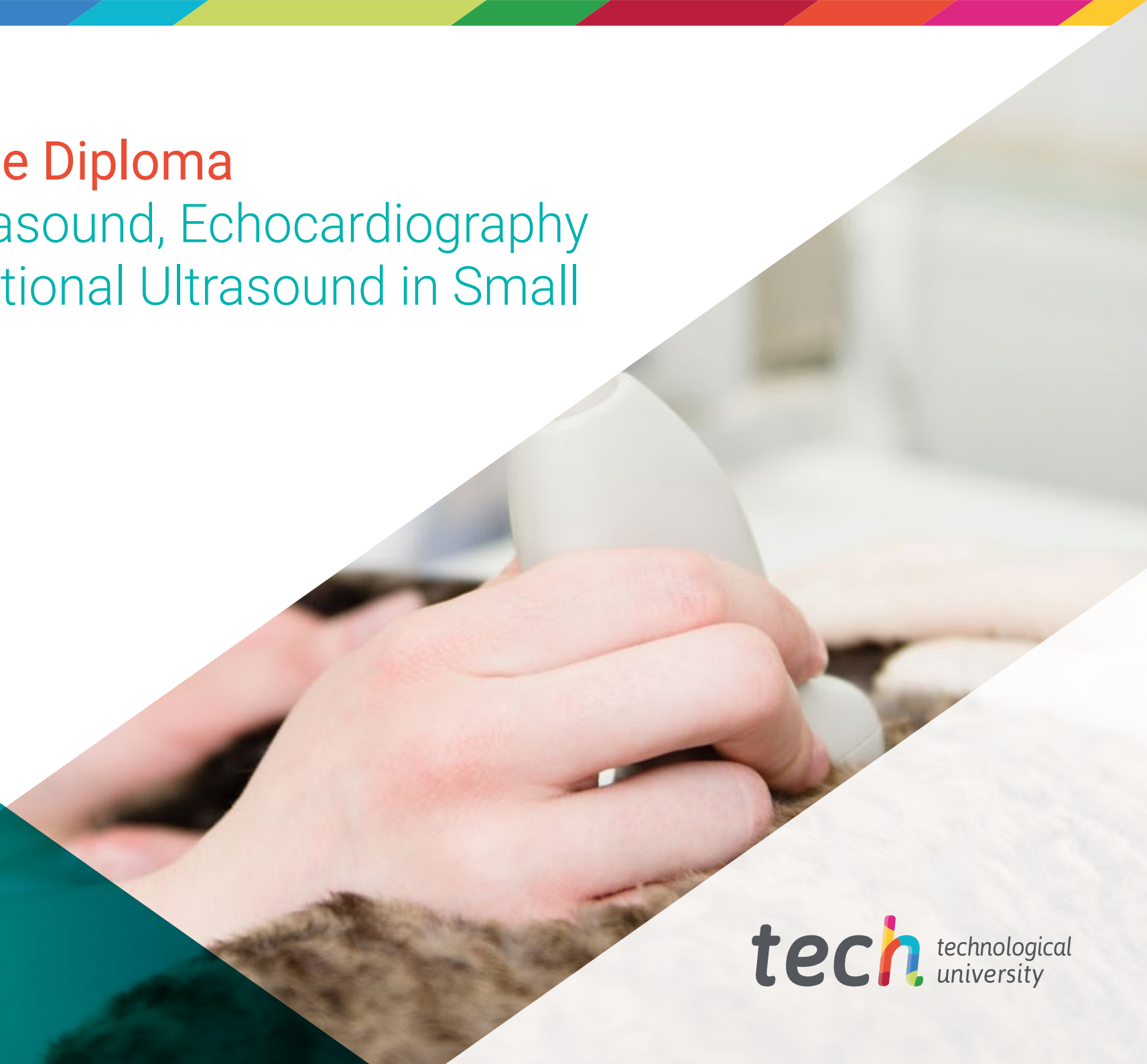


# Postgraduate Diploma

Doppler Ultrasound, Echocardiography  
and Interventional Ultrasound in Small  
Animals





## Postgraduate Diploma Doppler Ultrasound, Echocardiography and Interventional Ultrasound in Small An

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

Website: [www.techtute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-doppler-ultrasound-echocardiography-interventional-ultrasound-small-animals](http://www.techtute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-doppler-ultrasound-echocardiography-interventional-ultrasound-small-animals)

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# 01

# Introduction

Current ultrasound techniques have evolved in such a way that they allow the exploration of other regions of the patients' bodies beyond the traditional ones. It is necessary to know Doppler Ultrasound, echocardiography, as well as other new applications in order to offer them to patients and make use of them to complete the diagnosis of different ailments.





