRODES-FEAPS
- Physiotherapist at Fisiosalud Clinic

- Master's Degree in Electrotherapy by CEU-UCH
- Expert in Ultrasound Sonoanatomy of the Locomotor System by the European University of Madrid
- Course in Neurodynamics by Zerapi Fisioterapia Avanzada
- Course in Percutaneous Therapeutic Electrolysis (EPTE)
- Course in Myofascial and Articular Neurodynamic Fibrinolysis "Hooks" by Instema
- Course in Diathermy by Helios in Electromedicine

#### Mr. Santiago Nuño, José Ángel

- Physiotherapist, Osteopath, Dietician, Nutritionist and Co-Director of the Nupofis Clinic
- Dietician and Nutritionist in different physiological situations in Medicadiet
- Diploma in Physiotherapy from CEU San Pablo University
- Diploma in Human Nutrition and Dietetics from CEU San Pablo University
- Post-graduate degree in Food Exchange System for the Preparation of Diets and Menu Planning by the UPNA
- Specialized Physiotherapist in Traumatology, Neurology and Rehabilitation of Sports Injuries at Armstrong International Clinic
- Master's Degree in Sports Physiotherapy Specialist by UCM
- Expert in Traditional Chinese Medicine and Acupuncture for Physiotherapists at the UCLM

#### Dr. Teijeiro, Javier

- Director and Physiotherapist of Atlas Fisioterapia Clinic
- Physiotherapist and Technical Director of the Physiotherapy Service of Centro Asistencial San Pablo y San Lázaro de Mondoñedo.
- Autonomous Delegate of the Spanish Society of Ultrasound and Physical Therapy
- Physiotherapist of Clínica Dinán Viveiro
- Doctorate in Health, Disability, Dependency and Well-being





## tech 30 | Educational Plan

#### Module 1. Basic Ultrasound

- 1.1. Basic Ultrasound I
- 1.2. General Aspects of Musculoskeletal
- 1.3. Physical Bases of Ultrasound. Piezoelectric Effect
- 1.4. Basic Ultrasound II
- 1.5. Knowledge of the Equipment
- 1.6. Equipment Management: Parameters
- 1.7. Technological Improvements
- 1.8. Basic Ultrasound III
- 1.9. Artifacts in Ultrasound
- 1.10. Foreign Bodies
- 1.11. Types of Images and Different Tissue Patterns in Ultrasound
- 1.12. Dynamic Maneuvers
- 1.13. Advantages and Disadvantages of Ultrasound

#### Module 2. Ultrasound of the Upper Limb: Shoulder

- 2.1. Normal Sonoanatomy of the Shoulder
- 2.2. Examination of the Anterior Aspect Structures
- 2.3. Examination of the Posterior Aspect Structures
- 2.4. Examination of the Lateral Aspect Structures
- 2.5. Shoulder Pathology
- 2.6. Most Common Tendon Pathology
- 2.7. Other Shoulder Joint Pathology
- 2.8. Dynamic Tests on the Shoulder
- 2.9. Clinical Cases
- 2.10. Clinical videos
- 2.11. In Focus Video



#### Module 3. Ultrasound of the Upper Limb: Elbow

- 3.1. Normal Sonoanatomy of the Elbow
- 3.2. Examination of the Anterior Aspect Structures
- 3.3. Examination of the Lateral Aspect Structures
- 3.4. Examination of the Medial Aspect Structures
- 3.5. Examination of the Posterior Aspect Structures
- 3.6. Elbow Pathology
- 3.7. Most Common Tendon Pathology
- 3.8. Other Elbow Joint Pathology
- 3.9. Dynamic Tests on the Elbow
- 3.10. Clinical Cases
- 3.11. In Focus Video

#### Module 4. Ultrasound of the Upper Limb: Wrist

- 4.1. Normal Sonoanatomy of the Wrist
- 4.2. Dorsal Aspect Examination
- 4.3. Palmar Aspect Examination
- 4.4. Wrist Pathology
- 4.5. Most Common Tendon Pathology
- 4.6. Other Wrist Joint Pathology
- 4.7. Dynamic Tests on the Wrist
- 4.8. Clinical Cases

