

## Postgraduate Diploma

Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice





## Postgraduate Diploma

### Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice

- » Modality: Online
- » Duration: 6 months.
- » Certificate: TECH Technological University
- » Dedication: 8h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/pk/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-digestive-blood-disorders-horses-nutrition-expanded-therapeutic-protocols-outpatient-practice](http://www.techtitute.com/pk/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-digestive-blood-disorders-horses-nutrition-expanded-therapeutic-protocols-outpatient-practice)

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# 01

# Introduction

Digestive tract pathologies represent one of the pathologies with the highest incidence in the equine veterinary sector. Many of them can be seen frequently in routine clinical practice and depending on the type of pathology, as well as the speed and efficiency with which the clinician acts, they can even compromise the animal's life. This comprehensive program will also cover the in-depth study of alterations related to the hematopoietic and immune system, identifiable through the laboratory study of blood components and detectable through a hemogram and serum biochemistry. Therefore, it is a 100% online program, without pre-established schedules or cumbersome procedures.





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*A complete and total update in Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice with the most complete and effective scientific program in the online educational market"*

Digestive pathologies are the main cause of death in domestic horses. Therefore, they constitute a field of equine medicine and surgery in constant progress and research and for which the clinician practicing ambulatory veterinary medicine must be equipped with a high level of specialization, to ensure the best results for their patients, ensuring at all times the knowledge of diagnostic tools and innovative and quality treatments.

Most digestive pathologies present with characteristic symptoms called acute abdominal syndrome (AAS), or in other words, colicky pain. Addressing these problems is therefore always a challenge for the equine veterinarian. Some of them are mild, almost asymptomatic, but if not detected in time they can lead to loss of sporting performance, animal welfare disorders or serious systemic involvement. Others are conditions of extreme urgency, posing a real danger and even endangering the life of the animals.

They all encompass issues that require an advanced level of knowledge to be able to deal with situations that the specialist-qualified ambulatory clinician will have to deal with on a day-to-day basis. These topics will deal with the in-depth study of alterations related to the hematopoietic and immune system, identifiable through the laboratory study of blood components and detectable through a hemogram and serum biochemistry.

On the other hand, topics specific to hospital intensive care units will be addressed, such as pain management, correction of hydro-electrolyte and acid-base balance, intensive care in neonates and adults, with the aim of providing the student with the necessary skills to enable him/her to treat a patient with ICU requirements while outside a hospital setting.

This **Postgraduate Diploma in Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice** 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-assessment 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 finishing the course.



*With the experience of active professionals and the analysis of real cases of success, in a high impact scientific approach”*

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*A 100% online program that seeks to provide up-to-date information to improve your skills in the identification of Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice”*

Our teaching staff is made up of professionals from different fields related to this specialty. In this way, we ensure that we provide you with the educational update we are aiming for. A multidisciplinary team of professionals prepared and experienced in different environments, who will develop the theoretical knowledge in an efficient way, but, above all, will put at your service the practical knowledge derived from their own experience: one of the differential qualities of this educational program.

This mastery of the subject matter is complemented by the effectiveness of the methodological design. Developed by a multidisciplinary team of *e-Learning* experts, it integrates the latest advances in educational technology. In this way, you will be able to study with a range of easy-to-use and versatile multimedia tools that will give you the necessary skills you need for your specialization.

The design of this program is based on Problem-Based Learning: an approach that views learning as a highly practical process. To achieve this remotely, we will use telepractice learning: with the help of an innovative interactive video system, and *learning from an expert*, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*You will learn to develop and advance in depth in the diseases that affect the digestive tract from the stomach to the rectum, assessing the stage of the pathologies that appear.*

*A comprehensive program that will allow you to acquire the most advanced knowledge in all the fields of intervention of the Equine Veterinarian.*



# 02 Objectives

The objective is to prepare highly qualified professionals for work experience. An objective that is complemented, moreover, in a global manner, by promoting human development that lays the foundations for a better society. This objective is materialized in helping professionals to reach a much higher level of competence and control. A goal that, in just a few months, you will be able to achieve with high intensity and effective educational program.







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*If your objective is to reorient your skills towards new paths of success and development, this is your Postgraduate Diploma: an educational program that aspires to excellence".*