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*Do not miss the opportunity to complete this Postgraduate Diploma in Doppler Ultrasound, Echocardiography and Interventional Ultrasound for Small Animals, it is the perfect opportunity to advance your career."*

Ultrasound provides the veterinary professional with moving images of the structures being studied, as well as information on the state of the different tissues.

The introduction of Doppler in ultrasound equipment brought about a diagnostic revolution in ultrasound studies. Doppler makes it possible to evaluate moving structures, as well as to perform a detailed study of blood vessels, all in real time and using a painless, non-invasive method.

It is of utmost importance to know the versatility that Ultrasound allows in different areas and types of patients, in order to obtain the greatest advantage of this technique and to be able to offer complete services. For this reason, this program will also focus on echocardiography, a very powerful tool for the diagnosis and follow-up of cardiac conditions, whether acquired or congenital.

It is therefore essential to have advanced knowledge of the different types of ultrasound scans, in order to establish a correct and accurate examination protocol, as this is of vital importance for the interpretation of the results.

Given the online format of this program, you will develop confidence, assurance and greater knowledge of pathologies and differential diagnoses when it comes to providing relevant and necessary information in daily ultrasound practice.

As it is an online Postgraduate Diploma, students are not restricted by set timetables, nor do they need to physically move to another location. All of the content can be accessed at any time of the day, so you can balance your working or personal life with your academic life.

This **Postgraduate Diploma in Doppler Ultrasound, Echocardiography and Interventional Ultrasound in Small Animals** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- ♦ The latest technology in online teaching software
- ♦ A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ♦ Practical cases presented by practising experts
- ♦ State-of-the-art interactive video systems.
- ♦ Teaching supported by telepractice
- ♦ Continuous updating and recycling systems
- ♦ Autonomous learning: full compatibility with other occupations
- ♦ Practical exercises for self-evaluation and learning verification
- ♦ Support groups and educational synergies: questions to the expert, debate and knowledge forums.
- ♦ Communication with the teacher and individual reflection work
- ♦ Content that is accessible from any fixed or portable device with an Internet connection
- ♦ Supplementary documentation databases are permanently available, even after the program



*This program is the best investment you can make when choosing a refresher program in Doppler Ultrasounds and Echocardiograms”*

“

*Immerse yourself in this program of the highest educational quality, which will allow you to face future challenges that may arise during daily practice in Doppler Ultrasounds and Echocardiograms”*

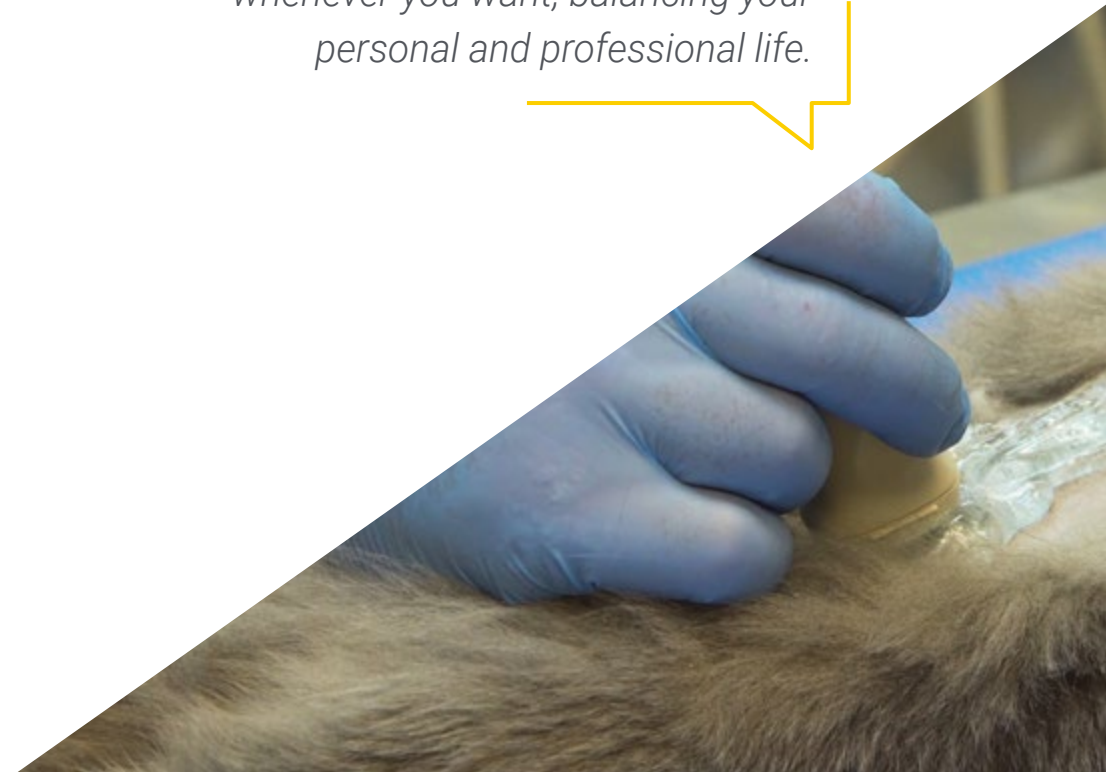
Our teaching staff is made up of professionals from different fields related to this specialty. This is how TECH ensures that it meets the objective of providing students with the educational update they are looking for. A multidisciplinary team of specialized and experienced professionals in different environments will develop the theoretical knowledge in an efficient way, but above all, they offer the practical knowledge derived from their own experience: one of the differential qualities of this program.

