

Postgraduate Diploma

Ultrasound-Guided Procedures and
Other Applications of Ultrasound
in Primary Care



Postgraduate Diploma

Ultrasound-Guided Procedures and Other Applications of Ultrasound in Primary Care

Course Modality: **Online**

Duration: **6 months.**

Certificate: **TECH Technological University**

18 ECTS Credits

Teaching Hours: **450 hours.**

Website: www.techtitute.com/medicine/postgraduate-diploma/postgraduate-diploma-ultrasound-guided-procedures-other-applications-ultrasound-primary-care

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01

Introduction

Over the years, the ultrasound scanner has become an indispensable tool in healthcare. Today, its use is indispensable in diagnostic tests and guided procedures such as FNA, percutaneous biopsy, abscess drainage, pericardiocentesis or paracentesis.

Due to its numerous applications and the growing need to incorporate ultrasound in daily medical practice, the **Postgraduate Diploma in Ultrasound Guided Procedures and other Applications of Ultrasound in Primary Care** is born.





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You will learn about the latest advances in Ultrasound Guided Procedures and Other Applications of Ultrasound in Primary Care, that you will be able to apply in your daily medical practice"

Ultrasound has been associated with many of the advances in medical care over the last 40 years. This is a technique of ultrasound scanning of the body, which allows the detection of any anomaly that requires medical intervention.

Thanks to technological advances, their size and price have been reduced, making it easier to incorporate them into dental practices. Therefore, it is essential that physicians are with training in this highly demanded specialty, which facilitates prior diagnosis and improves the quality of health care.

Despite the many benefits of its use in medical consultations, there are no university teaching offers at Specialist level, which contain the necessary format itinerary for the practice of ultrasound and ultrasound-guided procedures in the field of Primary Care.

With this **Postgraduate Diploma** you will have the opportunity to take a program that brings together the most advanced and in-depth knowledge in the field, where a group of highly regarded professors with extensive international experience provides you with the most complete and up-to-date information on the latest advances and techniques on the use of ultrasound as an adjunct to physical examination.

It endorses the latest advances in ultrasound with a robust and didactic teaching

program, which positions it as a product of the highest scientific rigor at international level, aimed at health professionals. In addition, the program is based on a multidisciplinary approach to its subjects, which allows training and professional development in different areas.

The **Postgraduate Diploma in Ultrasound-Guided Procedures and Other Applications of Ultrasound in Primary Care** comprises the most comprehensive and up-to-date scientific program on the market. The most important features of the program include:

- ♦ Development of numerous clinical cases presented by experts in ultrasound.
- ♦ The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ New diagnostic-therapeutic developments on evaluation, diagnosis, and intervention in problems or disorders that can be addressed with ultrasound.
- ♦ It contains practical exercises where the self-evaluation process can be carried out to improve learning.
- ♦ Algorithm-based interactive learning system for decision-making in the presented clinical situations.
- ♦ Special emphasis on evidence-based medicine and research methodologies in ultrasound processes.
- ♦ Content that is accessible from any fixed or portable device with an Internet connection.
- ♦ All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments.



You will have real clinical cases that will allow you to develop your skills with the ultrasound machine"

“

Its teaching staff, composed of distinguished experts in the field, will guide and advise you throughout the training process"

Its teaching staff is made up of prestigious and renowned professionals, with extensive experience in healthcare, teaching, and research in various countries, contributing their extensive professional to this **Postgraduate Diploma**.

The methodological design of this **Postgraduate Diploma**, developed by a multidisciplinary team of e-learning experts, integrates the latest advances in educational technology in order to create numerous multimedia tools that allow the professional to solve real-life situations in their daily practice. These will enable you to advance by both acquiring knowledge and developing new skills in your future professional work.

The contents generated for this **Postgraduate Diploma**, as well as the videos, self-exams, clinical cases, and modular exams, have been thoroughly reviewed, updated, and integrated by the professors and the team of experts that make up the working group, in order to facilitate, in a gradual and educational manner, a learning process that allows the objectives of the teaching program to be achieved.

