Postgraduate Diploma
Diagnostic Techniques in Cardiology in Large Animals

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Postgraduate Diploma
Diagnostic Techniques in Cardiology in Large Animals

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Global University**
- » Credits: **18 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-diagnostic-techniques-cardiology-large-animals**

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01
Introduction

In recent years, there has been a boom in the development of novel diagnostic and therapeutic techniques, such as intracardiac electrocardiograms, electrophysiological mapping in arrhythmias, pacemaker implantation and other intracardiac devices that can be implemented in larger species. These advances, which are necessary for an adequate clinical approach, are not available in books.

Therefore, this program offers a comprehensive and well-developed syllabus that addresses advanced cardiology topics, providing detailed descriptions of the different procedures performed depending on the species, as well as a guide for clinical decision-making and patient selection.

Veterinarians must continue their training to adapt to new developments in this field"

Cardiovascular disorders in animals are highly significant because they can affect their quality of life and life expectancy. Advanced knowledge of cardiology is indispensable for large animal veterinarians: ruminants (cattle, sheep, goats), camelids (alpacas, camels and llamas), swine (pigs, wild boars) and equidae (donkeys and mules).

Cardiology in ruminants and swine has been limited, for a long time, due to the limited literature and diagnostic limitations, especially in advanced therapeutic procedures.

Regarding equidae, a high number of horses are used for sporting purposes and cardiac pathologies limit their capacity and even force the animal to withdraw from competition. This is more evident the more demanding the equine is in terms of sport and cardiovascular effort. The management of food species differs, but it also affects their production capacity.

This program covers the basics of Cardiology and delves into the most up-to-date and advanced techniques currently available, offering extensive and in-depth content. Moreover, exclusive masterclasses taught by a renowned international expert in veterinary cardiology are offered. In this way, the student will have the opportunity to bring the most advanced clinical practice in this field to their practice.

The Postgraduate Diploma in Diagnostic Techniques in Cardiology in Large Animals brings together all the detailed information from the different areas of Cardiology at a high and advanced level of specialization, and is taught by renowned professors in the fields of internal medicine, cardiology and minimally invasive surgery in veterinary medicine.

This **Postgraduate Diploma in Diagnostic Techniques in Cardiology in Large Animals** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- Development of practical cases presented by experts in Diagnostic Techniques in Cardiology in Large Animals
- 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
- New developments on Diagnostic Techniques in Cardiology in Large Animals
- Practical exercises where self-assessment can be used to improve learning.
- Special emphasis on innovative methodologies in Diagnostic Techniques in Cardiology in Large Animals
- 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

You will gain exclusive access to a series of masterclasses that will provide you with detailed information on the most relevant international advances in diagnostic cardiology"

"

This course is the best investment you can make when choosing a refresher programme to update your existing knowledge of Veterinary Cardiology"

This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive learning programmed to study in real situations.

This program is designed around Problem-Based Learning, whereby the specialist must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Diagnostic Techniques in Cardiology in Large Animals.

02
Objectives

The Postgraduate Diploma in Diagnostic Techniques in Cardiology in Large Animals is designed to facilitate the performance of veterinary professionals with the latest advances and the most innovative treatments in the sector.

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Learn about the latest advances in the field from the comfort of your home, thanks to the online format on which this program is based"

General Objectives

- Establish a suitable methodology for animal cardiopathy examination
- Identify all clinical signs associated with cardiovascular disease
- Generate specialized knowledge of cardiac auscultation
- Establish the specific clinical approach to animals with a cardiovascular disorder
- Develop a suitable working methodology to optimize the use of non-invasive diagnostic tests
- Analyze the basics of ultrasound to learn the tools useful in the assessment of cardiac function and structure
- Establish solid concepts in the genesis of the electrocardiogram
- Develop a diagnostic protocol based on the electrocardiogram.
- Generate specialized knowledge in advanced cardiac diagnostic and therapeutic techniques
- Examine the instrumentation required to perform cardiac catheterization and minimally invasive surgery
- Establish the appropriate methodology for the performance of these advanced procedures, including their anesthetic approach.
- Strengthen the basis for selecting appropriate cases for cardiac catheterization and minimally invasive surgery.
- Develop cardiopulmonary resuscitation protocols

Specific Objectives

Module 1. General Examination of Large Animals with Cardiovascular Pathology: Equidae, Ruminants and Swine

- Develop specialized information on the clinical examination of cardiac patients.
- Accurately recognize the normal sounds that can be encountered
- Differentiate between physiological murmurs and pathological murmurs
- Establish differential diagnoses of abnormal rhythms based on irregularity and heart rate
- Establish a work methodology for patients with murmurs and for patients with arrhythmias.
- Generate a work methodology for patients with syncope
- Develop a work methodology for animals with heart failure.