This mastery of the subject is complemented by the effectiveness of the methodological design of this Postgraduate Diploma in Doppler Ultrasound, Echocardiography and Interventional Ultrasound in Small Animals. Developed by a multidisciplinary team of *e-learning* experts, it integrates the latest advances in educational technology. Students will be able to study with a range of convenient and versatile multimedia tools that will give them the operability they need while specializing in the subject.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as an eminently practical process. To achieve this remotely, we will use telepractice: with the help of an innovative interactive video system and Learning From an Expert, students will be able to acquire knowledge as if they were facing the scenario they are learning at that moment. A concept that will allow students to integrate and memorize what they have learnt in a more realistic and permanent way.

*Learn from real cases with this highly effective Postgraduate Diploma and open new paths to your professional progress.*

*As the course is online, you will be able to study wherever and whenever you want, balancing your personal and professional life.*



02

# Objectives

The objective is to specialize highly qualified professionals for work experience. A goal that the student will achieve in just a few months and that will allow him/her to reach professional excellence.







“

*You will learn how to interpret echocardiographic images of the most common diseases”*



## General Objectives

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- Acquire knowledge of Doppler operation.
- Determine the types of Doppler that exist and their uses.
- Study of abdominal pathologies detected by ultrasound Doppler.
- Develop a comprehensive echocardiographic examination protocol
- Build confidence for conducting different echocardiographic cuts
- Optimizing the image to achieve a correct and accurate examination
- Determine the different echocardiographic measures applied in veterinary cardiology.
- Have the ability to interpret echocardiographic images of the most common diseases
- Effectively assess each disease and be able to stage it
- Differentiate between the different diseases that can be detected by echocardiography
- Be familiar with other useful applications beyond the traditional scanning modes
- Learn how to identify which structures can be explored using ultrasound
- Study the protocol to be followed in ultrasound-guided interventions
- Identify the main blocks using ultrasound-guidance



*This program will help you acquire the skills you need to excel in your daily work"*





## Specific Objectives

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### Module 1. Doppler Ultrasound and its Abdominal Applications

- ♦ Study the physical principles of a Doppler
- ♦ Obtain a correct ultrasound beam for accurate flow study
- ♦ Differentiating between vein flow and artery flow
- ♦ Use vascular indices of vascular resistance and pulsatility
- ♦ Evaluate vascularization in organs and masses
- ♦ Identify structures by absence or presence of flow
- ♦ Detection of vascular alterations
- ♦ Evaluate for thromboembolism and infarction.

### Module 2. Echocardiography I. Echocardiographic Examination. Examination Methods Cardiology Application

- ♦ Determine ultrasound equipment requirements for echocardiographic studies
- ♦ Establish the different physical principles that generate echocardiographic images
- ♦ Work on the different types of images used in echocardiography
- ♦ Provide keys to apply Doppler mode in echocardiography.
- ♦ Assess the size of the cardiac chambers using echocardiography
- ♦ Assess systolic and diastolic function using echocardiography

### Module 3. Echocardiography II Assessment of Main Cardiac Diseases

- ♦ Assess and study valvular heart disease
- ♦ Identify echocardiographic signs for detecting pulmonary hypertension
- ♦ Be able to differentiate between and diagnose canine and feline cardiomyopathies
- ♦ Evaluate the pericardial cavity, as well as the layers that form the pericardium
- ♦ Detect the different cardiac neoplasms
- ♦ Establish the theoretical bases for pericardiocentesis
- ♦ Study the different congenital conditions that can be found in small animals
- ♦ Assess for cardiac parasites
- ♦ Develop advanced echocardiography techniques

### Module 4. Other Ultrasound Applications

- ♦ Determine how to perform an organized and concise examination of the thoracic and cervical structures
- ♦ Perform serial and structured follow-up in emergency ultrasound.
- ♦ Establish how to correctly perform a technique for the use of anesthesia supported by ultrasound
- ♦ Proper screening and monitoring of pregnancy cases
- ♦ Interpret findings that may show up in pediatric and geriatric animals



03

# Course Management

Professionals from different areas and competencies, with extensive experience in animal ultrasound, will be your tutors throughout this specialization. A complete multidisciplinary team that stands out for its illustrious professional trajectory and teaching experience.