#### Module 5. Ultrasound of the Upper Limb: Hand

- 5.1. Introduction
- 5.2. Normal Sonoanatomy of the Hand
- 5.3. Dorsal Aspect Examination
- 5.4. Palmar Aspect Examination
- 5.5. Pathology of the Hand
- 5.6. Most Common Pathologies of the Hand
- 5.7. Dynamic Tests on the Hands
- 5.8. Clinical Cases

#### Module 6. Ultrasound of the Lower Limb: Hip

- 6.1. Normal Sonoanatomy of the Hip
- 6.2. Examination of the Anterior Aspect Structures
- 6.3. Examination of the Lateral Aspect Structures
- 6.4. Examination of the Medial Aspect Structures
- 6.5. Examination of the Posterior Aspect Structures
- 6.6. Hip Pathology
- 6.7. Most Common Tendon Pathology
- 6.8. Most Common Muscle Pathology
- 6.9. Other Hip Joint Pathology
- 6.10. Dynamic Tests on the Hip
- 6.11. In Focus Video
- 6.12. Clinical Cases

#### Module 7. Ultrasound of the Lower Limb: Thigh

- 7.1. Introduction
- 7.2. Normal Sonoanatomy of the Thigh
- 7.3. Examination of the Anterior Aspect Structures
- 7.4. Examination of the Lateral Aspect Structures
- 7.5. Examination of the Medial Aspect Structures
- 7.6. Examination of the Posterior Aspect Structures
- 7.7. Thigh Pathology
- 7.8. Most Common Tendon Pathology
- 7.9. Other Thigh Pathologies
- 7.10. Dynamic Tests on the Thigh
- 7.11. In Focus Video
- 7.12. Clinical Cases

## tech 32 | Educational Plan

#### Module 8. Ultrasound of the Lower Limb: knee

- 8.1. Introduction
- 8.2. Normal Sonoanatomy of the Knee
- 8.3. Examination of the Anterior Aspect Structures
- 8.4. Examination of the Medial Aspect Structures
- 8.5. Examination of the Lateral Aspect Structures
- 8.6. Examination of the Posterior Aspect Structures
- 8.7. Sciatic Nerve Examination
- 8.8. Knee Ligament Pathology
- 8.9. Most Common Tendon Pathology
- 8.10. Other Knee Joint Pathology
- 8.11. Dynamic Tests on the Knee
- 8.12. Clinical Cases
- 8.13. In Focus Video

#### Module 9. Ultrasound of the Lower Limb: Leg

- 9.1. Introduction
- 9.2. Normal Sonoanatomy of the Leg
- 9.3. Examination of the Anterior Aspect Structures
- 9.4. Examination of the Lateral Aspect Structures
- 9.5. Examination of the Posterior Aspect Structures
- 9.6. Leg Pathology
- 9.7. Most Common Pathologies of the Leg
- 9.8. Dynamic Tests on the Leg
- 9.9. Clinical Cases
- 9.10. In Focus Video





#### Module 10. Ultrasound of the Lower Limb: Ankle

- 10.1. Introduction
- 10.2. Normal Sonoanatomy of the Ankle
- 10.3. Examination of the Anterior Aspect Structures
- 10.4. Examination of the Lateral Aspect Structures
- 10.5. Examination of the Medial Aspect Structures
- 10.6. Examination of the Posterior Aspect Structures
- 10.7. Pathology of the Ankle
- 10.8. Most Common Tendon Pathology
- 10.9. Most Common Ligament Pathology
- 10.10. Other Ankle Joint Pathologies
- 10.11. Dynamic Tests on the Ankle