Thanks to the e-learning methodology, on which the design of the contents of this program is based, you will assimilate the knowledge more quickly and for a longer period of time.

As it is 100% online, you will be able to update your knowledge on the advances in ultrasound in ultrasound diagnostics, in a practical way and adapted to your needs.



02 Objectives

The main objective of the **Postgraduate Diploma** is the acquisition of the most updated and innovative scientific knowledge in the field of diagnostic ultrasound, which will allow you to develop the skills that will make your daily clinical practice conform to the standards of the best available scientific evidence, with a critical, innovative, multidisciplinary, and integrative sense.





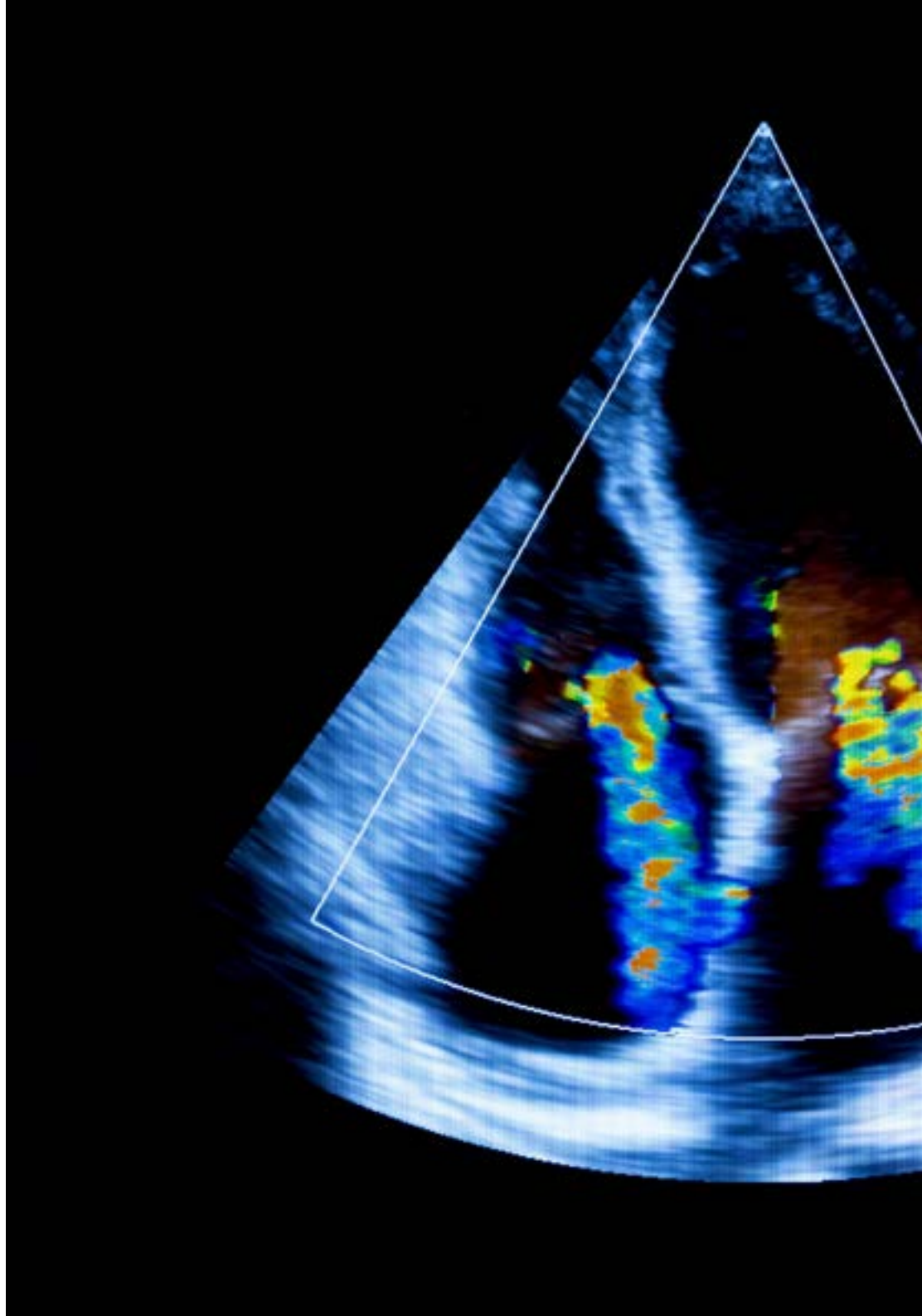
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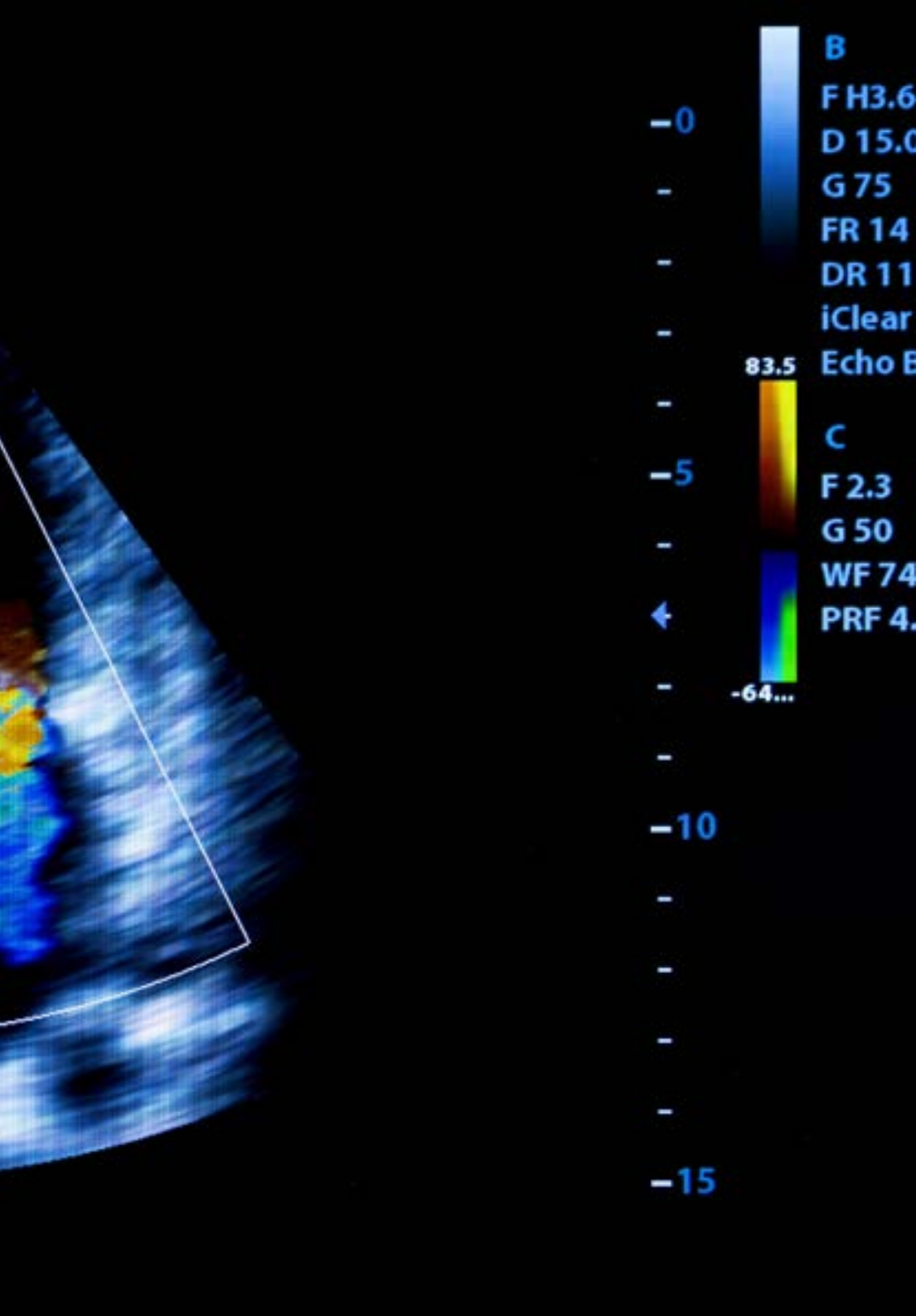
At the end of this Postgraduate Diploma, you will be fully qualified to use the ultrasound scanner in your daily work”