“

*Leading professionals in the field have come together to teach you the latest advances in Doppler Ultrasound, Echocardiography and Interventional Ultrasound in Small Animals”*



## Management



### Ms. Conde Torrente, María Isabel

- ♦ Head of the Diagnostic Imaging and Cardiology Service at Alcor Veterinary Hospital. Currently
- ♦ Degree in Veterinary Medicine from the University of Santiago de Compostela in 2012 with a certified European degree
- ♦ Advanced Postgraduate Course in Diagnostic Imaging (computerized Axial Tomography). *TCESMD*. 2019
- ♦ Postgraduate degree General Practitioner Certificate in Diagnostic Imaging (GPCert- DI) 2016
- ♦ Professor in Veterinary Practical Training in 2015 as a teacher for the official qualification of veterinary technical assistant
- ♦ Gives training courses on clinical and laboratory analysis for veterinarians at Hospital Veterinario Alberto Alcocer
- ♦ Medical Director and head of the Advanced Diagnostic Imaging Service of Grupo Peñagrande. Exclusive handling of TC General Electrics TriAc Revolution 16 cuts. 2017-2019
- ♦ Head of the Diagnostic Imaging Service at Centro Veterinario Mejorada. 2016-2017
- ♦ Responsible for diagnostic services at Hospital Veterinario Alberto Alcocer. 2013-2016
- ♦ University of Santiago de Compostela. Department of Animal Pathology. Collaboration with the research group on heavy metal accumulation in bovine meat in collaboration with Cornell University, New York; published in the Journal of Animal Science.

## Professors

### Dr. Monge Utrilla, Óscar

- ♦ Cardiology, Diagnostic Imaging and Endoscopy, KITICAN Group, Madrid (currently)
- ♦ Degree in Veterinary Medicine, Universidad Complutense de Madrid 2017
- ♦ GPCert Cardiology IVSPS 2017
- ♦ Degree Course "Specialist Course in Veterinary Hospital Clinic", University of León 2018
- ♦ Professional Master's Degree "Veterinary Anesthesiology", TECH Technological University. 2021
- ♦ In-house training in cardiology and respiratory medicine at Grupo Veterinario Kitican
- ♦ Veterinary Intern/Resident at the Veterinary Hospital of the University of León Faculty of Veterinary Medicine 2018
- ♦ Veterinarian at the Emergency Department of the Surbatán Veterinary Clinic 2018
- ♦ Veterinarian at the Emergency Department and in charge of the Cardiology Department at El Retiro Veterinary Hospital 2018
- ♦ Veterinarian at the Emergency Department and the Cardiology Department at Majadahonda Veterinary Hospital 2019
- ♦ Cardiology, Ultrasound and Outpatient Endoscopy for Coromoto Diagnostic Imaging, Sinergia 2020

### Dr. Millán Varela, Lorena

- ♦ Director of the Cardiology and Diagnostic Imaging Service at Clínica Veterinaria San Pedro
- ♦ Specialized Technical Assistance in Internal Medicine and Diagnostic Imaging in Small Animals together with the Universidad de León
- ♦ Doctor in Veterinary Medicine from the Universidad de León.

- ♦ AVEPA Accredited Specialist in Diagnostic Imaging

### Dr. García Guerrero, Francisco

- ♦ Veterinarian at Ecopet (Ultrasound Service/Outpatient Cardiology) (2013-present)
- ♦ Degree in Veterinary Medicine from the University of Cordoba in 2003
- ♦ Position in the Diagnostic Imaging and Cardiology Department at the University of Murcia, (March 2012-June 2012).
- ♦ Position in the Diagnostic Imaging and Internal Medicine Department of Hospital Clinic Uab, (May 2014-August 2014).
- ♦ Abdominal Ultrasound Course for Trauvel In May 2018
- ♦ Several Private Training Courses at Veterinary Centers/Hospitals
- ♦ Veterinarian at Clínica Veterinaria García Vallejo (Seville) (2003-2016)

### Dr. Huguet Pradell, Clàudia

- ♦ Veterinarian at Anicura Glòries Veterinary Hospital
- ♦ Graduate in Veterinary Medicine from the Autonomous University of Barcelona.
- ♦ First Aid course in small animals at the UAB
- ♦ Course on Clinical Cases in small mammals at the UAB