Module 2. Complementary non-invasive cardiovascular tests in large animals: equidae, ruminants and swine.

- Fundamentals of ultrasound physics and imaging principles
- Differentiate the types of echocardiography and analyze their usefulness in different clinical situations.
- Recognize all the ultrasound planes described and propose a standardized protocol for evaluating the heart.
- Gain insight into the genesis of the electrocardiogram in order to analyze its pattern, the existence of artifacts and morphological anomalies.
- Specify the different recording systems and methods used to obtain the electrocardiogram and adapt it to the patient's clinical situation.
- Establish a systematic protocol that simplifies the reading of the electrocardiogram.
- Identify the main mistakes made when analyzing the electrocardiogram.

Module 3. Advanced Cardiac Procedures: Interventionism, Minimally Invasive Surgery and Cardiopulmonary Resuscitation in Large Animals: Equidae, Ruminants and Swine

- Analyze the specific risks posed by anesthesia
- Develop appropriate anesthetic protocols that allow for safe anesthesia
- Adequately select cases that can undergo cardiac catheterization and minimally invasive surgery, establishing a risk-benefit ratio
- Develop in-depth knowledge of the instruments used in cardiac catheterization and minimally invasive surgery techniques
- Differentiate the types of existing pacemakers and defibrillators
- Integrating electrical cardioversion as a routine treatment option in the equine clinic
- Examine the complications that arise during cardiac catheterization and minimally invasive surgery procedures and establish protocols for dealing with these complications
- Establish up-to-date protocols for cardiopulmonary resuscitation in foals and adult horses

03

Course Management

The program's teaching staff includes leading experts in Diagnostic Techniques in Cardiology in Large Animals who contribute their vast work experience to this academic program. They are world-renowned veterinarians from different countries with proven theoretical and practical professional experience.

"

Our teaching faculty, experts Diagnostic Techniques in in Cardiology in Large Animals, will help you achieve success in your profession"

International Guest Director

Dr. Brian Scansen is a professor and **chief of cardiology and cardiac surgery at Colorado State University**. In addition, he is a member of the editorial board of the Journal of Veterinary Cardiology and gives international conferences on heart diseases in animals. His clinical and research interests focus oncongenital heart disease, advanced cardiac imaging, and minimally invasive therapies.

Recently **has led several sessions on cardiac disease in dogs and cats.** at veterinary conferences. In these sessions, Scansen addressed mitral valve disease in dogs and presented new therapies and strategies in development to treat heart disease and heart failure in dogs. He shared information about the progression of the disease and highlighted the importance of identifying dogs at risk for heart failure.

Regarding his academic career, Scansen **graduated from veterinary school at Michigan State University, where he graduated with Doctor of Veterinary Medicine and Master of Science degrees.**. He subsequently completed a fellowship in Interventional Radiology and Endoscopy at the University of Pennsylvania and Animal Medical center, New York.

He has published more than 200 original journal articles, book chapters, proceedings and scientific abstracts related to heart diseases in animals. Moreover, he is **a member of the Editorial Committee of the Journal of Veterinary Cardiology and Founding Member of the Society of Veterinary Interventional Radiology and Interventional Endoscopy.**

Dr. Scansen, Brian

- Chief of the cardiology and cardiac surgery service at Colorado State University
- Member of the editorial board of the Journal of Veterinary Cardiology
- PhD in Medicine from the University of Michigan
- Doctor of Science, University of Michigan
- Author of more than 200 original articles in magazines, book chapters, minutes and scientific summaries related to heart disease in animals

Thanks to TECH you will be able to learn with the best professionals in the world"

Management

Dr. Villalba Orero, María

- Scientific Advisor on cardiovascular and pulmonary ultrasound at the National Center for Cardiovascular Research
- Head and Founder of MVO Equine Cardiology
- Head of the Equine Anesthesia Service at Asurvet Equidos
- Doctor of Veterinary Medicine, Complutense University of Madrid.
- Degree in Veterinary Medicine from the Complutense University Madrid
- Master's Degree in Veterinary Sciences from the Complutense University of Madrid
- Master's Degree in Veterinary Cardiology
- Certificate European Certificate in Veterinary Cardiology by the European School of Veterinary Postgraduate Studies (ESVPS)

Professors

Dr. Roquet Carne, Imma

- Equine Veterinary Surgeon
- Veterinary Surgeon in private Equine Medicine and Surgery practices
- Surgeon and Clinical Veterinarian in the Large Animal Department at the Veterinary Clinical Hospital
- Surgeon in hospitals and horse clinics in Europe
- Author or co-author of several publications on Equine Surgery
- Teacher in undergraduate and postgraduate studies related to medicine
- Degree in Veterinary Medicine, Autonomous University of Barcelona
- Master's Degree in Veterinary Science from La the University of Saskatchewan

