

# Postgraduate Certificate Ultrasound Imaging





## Postgraduate Certificate Ultrasound Imaging

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

Website: [www.techtute.com/us/medicine/postgraduate-certificate/ultrasound-imaging](http://www.techtute.com/us/medicine/postgraduate-certificate/ultrasound-imaging)

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# 01

# Introduction

Diagnostic imaging has gone from being performed exclusively in a deferred manner by specialists outside the patient, to being included in the doctor-patient relationship, ceasing to be a complementary test to become a complement to the physical examination. This program is aimed at facilitating the update in the use of ultrasound imaging as a tool to optimize diagnostic and therapeutic processes in the emergency patient.





““

*Improve your knowledge through this program, where you will find the best didactic material with real clinical cases. Learn here about the latest advances in the specialty to be able to perform a quality medical practice”*

Ultrasound imaging has become a common and indispensable tool in the diagnostic and therapeutic processes in medicine. These days it is inconceivable to imagine specialists in obstetrics and gynecology, cardiology or urology attending to their patients without the use of ultrasounds. This idea is also being extended to almost all medical specialities.

Technological advances have made it possible to reduce the size of the equipment, making it cheaper and more portable, and have increased the capabilities of clinical ultrasound, leading to a notable increase in its use in various situations. Today, more accurate ultrasound diagnosis, safe ultrasound-guided interventions, precise non-invasive hemodynamic evaluations and rapid assessment of traumatic injuries are all possible.

In Clinical Ultrasound there is great dependence on the operator and the method of performance, with numerous studies recording the need and desire for regulated training for specialists and physicians in training.

Like any other aspect of the Health Sciences, the management of diagnostic imaging requires initial basic training and specialized advanced training, geared to the activity to be carried out. However, no organization currently offers a course at the highest level that completes the training pathway in Clinical Ultrasound for Emergencies and Critical Care.

This **Postgraduate Certificate in Ultrasound Imaging** is the most comprehensive and up-to-date scientific program on the market. The most important features of the course are:

- Clinical cases presented by experts in ultrasound imaging. 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.
- Diagnostic and therapeutic innovations in the use of ultrasound.
- Algorithm-based interactive learning system for decision-making in the presented clinical situations.
- With a special emphasis on evidence-based medicine and research methodologies in the use of ultrasound.
- All 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.



*Expand your knowledge through the Postgraduate Certificate in Ultrasound Imaging, in a practical way and adapted to your needs”*

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*This Postgraduate Certificate may be the best investment you can make when choosing a refresher program for two reasons: in addition to updating your knowledge on Ultrasound Imaging, you will obtain a postgraduate certificate from TECH Global University"*

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

*It includes clinical cases to bring the program's degree as close as possible to the reality of patient care.*

Forming part of the teaching staff is a group of professionals in the field of clinical ultrasound who bring to this training their work experience, as well as a group of renowned specialists, recognised by esteemed scientific communities.

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 an immersive training program 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 reason, you will be assisted by an innovative, interactive video system created by renowned and experienced experts in the field of clinical ultrasound with extensive teaching experience.



# 02 Objectives

The program's primary objective is focused on theoretical and practical learning, so that the medical professional is able to master the use of clinical imaging practically and rigorously.



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*This program will provide you with the skills to carry out your medical praxis with confidence and will help you to grow both personally and professionally”*



## General Objective

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- ♦ The main objective of this program in ultrasound is to complete the training pathway of the physician to be able to use ultrasound imaging in diagnostic and therapeutic processes, for the management of emergency situations and critical patients, whatever the environment they are in.



## Specific Objectives

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- ♦ Define the physical principles which are involved in ultrasound imaging.
- ♦ Establish an appropriate ultrasound sequence for each examination of a patient.
- ♦ Explain the different ultrasound modes.
- ♦ Define the different types of ultrasound and their applications.
- ♦ Describe the different ultrasound maps.
- ♦ Explain the principles of econavigation.