### Dr. Rojas, Francisco Javier

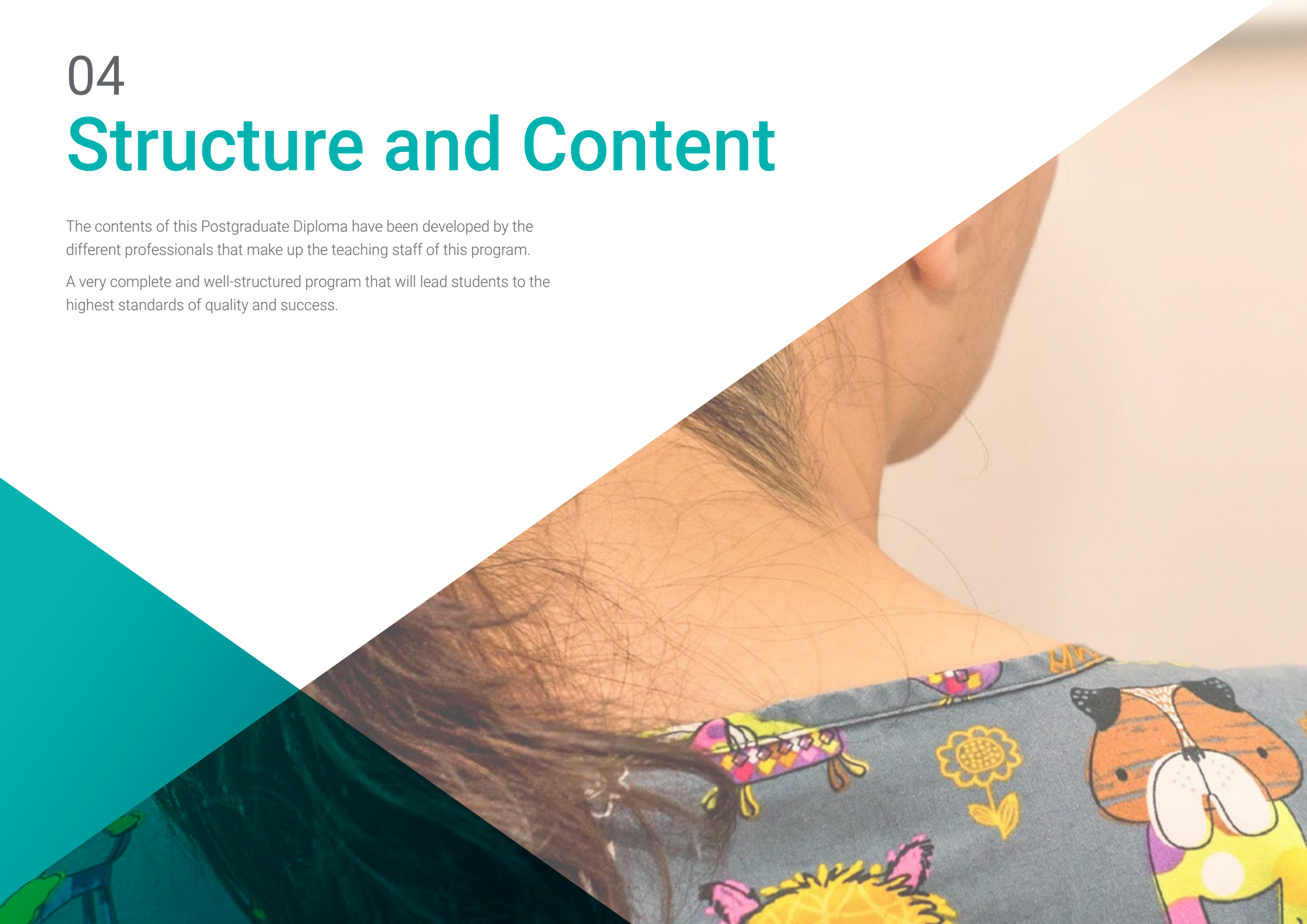
- ♦ Veterinarian at the Alcor Veterinary Hospital
- ♦ Veterinary degree from Complutense University of Madrid
- ♦ Course of radiological interpretation in small animals
- ♦ GPCert Student in Diagnostic Imaging ISVPS (Improve International)

04

# Structure and Content

The contents of this Postgraduate Diploma have been developed by the different professionals that make up the teaching staff of this program.

A very complete and well-structured program that will lead students to the highest standards of quality and success.