Dr. Medina Torres, Carlos

- Head of the Internal Medicine Section at Pferdeklinik Altforweiler and Pferdeklinik Leichlingen
- Assistant Professor of Large Animal Internal Medicine at the National University of Colombia
- Research Associate and Clinical Instructor at Ludwig-Maximilians-University Munich
- Doctor of Science, University of Queensland
- Bachelor in Veterinary Medicine from the National University of Colombia.
- Doctor of Science, University of Liverpool

Dr. Troya Portillo, Lucas

- Veterinary Doctor Expert in Equine Clinic
- Internal Medicine and Equine Anesthesiologist at the Veterinary Clinical Hospital of Barcelona
- Researcher at the Department of Animal Medicine and Surgery at the Autonomous University of Barcelona
- Researcher in Veterinary Medicine with the Institute of Applied Studies
- Master's Degree in Clinic at Complutense University Madrid
- Degree in Veterinary Medicine from the Complutense University of Madrid
- Member of the Association English of Equine Veterinary Specialists

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Structure and Content

The structure of the contents has been designed by the best professionals in the field of Diagnostic Techniques in Cardiology in Large Animals, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with extensive knowledge of new technologies applied to veterinary medicine.

This Postgraduate Diploma contains the most complete and up-to-date scientific program on the market"

Module 1. General Examination of Large Animals with Cardiovascular Pathology: Equidae, Ruminants and Swine

1.1. Anamnesis, General and Specific Clinical Examination in Equidae
    1.1.1 Medical History
    1.1.2 General Physical Examination
    1.1.3 Cardiovascular System Examination
1.2. Anamnesis, General and Specific Clinical Examination of Ruminants and Camelids
    1.2.1 Ruminants
        1.2.1.1. Medical History
        1.2.1.2. General Physical Examination
        1.2.1.3. Cardiovascular System Examination
    1.2.2 Camelids
        1.2.2.1. Medical History
        1.2.2.2. General Physical Examination
        1.2.2.3. Cardiovascular System Examination
1.3. General Auscultation of Heart Sounds
    1.3.1 Interpretation of Normal Heart Sounds
    1.3.2 General Characteristics of Heart Murmurs
    1.3.3 Physiological Murmurs
    1.3.4 Differential Diagnosis of Physiological Murmurs
1.4. Auscultation of Murmurs and Arrhythmias
    1.4.1 Systolic Pathological Murmurs
    1.4.2 Diastolic Pathological Murmurs
    1.4.3 Continuous Murmurs
    1.4.4 Irregular Rhythms
1.5. Blood Pressure Measurement
    1.5.1 Role of Systemic Arterial Pressure
    1.5.2 Reference Values
    1.5.3 Alterations in Systemic Arterial Blood Pressure
    1.5.4 Methods for Measuring Systemic Blood Pressure

1.6. Cardiac Output Measurement
    1.6.1 Definition and Regulation of Cardiac Output
    1.6.2 Monitoring
    1.6.3 Indications for Monitoring
1.7. Interpretation of Blood Analysis I
    1.7.1 Blood Count:
    1.7.2 Leukogram
    1.7.3 Platelet Disorders
    1.7.4 Biochemistry
1.8. Interpretation of Blood Analysis II
    1.8.1 Electrolyte Disorders
    1.8.2 Troponin, BNP and ANP
1.9. Clinical Approach to Animals with Heart Murmur or Arrhythmias
    1.9.1 Interpretation of Clinical Signs and Assessment of Clinical Significance
    1.9.2 Prognosis
1.10. Clinical Approach to Syncope
    1.10.1 Interpretation of Clinical Signs and Assessment of Clinical Significance
    1.10.2 Prognosis

Module 2. Complementary non-invasive cardiovascular tests in large animals: equidae, ruminants and swine.