General Objectives

- Acquire the necessary knowledge in the use of ultrasound, in order to manage the usual situations of their practical use in healthcare.
- Apply the skills acquired while performing the duties of an ultrasound specialist.
- Use the latest clinical developments in the day-to-day work of a medical professional.





Specific Objectives

- ♦ Optimize ultrasound imaging through in-depth knowledge of the physical principles of ultrasound and the controls and operation of ultrasound scanners.
- ♦ Master the basic and advanced procedures of Ultrasound, both at diagnostic and therapeutic level.
- ♦ Excel in spatial orientation or "econavigation".
- ♦ Practice all ultrasound modes in the safest way for the patient.
- ♦ Determine the indications and limitations of ultrasound of the head, neck and locomotor system and its application in the most common clinical situations.
- ♦ Predict the results of invasive diagnostic procedures non-invasively by using ultrasound, with the possibility of replacing them..
- ♦ Guiding invasive therapeutic procedures to minimize their risks.
- ♦ Understand how to extend the concept of Ultrasound to healthcare, research, and academic environments.

03

Course Management

The program's teaching staff includes leading specialists in clinical ultrasound and other related areas, who bring their years of work experience to this training. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.





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*You will learn the latest Ultrasound Techniques,
from distinguished professionals in the sector”*

Management



Dr. Fumadó Queral, Josep

- ♦ Family physician at Els Muntells Primary Care Center (Amposta, Tarragona).
- ♦ Graduate in Clinical Ultrasound and Training of Trainers from the University of Montpellier-Nîmes (France).
- ♦ Lecturer at the Associació Mediterrània of General Medicine
- ♦ Teacher at the Spanish School of Ultrasound of the Spanish Society of General and Family Physicians (SEMG).
- ♦ Honorary Member of the Canary Society of Ultrasound (SOCANECO) and Professor of its Annual Symposium.
- ♦ Lecturer on the Master's Degree in Clinical Ultrasound for Emergencies and Critical Care at the CEU Cardenal Herrera University.



Dr. Pérez Morales, Luis Miguel

- ♦ Family physician at the Primary Care Center of Arucas (Gran Canaria, Canary Islands).
- ♦ Diploma in Ultrasound in Primary Care. Univ. Rovira i Virgili. Catalan Institute of Health.
- ♦ Expert in Thoracic Ultrasound. University of Barcelona.
- ♦ Expert in Abdominal and Musculoskeletal Clinical Ultrasound for Emergency and Critical Care. CEU Cardenal Herrera University.
- ♦ President and Professor of the Canary Society of Ultrasound (SOCANECO) and Director of its Annual Symposium.
- ♦ Professor on the Master's Degree in Clinical Ultrasound for Emergency and Critical Care at the CEU Cardenal Herrera University.

Scientific Committee

Professor. Dr. Álvarez Fernández, Jesús Andrés

- ♦ Specialist in Intensive Care Medicine.
- ♦ Intensive Care Medicine and Major Burns Unit. Getafe University Hospital. Getafe, Madrid.
- ♦ Head of the Master's Degree in Clinical Ultrasound in Emergency and Critical Care, CEU Cardenal Herrera University.
- ♦ Head of the Master's Degree in Clinical Imaging in Emergency and Critical Care, CEU Cardenal Herrera University.
- ♦ Teacher in the Specialist Degree in Thoracic Ultrasound at the University of Barcelona.