“

*A complete and well-structured program will take you to the highest standards of quality and success"*



## Module 1. Doppler Ultrasound and its Abdominal Applications

- 1.1. Doppler Ultrasound
  - 1.1.1 Flow Characteristics
  - 1.1.2 The Doppler Effect
- 1.2. Types of Doppler
  - 1.2.1 Continuous Wave Doppler
  - 1.2.2 Pulsed Doppler
  - 1.2.3 Duplex Doppler
  - 1.2.4 Color Doppler
  - 1.2.5 Power Doppler
- 1.3. Abdominal Vascular System
  - 1.3.1 Single-vessel Doppler Study
  - 1.3.2 Types of Vascular Flow
  - 1.3.3 Abdominal Vascularization
- 1.4. Vascular System Applications
  - 1.4.1 Aortic Flow
  - 1.4.2 Vena Cava Flow Rate
  - 1.4.3 Hepatic Vessel Hypertension
- 1.5. Abdominal Cavity Applications
  - 1.5.1 Renal Vascularization
  - 1.5.2 Vascularization in Abdominal Masses
  - 1.5.3 Vascularization in Parenchymal Organs
- 1.6. Shunts
  - 1.6.1 Congenital Portosystemic Shunts
    - 1.6.1.1. Intrahepatic
    - 1.6.1.2. Extrahepatic
  - 1.6.2 Acquired Portosystemic Shunts
  - 1.6.3 Arteriovenous Fistulae

- 1.7. Heart Attacks
  - 1.7.1 Renal
  - 1.7.2 Intestinal
  - 1.7.3 Hepatic
  - 1.7.4 Others
- 1.8. Thrombosis
  - 1.8.1 Aortic Thromboembolism
  - 1.8.2 Aortic Mineralization
  - 1.8.3 Portal Vein Thrombosis
  - 1.8.4 Vena Cava Thromboembolism
- 1.9. Lymph Node Vascularization
  - 1.9.1 Exploration
  - 1.9.2 Pathological Abdominal Lymph Nodes
- 1.10. Intestinal Volvulus
  - 1.10.1 Intestinal Vascularization

## Module 2. Echocardiography I. Echocardiographic Examination. Examination Methods Cardiology Application

- 2.1. Echocardiography
  - 2.1.1 Equipment and Probes
  - 2.1.2 Patient Positioning
  - 2.1.3 Echocardiographic Examination Methods
- 2.2. Keys to Carrying Out an Optimal Echocardiographic Study
  - 2.2.1 How to Optimize the Performance of my Ultrasound Equipment?
  - 2.2.2 Factors affecting the quality of an Echocardiographic Study
  - 2.2.3 Artifacts in Echocardiography
- 2.3. Echocardiographic Slicing
  - 2.3.1 Right Side Parasternal Cuts
  - 2.3.2 Left Side Parasternal Cuts
  - 2.3.3 Subcostal Cuts



- 2.4. M Mode Echocardiographic Examination
  - 2.4.1 How to Optimize the Image in M Mode?
  - 2.4.2 M Mode Applied to the Left Ventricle
  - 2.4.3 M Mode Applied Mitral Valve
  - 2.4.4 M Mode Applied Aortic Valve
- 2.5. Color and Spectral Doppler Echocardiographic Examination
  - 2.5.1 Color Doppler Physical Principles
  - 2.5.2 Spectral Doppler Physical Principles
  - 2.5.3 Color Doppler Imaging
  - 2.5.4 Pulsed Doppler Imaging Importance of Continuous Dopplers in Echocardiography
  - 2.5.5 Tissue Doppler
- 2.6. Echocardiographic Examination of the Aortic and Pulmonary Valves
  - 2.6.1 Color Doppler Mode of Aortic Valve
  - 2.6.2 Color Doppler Mode of Lung Valve
  - 2.6.3 Spectral Doppler Mode of Aortic Valve
  - 2.6.4 Spectral Doppler Mode of Lung Valve
- 2.7. Echocardiographic Examination of Mitral/Tricuspid Valves and Pulmonary Veins
  - 2.7.1 Color Doppler Mode of Mitral and Tricuspid Valves
  - 2.7.2 Spectral Doppler Mode of Mitral and Tricuspid Valves
  - 2.7.3 Spectral Doppler Mode of Pulmonary Veins
- 2.8. Assessment of Systolic and Diastolic Function Using Echocardiography
  - 2.8.1 Determination of Systolic Function in 2D Mode
  - 2.8.2 Determination of Systolic Function in M Mode
  - 2.8.3 Determination of Systolic Function in Spectral Doppler Mode
- 2.9. Diastolic Function Evaluation by Echocardiography
  - 2.9.1 Determination of Diastolic Function in 2D Mode
  - 2.9.2 Determination of Diastolic Function in M Mode
  - 2.9.3 Determination of Diastolic Function in Spectral Doppler Mode
- 2.10. Echocardiographic Examination to Assess Hemodynamics Application in Cardiology
  - 2.10.1 Pressure Gradients
  - 2.10.2 Systolic Pressure
  - 2.10.2 Diastolic Pressure
- 3.1. Valvular Diseases
  - 3.1.1 Chronic Mitral Valve Degeneration
  - 3.1.2 Chronic Tricuspid Valve Degeneration
  - 3.1.3 Atrioventricular Valve Stenosis
  - 3.1.4 Semilunar Valve Abnormalities
- 3.2. Pulmonary Hypertension
  - 3.2.1 Echocardiographic Signs of Pulmonary Hypertension: B Mode
  - 3.2.2 Echocardiographic Signs of Pulmonary Hypertension: M Mode
  - 3.2.3 Echocardiographic Signs of Pulmonary Hypertension: Doppler
  - 3.2.4 Causes and Differentiation of Types of Pulmonary Hypertension
- 3.3. Myocardial Diseases
  - 3.3.1 Canine Dilated Cardiomyopathy
  - 3.3.2 Arrhythmogenic Right Ventricular Cardiomyopathy
  - 3.3.3 Myocarditis
- 3.4. Feline Cardiomyopathies
  - 3.4.1 Hypertrophic Cardiomyopathy
  - 3.4.2 Restrictive Cardiomyopathy
  - 3.4.3 Feline Dilated Cardiomyopathy
  - 3.4.4 Arrhythmogenic Cardiomyopathy
  - 3.4.5 Unclassified Cardiomyopathies
- 3.5. Pericardium and Pericardiocentesis
  - 3.5.1 Idiopathic Pericarditis
  - 3.5.2 Constrictive Pericarditis
  - 3.5.3 Other Pericardial Diseases
  - 3.5.4 Pericardiocentesis
  - 3.5.5 Pericardiectomy.
- 3.6. Cardiac Neoplasms
  - 3.6.1 Hemangiosarcoma
  - 3.6.2 Cardiac-Based Tumors
  - 3.6.3 Lymphoma
  - 3.6.4 Mesothelioma
  - 3.6.5 Others
- 3.7. Congenital Heart Diseases I
  - 3.7.1 Patent Ductus Arteriosus