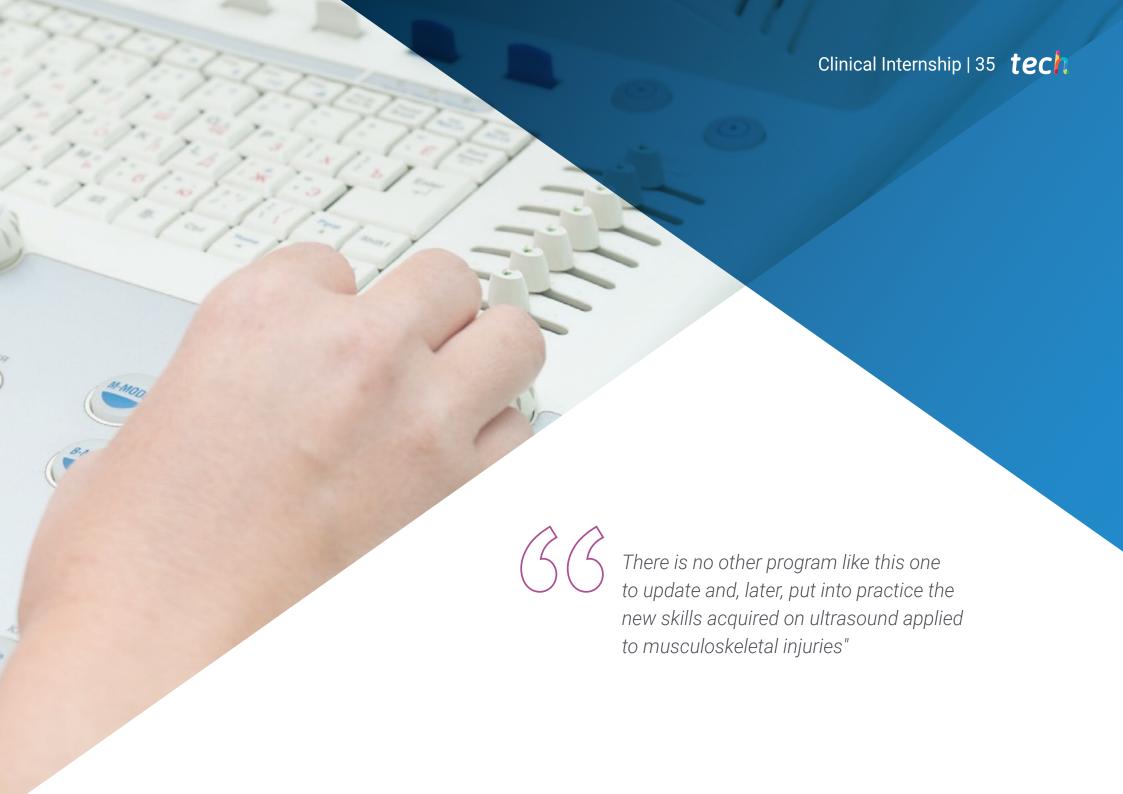
#### Module 11. Ultrasound of the Lower Limb: Foot

- 11.1. Normal Sonoanatomy of the Foot
- 11.2. Exploration of dorsal, lateral and medial face structures
- 11.3. Examination of the Plantar Aspect Structures
- 11.4. Pathology of the Foot
- 11.5. Most Common Pathology of the Foot
- 11.6. Dynamic Tests on the Foot

#### Module 12. Ultrasound of the Lower Limb: Forefoot

- 12.1. Normal Sonoanatomy of the Forefoot
- 12.2. Examination of the Dorsal Aspect Structures
- 12.3. Examination of the Plantar Aspect Structures
- 12.4. Forefoot Pathology
- 12.5. Most Common Pathology of the Forefoot
- 12.6. Dynamic Tests on the Foot
- 12.7. Clinical Cases





## tech 36 | Clinical Internship

In order to catch up effectively, the best method is to be able to carry out practical activities that contribute to a correct acquisition of competencies. Accordingly, this program includes the option of a stay in a prestigious center where the professional will be able to delve into applications of ultrasound for the diagnosis and monitoring of injuries and pathologies.

Therefore, this stay is developed over 3 weeks, from Monday to Friday, and with continuous days of 8 consecutive hours with a professional of the center. In addition, during this stay, physiotherapists will be able to see real patients while being accompanied by clinic's specialists, making this program a great learning opportunity.

TECH offers an excellent opportunity to learn by working in a prestigious center with the most advanced technology in this area. This academic institution brings in this way a new way of understanding and integrate health processes, making this Hybrid Professional Master's Degree a unique experience in the competences improvement of physiotherapists professionals.