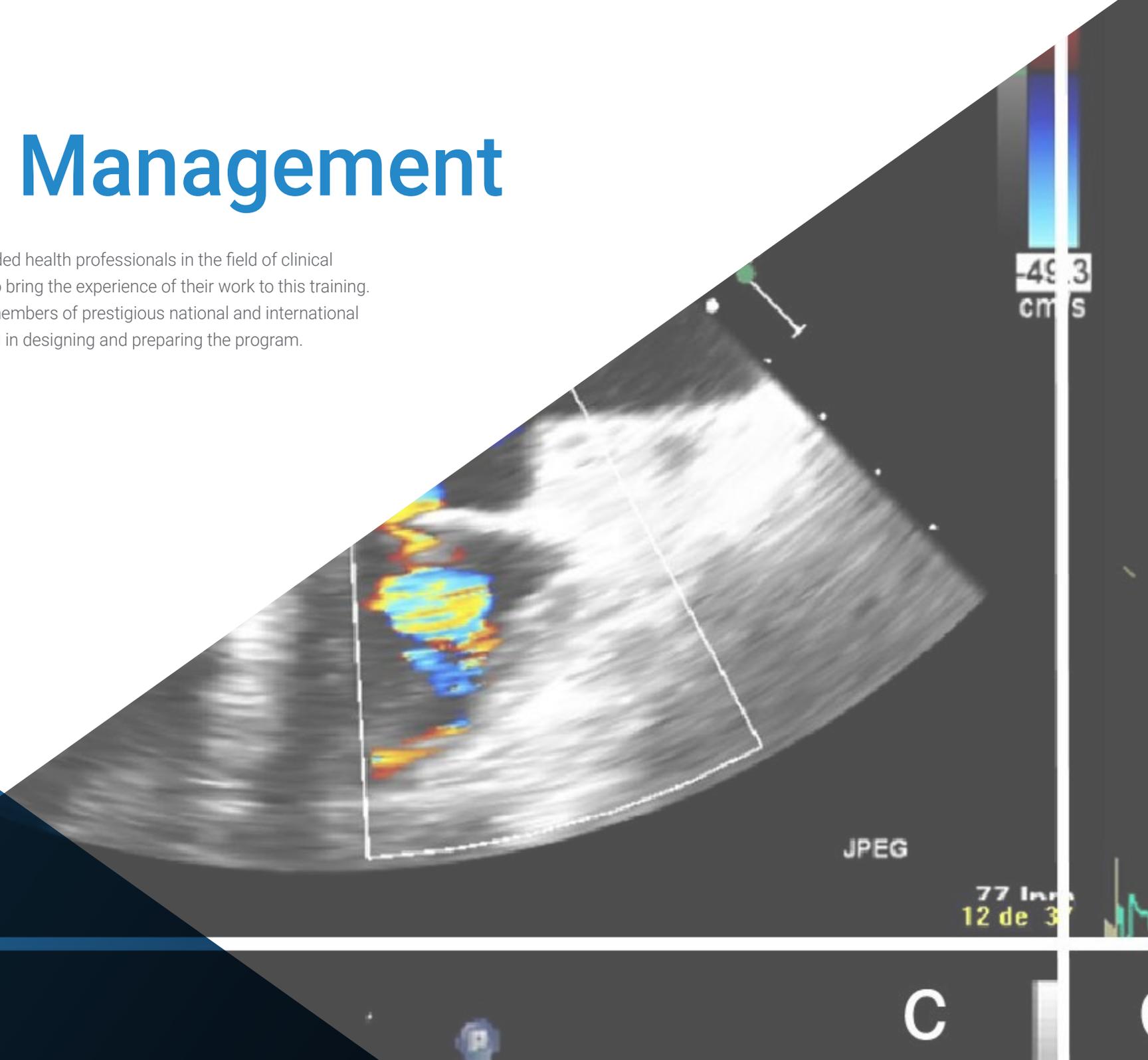
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*Seize the opportunity and take the step to get up to date on the latest developments in ultrasound imaging”*

03

# Course Management

This program includes highly regarded health professionals in the field of clinical ultrasound in its teaching staff, who bring the experience of their work to this training. In addition, renowned specialists, members of prestigious national and international scientific communities, are involved in designing and preparing the program.