Dr. Herrera Carcedo, Carmelo

- ♦ Family Physician and Head of the Ultrasound Unit at the Briviesca Health Center (Burgos).
- ♦ Tutor at the Family and Community Medicine Teaching Unit in Burgos.
- ♦ Teacher at the Spanish School of Ultrasound of the Spanish Society of General and Family Physicians (SEMG).
- ♦ Member of the Spanish Society of Ultrasound (SEECO) and the Spanish Association of Prenatal Diagnosis (AEDP).

Professor. Dr. Jiménez Díaz, Fernando

- ♦ Specialist in Sports Medicine.
- ♦ Professor in the Faculty of Sports Sciences at the University of Castilla La Mancha. Toledo.
- ♦ Director of the International Chair of Musculoskeletal Ultrasound of the Catholic University of Murcia.
- ♦ Teacher on the Master's Degree in Clinical Imaging in Emergency and Critical Care, CEU Cardenal Herrera University.

Dr. Sánchez Sánchez, José Carlos

- ♦ Radiodiagnosis Specialist.
- ♦ Director of the Integrated Diagnostic Imaging Management Area and Intrahospital Coordinator of the Breast Cancer Early Detection Program. Poniente Hospital. El Ejido, Almería.
- ♦ Teacher on the Specialist Degree in Clinical Ultrasound for Family Physicians at the University of Barcelona.

Professors

Dr. Arancibia Zemelman, Germán

- ♦ Radiology Department Specialis at Clínica Meds. Santiago de Chile (Chile)

Dr. Argüeso García, Mónica

- ♦ Intensive Care Medicine Department. Gran Canaria Maternity Complex. Las Palmas de Gran Canaria (Canary Islands)

Dr. Barceló Galíndez, Juan Pablo

- ♦ Specialist in Occupational Medicine and medical sonographer at Mutualia. Bilbao

Dr. Cabrera González, Antonio José

- ♦ Family Physician. Tamaraceite Health Center. Las Palmas de Gran Canaria (Canary Islands)

Dr. Corcoll Reixach, Josep

- ♦ Family Physician. Tramuntana Health Center (Mallorca, Balearic Islands)

Dr. De Varona Frolov, Serguei

- ♦ Angiology and Vascular Surgery Specialist. General University Hospital of Gran Canaria Dr. Negrín. Las Palmas de Gran Canaria (Canary Islands)

Dr. Donaire Hoyas, Daniel

- ♦ Specialist in Orthopedic Surgery and Traumatology. Poniente Hospital. El Ejido, Almería

Sr. Feroso, Antonio Fabián

- ♦ Global Clinical Insights Leader Point of Care. General Electric Healthcare. Madrid

Sr. Gálvez Gómez, Francisco Javier

- ♦ Ultrasound Portfolio Solutions Manager España. SIEMENS Healthcare. Madrid

Dr. García García, Nicasio

- ♦ Family Physician (Schamann Health Center).

Dr. Herrero Hernández, Raquel

- ♦ Specialist in the Intensive Care and Major Burns Unit Getafe University Hospital. Madrid

Dr. Igeño Cano, José Carlos

- ♦ Head of the Emergency and Intensive Care Unit. San Juan de Dios Hospital. Córdoba

Dr. León Ledesma, Raquel

- ♦ Specialist in General and Digestive System Surgery and Obstetrics and Gynecology. Getafe University Hospital. Madrid

Dr. López Cuenca, Sonia

- ♦ Family Physician and Assistant in the Intensive Care and Major Burns Unit at Getafe Hospital (Madrid).

Dr. López Rodríguez, Lucía

- ♦ Specialist in the Intensive Care and Major Burns Unit Getafe University Hospital. Madrid



Dr. Martín del Rosario, Francisco Manuel

- ◆ Rehabilitation Specialist. Insular University Hospital Complex, Maternity and Infant. Las Palmas de Gran Canaria

D. Moreno Valdés, Javier

- ◆ Business Manager Ultrasound. Cannon (Toshiba) Medical Systems. Madrid

Dr. Núñez Reiz, Antonio

- ◆ Intensive Care Medicine Department Specialist. San Carlos University Hospital. Madrid

Dr. Ortigosa Solorzano, Esperanza

- ◆ Specialist in Anesthesiology, Resuscitation, and Pain Management. Getafe University Hospital. Madrid

Dr. Segura Blázquez, José María

- ◆ Family Physician. Canalejas Health Center. Las Palmas de Gran Canaria (Canary Islands).