2.1. General Echocardiography Concepts
    2.1.1 Ultrasound Characteristics
    2.1.2 Ultrasound-Tissue Interaction
    2.1.3 Ultrasound Image Formation
    2.1.4 Equipment Features
2.2. Basic Ultrasound Modes
    2.2.1 M-mode Ultrasound
    2.2.2 Two-Dimensional Ultrasound
    2.2.3 Doppler Technique
    2.2.4 *Speckle Tracking*

Module 3. Advanced Cardiac Procedures: Interventionism, Minimally Invasive Surgery and Cardiopulmonary Resuscitation in Large Animals: Equidae, Ruminants and Swine

3.1.   Anesthesia of Patients Undergoing Cardiac Interventional and Minimally Invasive Surgery

3.1.1   Monitoring

3.1.2   General Anesthesia in Non-Critically Ill Patients

3.1.3   General Anesthesia in Critically Ill Patients

3.1.4   Anesthesia for On-Station Procedures

3.2.   Endomyocardial Biopsy

3.2.1   Instruments

3.2.2   Technique

3.2.3   Indications for Use

3.2.4   Associated Complications

3.3.   Pacemaker Implantation

3.3.1   Instruments

3.3.2   Technique

3.3.3   Indications for Use

3.3.4   Associated Complications

3.4.   Septal Occlusion with Amplatzer Devices for Interventricular Communication

3.4.1   Instruments

3.4.2   Technique

3.4.3   Indications for Use

3.4.4   Associated Complications

3.5.   Septal Occlusion of Aorto-Cardiac Fistulas with Amplatzer Devices

3.5.1   Instruments

3.5.2   Technique

3.5.3   Indications for Use

3.5.4   Associated Complications

3.6.   Endovenous Electrical Cardioversion

3.6.1   Instruments

3.6.1   Technique

3.6.2   Indications for Use

3.6.3   Associated Complications

3.7.   Electrophysiological Mapping

3.7.1   Instruments

3.7.2   Technique

3.7.3   Indications for Use

3.7.4   Associated Complications

3.8.   Ablation of Supraventricular Arrhythmias

3.8.1   Instruments

3.8.2   Technique

3.8.3   Indications for Use

3.8.4   Associated Complications

3.9.   Pericardiectomy by Thoracoscopy

3.9.1   Instruments

3.9.2   Technique

3.9.3   Indications for Use

3.9.4   Associated Complications

3.10.   Cardiopulmonary Resuscitation

3.10.1   In Foals

3.10.2   In Adults

Achieve professional success with this high-level training provided by prestigious professionals with extensive experience in the sector"

Methodology

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

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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

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. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the 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.

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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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 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.

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.

20%

15%

15%

3%

20%

17%

7%

3%

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.

07

Certificate

This Postgraduate Diploma in Diagnostic Techniques in Cardiology in Large Animals guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Diploma in Diagnostic Techniques in Cardiology in Large Animals** 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.
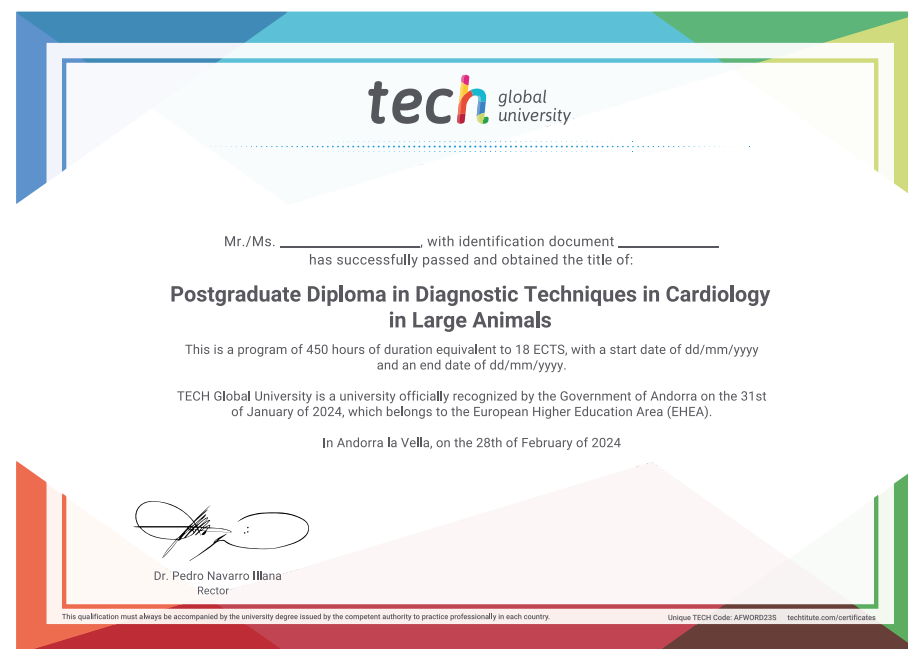
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Diagnostic Techniques in Cardiology in Large Animals**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**

tech global university

Mr./Ms. _____, with identification document _____ has successfully passed and obtained the title of:

Postgraduate Diploma in Diagnostic Techniques in Cardiology in Large Animals

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.   Unique TECH Code: AFWORD23S   techtitute.com/certificates

*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.

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