Ao des  
Placa de  
ateroma

A medical ultrasound image showing a vessel wall. A yellow arrow points to a bright, irregular area labeled 'Placa de ateroma'. The image is overlaid on a dark blue background with diagonal lines. The text 'Ao des' is visible at the top left of the image area.

“

*Learn about the latest advances in thoracic oncology from leading professionals”*

## Management



### Dr. Álvarez Fernández, Jesús Andrés

- Degree in Medicine and Surgery
- Specialist in Intensive Care Medicine.
- Doctor of Medicine (PhD)
- Attending Physician of Intensive Care Medicine and Major Burns Unit. Getafe University Hospital. Getafe, Madrid
- Collaborating Professor of the Master's Degree in Intensive Care Medicine at the CEU Cardenal Herrera University of Valencia.
- Founding Member of the Ecoclub of SOMIAMA.
- Collaborating Professor of SOCANECO.



# 04

## Structure and Content

The structure of the contents has been designed by a team of professionals who recognise the implications of training in daily medical praxis, aware of the relevance of current training to treat the patient with oncologic thoracic pathologies and are committed to quality teaching using new educational technologies.



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*This Postgraduate Certificate in Ultrasound Imaging is the most comprehensive and up-to-date scientific program on the market”*

### Module 1. Physical principles |

- 1.1. Sounds and Ultrasound.
- 1.2. The Nature of Sound.
- 1.3. Interaction of Sound with Matter.
- 1.4. The Concept of Ultrasound.
- 1.5. Ultrasound Safety.

### Module 2. Ultrasound Sequence

- 2.1. Ultrasound Emission.
- 2.2. Tissue Interaction.
- 2.3. Echo Formation.
- 2.4. Echo Reception.
- 2.5. Ultrasound Image Generation.

### Module 3. Ultrasound Modes

- 3.1. Mode A.
- 3.2. Mode M.
- 3.3. Mode B.
- 3.4. Color Doppler.
- 3.5. Angio-Doppler.
- 3.6. Spectral Doppler.
- 3.7. Combined Modes.
- 3.8. Other Modes and Techniques.



#### Module 4. Ecography

- 4.1. Console Ecograph Ultrasound Scanners.
- 4.2. Portable Ecograph Ultrasound scanners
- 4.3. Specialised Ecograph Ultrasound Scanners
- 4.4. Transducers.

#### Module 5. Ultrasound Maps and Econavigation

- 5.1. Sagittal Map.
- 5.2. Transverse plane.
- 5.3. Coronal plane
- 5.4. Oblique Maps.
- 5.5. Ultrasound Marking.
- 5.6. Transducer movements



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

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.



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*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 an abundance of 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. 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 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 really 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