Professor. Dr. Santos Sánchez, José Ángel

- ◆ Specialist in the Radiology Department. Salamanca University Hospital. Salamanca

Dr. Wagüemert Pérez, Aurelio

- ◆ Specialist in Pulmonology. San Juan de Dios Hospital. Santa Cruz de Tenerife (Canary Islands).

04

Structure and Content

The structure of the contents has been designed by a team of professionals from leading hospitals, who have taken into account the need to update the content that will be taught, as well as the use of quality teaching through new educational technologies.





This program will help you to detect, and intervene in diseases that can be diagnosed using ultrasound"

Module 1 Ultrasound Imaging

- 1.1. Physical Principles
 - 1.1.1. Sounds and Ultrasound.
 - 1.1.2. The Nature of Sound
 - 1.1.3. Interaction of Sound with Matter
 - 1.1.4. The Concept of Ultrasound
 - 1.1.5. Ultrasound Safety
- 1.2. Ultrasound Sequence
 - 1.2.1. Ultrasound Emission
 - 1.2.2. Tissue Interaction
 - 1.2.3. Echo Formation
 - 1.2.4. Ultrasound Reception
 - 1.2.5. Ultrasound Image Generation
- 1.3. Ultrasound Modes
 - 1.3.1. Modes A and M
 - 1.3.2. Mode B.
 - 1.3.3. Doppler Modes (Color, Angio, and Spectral)
 - 1.3.4. Combined Modes.
- 1.4. Ultrasound Scanners
 - 1.4.1. Common Components
 - 1.4.2. Classification
 - 1.4.3. Transducers.
- 1.5. Ultrasound Maps and Echolocation
 - 1.5.1. Spatial Layout
 - 1.5.2. Ultrasound Maps
 - 1.5.3. Transducer movements
 - 1.5.4. Practical Advice
- 1.6. Trends in Ultrasound
 - 1.6.1. 3D/4D Ultrasound
 - 1.6.2. Sonoelastography
 - 1.6.3. Echopotential
 - 1.6.4. Other Modes and Techniques

Module 2 Ultrasound-Guided Procedures

- 2.1. Ultrasound-Guided FNA
 - 2.1.1. Indications/Contraindications. Material
 - 2.1.2. Informed Consent.
 - 2.1.3. Procedure.
 - 2.1.4. Results
 - 2.1.5. Complications
 - 2.1.6. Quality Control
- 2.2. Ultrasound-Guided Percutaneous Biopsy
 - 2.2.1. Informed Consent.
 - 2.2.2. Biopsy Materials (Types of Biopsy Needles)
 - 2.2.3. Procedure.
 - 2.2.4. Complications
 - 2.2.5. Care
 - 2.2.6. Quality Control
- 2.3. Drainage of Abscesses and Fluid Collections
 - 2.3.1. Indications and Contraindications.
 - 2.3.2. Informed Consent.
 - 2.3.3. Requirements and Materials
 - 2.3.4. Technique and Approach: Direct Puncture (Trocar Technique) vs. Step to Step (Seldinger Technique)
 - 2.3.5. Catheter Management and Patient Care
 - 2.3.6. Side Effects and Complications
 - 2.3.7. Quality Control
- 2.4. Ultrasound-Guided Thoracentesis, Pericardiocentesis, and Paracentesis
 - 2.4.1. Indications and Advantages over the Anatomical Reference Technique
 - 2.4.2. Basic Aspects: Ultrasound Specifications and Ultrasound Anatomy
 - 2.4.3. Ultrasound Specifications and Pericardial Drainage Technique
 - 2.4.4. Ultrasound Specifications and Thoracic Drainage Technique
 - 2.4.5. Ultrasound Specifications and Abdominal Drainage Technique
 - 2.4.6. Common Problems, Complications, and Practical Advice