Practical education will be carried out with student's active participation performing activities and procedures of each area of competence (learning to learn and learning to do), with accompaniment and guidance of teachers and other fellow students that facilitate teamwork and multidisciplinary integration as transversal competencies for physiotherapy praxis (learning to be and learning to relate).

The procedures described below will form basis of practical part of the program, and their implementation is subject both to patient suitability and to center's availability and workload, with proposed activities being the following:







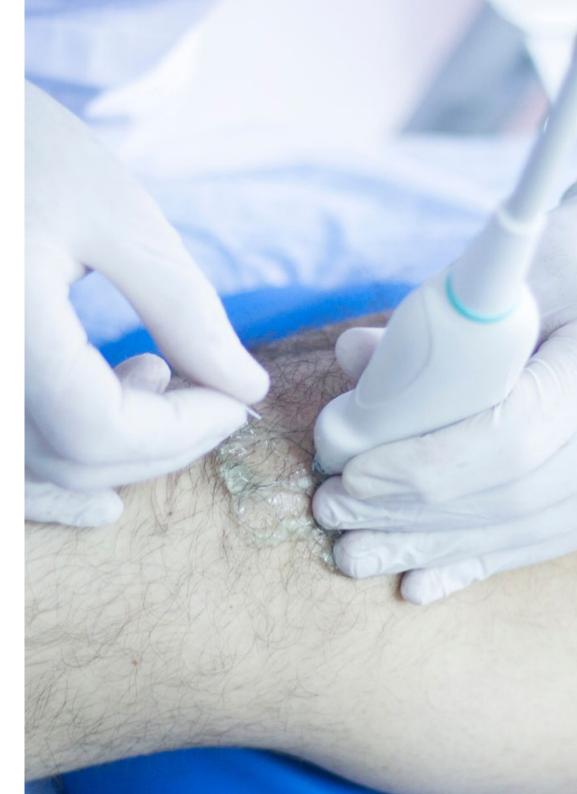
Module	Practical Activity
Basic ultrasound methods	Offer support in equipment management
	Perform dynamic tests of shoulder, elbow, wrist and hand
	Assist in performing basic sonoanatomy
	Learn about latest advances in ultrasound scanners
Ultrasound techniques for upper and lower limbs	Perform dynamic tests of shoulder, elbow, wrist and hand
	Improve techniques for sonoanatomy performance
	Practice dynamic tests for ankle and foot
	Assist in specific sonoanatomical examinations
Hip ultrasound techniques	Diagnose hip pathologies
	Offer collaboration in performing dynamic tests in the hip area
	Contribute to normal hip sonoanatomy
	Observe and address the most common injuries with different techniques used
Knees ultrasound techniques	Collaborate in knee pathology diagnosis
	Offer support in dynamic knee tests
	Contribute to normal knee sonoanatomy
	Update knowledge of main pathologies that affect knees.

## **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 interns 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 of the Internship Program**