- 3.7.2 Pulmonary Stenosis.
- 3.7.3 Subaortic Stenosis
- 3.7.4 Interventricular and Interatrial Defects
- 3.7.5 Valvular Dysplasia
- 3.8. Congenital Heart Diseases II
  - 3.8.1 Interventricular and Interatrial Defects
  - 3.8.2 Valvular Dysplasia
  - 3.8.3 Tetralogy of Fallot
  - 3.8.4 Others
- 3.9. Dirofilariasis and Other Cardiopulmonary Worms
  - 3.9.1 Canine and Feline Dirofilariasis
  - 3.9.2 Canine Angiostrongyliasis
  - 3.9.3 Complementary Tests
- 3.10. Transesophageal Echocardiography and 3D Echocardiography
  - 3.10.1 Transesophageal Echocardiogram: Basics
  - 3.10.2 Transesophageal Echocardiogram: Indications
  - 3.10.3 3D Echocardiogram: Basics
  - 3.10.4 3D Echocardiogram: Indications

## Module 4. Other Ultrasound Applications

- 4.1. Non-cardiac Thoracic Ultrasound
  - 4.1.1 Thoracic Ultrasound Scan
  - 4.1.2 Ultrasound Examination of the Thorax
  - 4.1.3 Findings and Main Pathologies
  - 4.1.4 TFAST
- 4.2. Cervical Ultrasonography
  - 4.2.1 Cervical Ultrasound Scan
  - 4.2.2 Ultrasound Examination of the Cervical Region
  - 4.2.3 Thyroid and Parathyroid Glands
  - 4.2.4 Lymph Nodes and Salivary Glands
  - 4.2.5 Trachea and Esophagus
- 4.3. Ophthalmic Ultrasonography
  - 4.3.1 Ophthalmologic Ultrasound Scan
  - 4.3.2 Ultrasound Examination of the Eye and Surrounding Area
  - 4.3.3 Findings and Main Pathologies
- 4.4. Transcerebral Ultrasound and Gestational Ultrasonography
  - 4.4.1 Ultrasound Scans in Pregnancy
  - 4.4.2 Gestational Screening Protocol
  - 4.4.3 Transcerebral Ultrasound Scan
- 4.5. Interventional Ultrasonography
  - 4.5.1 Basics of Interventional Ultrasound
  - 4.5.2 Equipment and Patient Preparation
  - 4.5.3 Types of Punctures and Biopsy
  - 4.5.4 Specific Technique for Each Case?
- 4.6. Musculoskeletal Ultrasonography
  - 4.6.1 Musculoskeletal Examination
  - 4.6.2 Skeletal Muscle Scanning and Patterning
  - 4.6.3 Musculoskeletal Pathologies
- 4.7. Ultrasound of Surface Tissues
  - 4.7.1 Basis for Examining Surface Structures
  - 4.7.2 Surface Structure Recognition
  - 4.7.3 Pathologies and Abnormalities in Superficial Tissues
- 4.8. Echo-Guided Blocks
  - 4.8.1 Equipment and Basics of Ultrasound-guided Anesthesia
  - 4.8.2 Posterior Third Blocks
  - 4.8.3 Anterior Third Blocks
  - 4.8.4 Other Blocks
- 4.9. Ultrasonography in Pediatric and Geriatric Animals
  - 4.9.1 Features of Ultrasonography in Pediatrics and Geriatrics
  - 4.9.2 Ultrasound Examination Protocol, Artifacts and Findings
  - 4.9.3 Detectable Pediatric Pathologies and their Ultrasound Patterns
- 4.10. Emergency Department Ultrasonography
  - 4.10.1 Use of Ultrasound Scans in Emergencies
  - 4.10.2 Emergency Abdominal Ultrasound Scan
  - 4.10.3 Emergency Thoracic Ultrasound Scan