- 2.5. Ultrasound-Guided Vascular Cannulation
 - 2.5.1. Indications and Advantages over the Anatomical Reference Technique
 - 2.5.2. Current Evidence on Ultrasound-Guided Vascular Cannulation
 - 2.5.3. Basic Aspects: Ultrasound Specifications and Ultrasound Anatomy
 - 2.5.4. Ultrasound-Guided Central Venous Cannulation Technique
 - 2.5.5. Single Peripheral Catheter and Peripherally Inserted Central Catheter (PICC) Cannulation Technique
 - 2.5.6. Arterial Cannulation Technique
- 2.6. Ultrasound-Guided Infiltration and Chronic Pain Treatment
 - 2.6.1. Infiltrations and Pain
 - 2.6.2. Large Joints: Intra-Articular and Myotendinous
 - 2.6.3. Small Joints: Intra-Articular and Myotendinous
 - 2.6.4. Spinal Column
- 3.4. Ultrasound Report
 - 3.4.1. Ultrasound Note
 - 3.4.2. Ultrasound Derivation
 - 3.4.3. Ultrasound Report in PC
- 3.5. Ultrasound Safety during the COVID-19 Pandemic

Module 3. Other Uses of Clinical Ultrasound

- 3.1. Radial Breast Ultrasound
 - 3.1.1. Anatomy Recap
 - 3.1.2. Technical Requirements
 - 3.1.3. Ultrasound Slices
 - 3.1.4. Ultrasound Characteristics. Breast Pathology
 - 3.1.5. Breast Elastography
- 3.2. Dermatological Ultrasound
 - 3.2.1. Echoanatomy of the Skin and Appendages
 - 3.2.2. Ultrasound of Skin Tumors
 - 3.2.3. Ultrasound of Inflammatory Skin Diseases
 - 3.2.4. Ultrasound in Dermoesthetics and its Complications
- 3.3. Ultrasound in Diabetes
 - 3.3.1. Aortic/Carotid Atheromatosis in Diabetics
 - 3.3.2. Parenchymal Echogenicity in Diabetic Patients
 - 3.3.3. Biliary Lithiasis in Diabetic Patients
 - 3.3.4. Neurogenic Bladder in Diabetic Patients
 - 3.3.5. Cardiomyopathy in Diabetic Patients



05

Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used 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 Re-learning, 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

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you can 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 potential or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in professional medical practice.

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

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only 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 student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.



The physician 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Re-learning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

In our program, learning is not a linear process, but rather a spiral (we 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.



In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

We present 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, international guides. in our virtual library you will have access to everything you need to complete your training.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



Testing & Re-testing

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your goals.



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 our future difficult decisions.



Quick Action Guides

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



06

Certificate

The **Postgraduate Diploma in Ultrasound-Guided Procedures and Other Applications of Ultrasound in Primary Care** guarantees, in addition to the most rigorous and updated training, access to a Postgraduate Diploma issued by **TECH Technological University**.



“

Successfully complete this training and receive your university degree without travel or laborious paperwork”

This **Postgraduate Diploma in Ultrasound-Guided Procedures and Other Applications of Ultrasound in Primary Care** comprises the most comprehensive and up-to-date scientific program on the market.

After the student has passed the evaluations, he/she will receive by mail with acknowledgment of receipt their corresponding **Postgraduate Diploma** issued by **TECH Technological University**.

The certificate issued by **TECH Technological University** will specify the qualification obtained through the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: Postgraduate Diploma in Ultrasound-Guided Procedures and Other Applications of Ultrasound in Primary Care

ECTS: 18

Official Number of Hours: 450 hours.



*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.

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



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Procedures and Other
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Course Modality: **Online**

Duration: **6 months.**

Certificate: **TECH Technological University**

18 ECTS Credits

Teaching Hours: **450 hours.**

Postgraduate Diploma

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