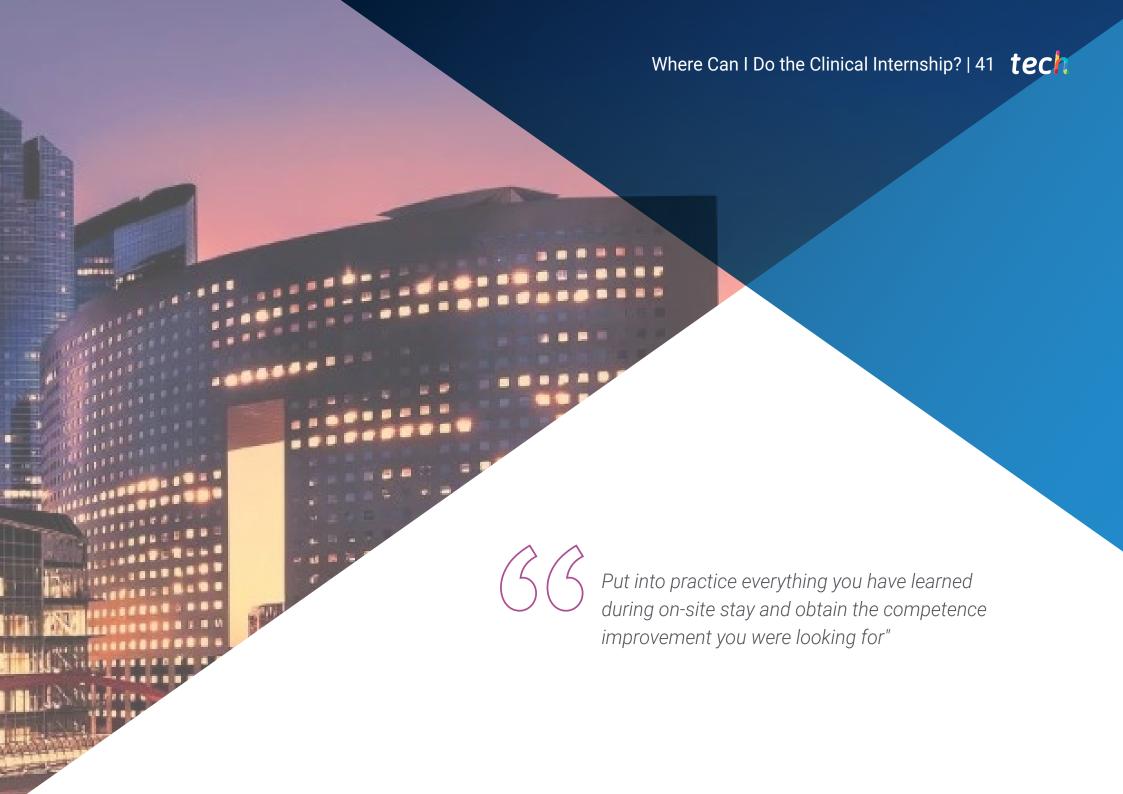
The general terms and conditions of the internship agreement for the program are as follows:

- 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. DOES 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.





## tech 42 | Where Can I Do the Clinical Internship?

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



## Fisioterapia Recupérate Ya

Country City
Spain Madrid

Address: Calle de Sandoval 17, (28010) Madrid

Physiotherapeutic center with a wide range of services for physical and manual therapy

#### Related internship programs:

-Physiotherapy Diagnosis - Electrotherapy in Physiotherapy





### Centro Médico Villanueva de la Cañada

Country City
Spain Madrid

Address: C. Arquitecto Juan de Herrera, 2, 28691 Villanueva de la Cañada, Madrid

Medical center with services in main clinical specialties and diagnostic tests

#### Related internship programs:

- Clinical Nutrition in Pediatrics
- Primary Care Clinical Ultrasound



#### Clínica Colombia

Country City
Spain Madrid

Address: Calle Colombia, 6, Local 1A, 28823, Madrid

Entity specialized in physiotherapeutic and rehabilitation

#### Related internship programs:

-Physiotherapy Diagnosis
-Musculoskeletal ultrasound in Physiotherapy



#### **FisioSanfer**

Country City
Spain Madrid

Address: Calle Nazario Calonge, 13, 28830, San Fernando de Henares. Madrid

Physiotherapy and Osteopathic Clinic with integral assistance

#### Related internship programs:

Sports Physiotherapy
-Musculoskeletal ultrasound in Physiotherapy



## Vizcaíno Fisioterapia

Country City
Spain Madrid

Address: Sector Descubridores, 2, 28760, Tres Cantos, Madrid

Physiotherapy and rehabilitation clinic, personal training and injury rehabilitation

#### Related internship programs:

-Musculoskeletal ultrasound in Physiotherapy Sports Physiotherapy



## **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

#### Related internship programs:

Anaesthesiology and Resuscitation
 Palliative Care



## 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

#### Related internship programs:

- Update in Assisted Reproduction
 - Hospitals and Health Services Management



## 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

#### Related internship programs:

-Anesthesiology and Resuscitation Update -Nursing in Traumatology Service

## Where Can I Do the Clinical Internship? | 43 tech



### 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

#### Related internship programs:

- Update on Psychiatric Treatment in Minor Patients



## **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

#### Related internship programs:

- Aesthetic Medicine
- Clinical Nutrition in 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

#### Related internship programs:

- Palliative Care
- Anaesthesiology and Resuscitation



## **Hospital HM Torrelodones**

Country City
Spain 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



## Hospital HM Sanchinarro

Country City Spain 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



## Hospital HM Puerta del Sur

Country City
Spain 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



#### Policlínico HM Las Tablas

Country City
Spain 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:

-Nursing in Traumatology Service -Physiotherapy Diagnosis



## Policlínico HM Moraleja

Country City
Spain 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

# tech 44 | Where Can I Do the Clinical Internship?



## Policlínico HM Virgen del Val

Country City
Spain 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:

-Physiotherapy Diagnosis -Physiotherapy in Early Child Care



## Policlínico HM Imi Toledo

Country City
Spain 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





# Where Can I Do the Clinical Internship? | 45 tech



## Santé Clinic Querétaro

Country

City

Mexico

Querétaro de Arteaga

Address: Circuito Álamos #88 PA-B col Álamos 2da sección Querétaro, Qro, CP 76160

Clinical center specialized in physical therapy and recovery

#### Related internship programs:

- Aesthetic Medicine Sports Physiotherapy



## Engrama

Country

City

Mexico City

Address: Martín Mendalde 922, Del Valle Centro, Benito Juárez, CDMX. México

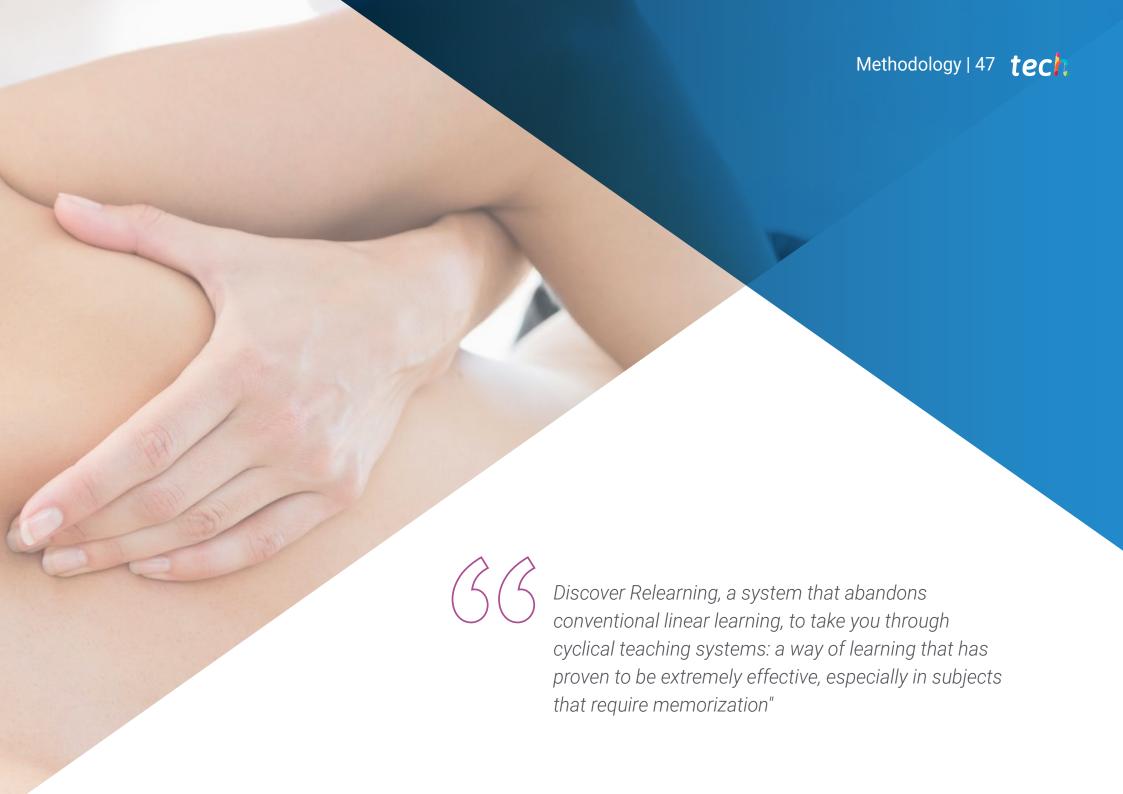
Specialized physiotherapeutic care center with more than 10 years of experience

#### Related internship programs:

Geriatric Physiotherapy - Electrotherapy in Physiotherapy



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.