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*This Postgraduate Diploma in Doppler Ultrasound, Echocardiography. Interventional Ultrasound in Small Animals allows you to assimilate the content in a quicker and more effective way thanks to its innovative learning methodology”*

# 05 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used in the most prestigious medical schools in the world and has been considered one of the most effective by major publications such as the **New England Journal of Medicine**.







“

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



## At TECH, we use the Case Method

What should a professional do in a given situation? Throughout the program 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 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, in an attempt to recreate the actual conditions in a veterinarian's professional 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. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into 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 program.



## Relearning Methodology

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

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

*Veterinarians will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*





At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

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 TECH's 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 adapted in 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.



### Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



### Interactive Summaries

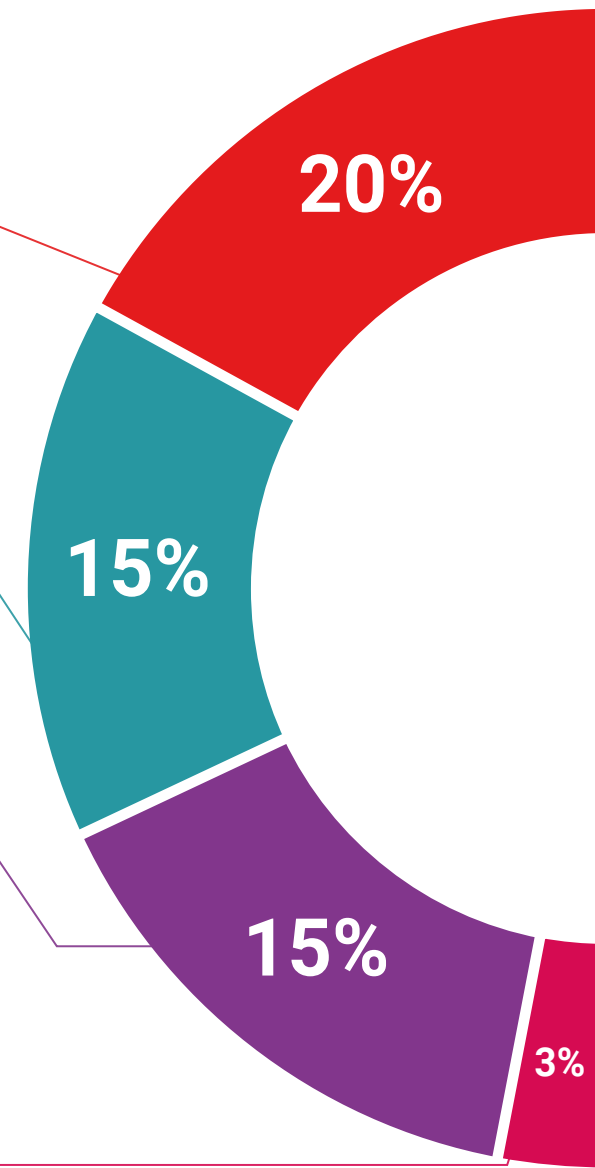
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

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

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



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



06

# Certificate

Postgraduate Diploma in Doppler Ultrasound, Echocardiography and Interventional Ultrasound for Small Animals guarantees, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.



“

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



This **Postgraduate Diploma in Doppler Ultrasound, Echocardiography and Interventional Ultrasound in Small Animals** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Diploma in Doppler Ultrasound, Echocardiography and Interventional Ultrasound in Small Animals**

Official N° of Hours: **600 hours**.





**Postgraduate Diploma**  
Doppler Ultrasound,  
Echocardiography and  
Interventional Ultrasound  
in Small An

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

# Postgraduate Diploma

Doppler Ultrasound, Echocardiography  
and Interventional Ultrasound in Small  
Animals