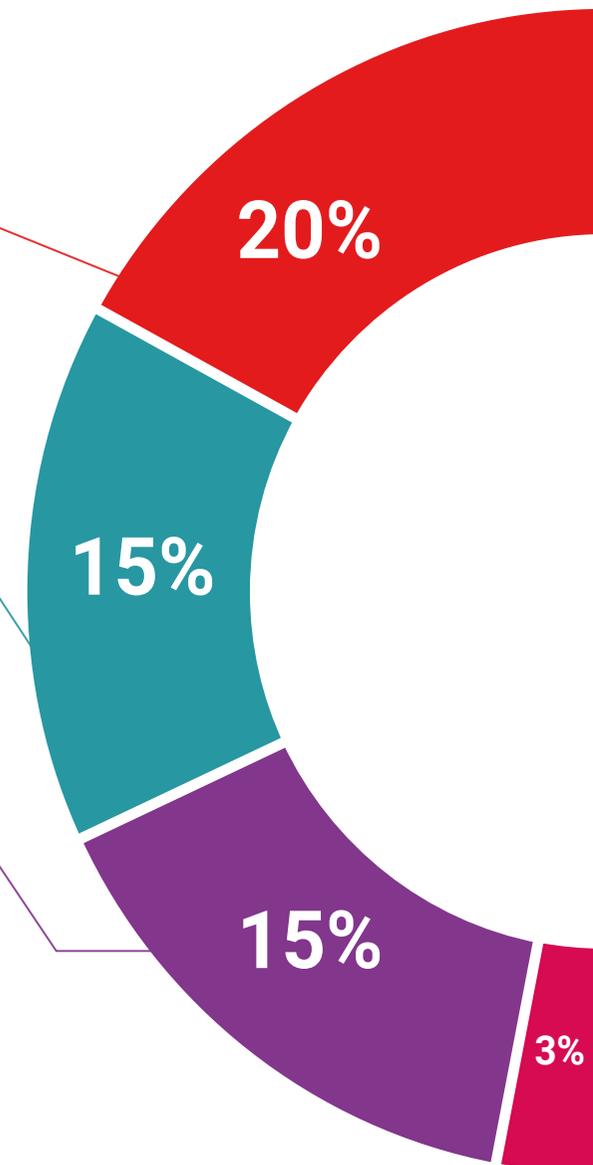
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 difficult future 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 Certificate in Ultrasound Imaging guarantees you, in addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by TECH Global University.



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*Successfully complete this training and receive your diploma without the hassle of travel or paperwork”*

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

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

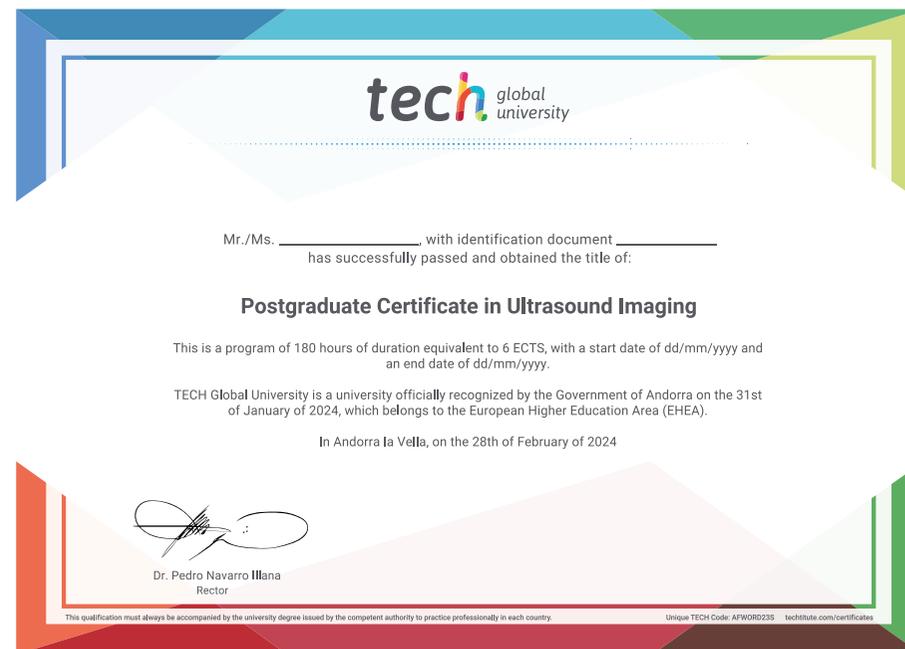
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Ultrasound Imaging**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University 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 quality

online training

development languages

virtual classroom

**tech** global  
university

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