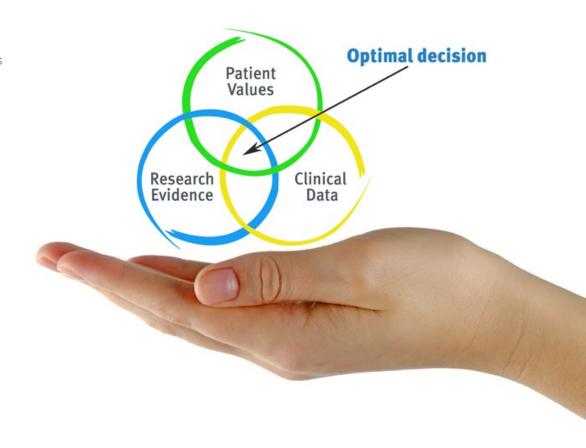


# tech 48 | Methodology

## 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. 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 of professional physiotherapy practice.



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.





## Methodology | 51 tech

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 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.



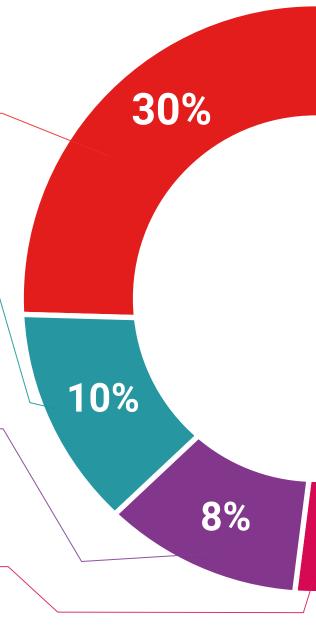
## **Practising Skills and Abilities**

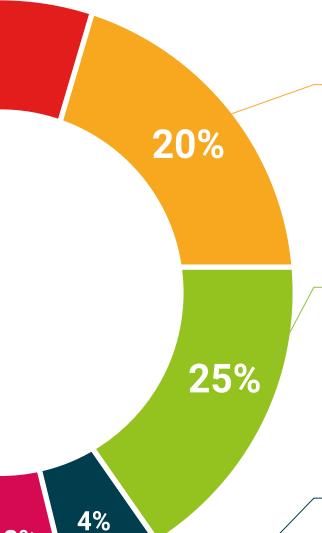
They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



## **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**

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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.





## tech 56 | Certificate

This **Hybrid Professional Master's Degree in Musculoskeletal Ultrasound in Physiotherapy** contains the most complete and up-to-date program on the professional and scientific field.

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

In addition to the certificate, 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.

Awards the following
CERTIFICATE
to
Mr./Ms. \_\_\_\_\_ with identification number \_\_\_\_
For having successfully passed and accredited the following program

HYBRID PROFESSIONAL MASTER'S DEGREE
in
Musculoskeletal Ultrasound in Physiotherapy

This is a qualification awarded by this University, with a duration of 1,620 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

The qualification was always be accomposed by the university degree issued by the competent authority to prescreep or reschool by neach country.

The qualification must always be accomposed by the university degree issued by the competent authority to prescreep or reschool by neach country.

Using a TECH Code ANYONIZESS. Inditinate convicunities.

Title: Professional Master' Hybrid in Musculoskeletal Ultrasound in Physiotherapy

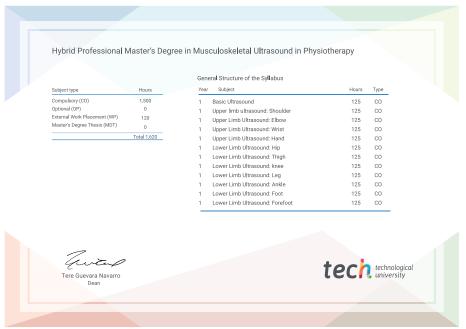
Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Technological University

Teaching Hours: 1,620 h. Endorsed by the NBA:





health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment



# Hybrid Professional Master's Degree Musculoskeletal Ultrasound in Physiotherapy

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Technological University

Teaching Hours: 1,620 h