## General Objectives

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- ♦ Identify the different anatomical structures and pathologies of the digestive tract of the horse.
- ♦ Develop and advance in the most frequent procedures to solve oral cavity pathologies.
- ♦ Recognize the symptoms of digestive disorders.
- ♦ Enable the clinician to correctly assess the systemic state of the animal and the consequent severity of the pathology.
- ♦ Establish diagnostic protocols and generate optimized treatments and prognoses.
- ♦ Establish optimal preventive medicine criteria and good management guidelines.
- ♦ Prepare the clinician in the approach to the patient with advanced alterations in the hemogram, biochemistry or hematopoiesis disorders.
- ♦ Develop an innovative and up-to-date methodology for patients with immune-mediated disorders.
- ♦ Develop an expanded understanding of endotoxic shock, in order to provide the patient with the latest treatments
- ♦ Examine the physiology of food consumption and the physical distribution and transport of the food bolus through the small and large intestine, as well as the processes of nutrient absorption in the different digestive compartments.
- ♦ Determine the conversion of nutrients into available energy for the different organic functions of the horse.
- ♦ Establish the different nutritional needs in the horse's diet, as well as its energy requirements according to sport discipline, productive objective or maintenance as a domestic animal.
- ♦ Assess the cachectic horse: history and nutritional status, possible differentials, knowledge of metabolic consequences and requirements for subsequent dietary adjustment.
- ♦ Generate specialized knowledge on antibiotic therapy and antibiotic resistance novelties.
- ♦ Examine prebiotics, probiotics, as well as the use of medicinal plants in response to the high market demand that exists today in this field of medicine.
- ♦ Develop sedation and ambulatory anesthesia procedures.
- ♦ Determine the necessary tools for the assessment of the critically ill patient, providing the knowledge that enables the student to perform hospital treatments, such as advanced pain management, correction of hydro-electrolyte balance and acid-base balance, intensive care in the neonate and intensive care in the adult.
- ♦ Delve into the fundamental medicinal and pharmacological considerations of high-level sport horses.
- ♦ Delve into equine toxicology.
- ♦ Develop the application of humane euthanasia protocols.



## Specific Objectives

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### Module 1. Digestive System

- ♦ Define correct methods of anamnesis, evaluation and assessment of the patient with digestive pathology.
- ♦ Establish anesthetic blocking protocols for oral surgery and dental extractions.
- ♦ Recognize and resolve mandibular and maxillary pathologies.
- ♦ Properly develop general examination procedures such as rectal palpation, nasogastric probing, abdominocentesis, interpretation of analytical tests and diagnostic imaging in field conditions, and establish the appropriate treatments and issue the correct prognosis in the horse with abdominal pain.
- ♦ Develop and advance in depth in the diseases affecting the digestive tract from the stomach to the rectum, assessing the stage of the pathologies that appear.
- ♦ Develop and advance in depth on liver and biliary tract diseases in the horse and their possible treatments.
- ♦ Develop and advance in depth in infectious and parasitic diseases of the digestive tract, as well as their various treatments.
- ♦ Enhance knowledge, establish and develop the correct decision criteria to treat abdominal syndrome in the horse in the field, or in case of requiring surgical treatment, to be able to correctly inform the owner and advise on the referral of cases to the hospital in case surgery is required.

### Module 2. Hematopoiesis, Immune system and Nutrition

- ♦ Delve into the study of blood components, as well as to attend in detail to the serological biochemical markers, all of them analytical parameters that the clinical specialist must know in depth, in order to be able to relate possible alterations in this sense to pathological situations of any kind.
- ♦ Develop advanced knowledge on possible alterations related to hematopoiesis, as well as alternatives in terms of leading-edge treatments.
- ♦ Achieve a high degree of knowledge of the pathophysiological mechanisms of immune-mediated disorders in order to select the latest diagnostic tests and appropriate treatment.
- ♦ Deepen in the pathophysiological mechanisms of endotoxemia and the development of endotoxic shock, in order to prevent secondary complications associated with this process and to apply the most up-to-date treatments.
- ♦ Understand the processes of digestion and absorption of nutrients in the different anatomical compartments of the horse's digestive tract.
- ♦ Provide the basic knowledge on nutrients necessary for the development of feeding programs.
- ♦ Estimate a horse's weight and determine its body condition.
- ♦ Easy calculation of daily fodder and grain or compound feed requirements
- ♦ Differentiate and know how to apply the terms gross, digestible and net energy.

- ♦ Delve into the knowledge of antibiotic treatment alternatives, as well as the development of antibiotic resistance, in order to prepare the clinician in decision making in situations where there is an important restriction of antibiotic use, either by the patient's category or by the appearance of bacterial resistance.
- ♦ Update on prebiotics, probiotics as well as the use of medicinal plants and their relevance as important tools in preventive medicine as well as in the treatment of specific pathologies.

### Module 3. Advanced Therapeutic Protocol and Toxicology

- ♦ Analyze the new alternatives in terms of drugs used in sedation and anesthesia for outpatient use, as well as delve into the most established protocols in order to optimize this type of procedures.
- ♦ Prepare the clinician in effective and dynamic decision making when dealing with a patient with a serious systemic condition, in order to ensure diagnoses and treatments that ensure patient stabilization despite non-hospital conditions.
- ♦ Enable the clinician in the correction of hydroelectrolyte and acid-base imbalances to ensure the reversal of hemodynamic alterations.
- ♦ Ensure advanced knowledge of equine pain management with the latest medications.
- ♦ Examine the characteristics and special considerations to be taken into account when applying pharmacological treatments in the sport horse, with special emphasis on avoiding problems in the face of possible positive results in control tests for biological substances in competitions.
- ♦ Generate advanced knowledge on equine toxicology, ensuring education for the recognition of toxic symptoms, as well as the identification of plants and agents harmful to equids.
- ♦ Analyze euthanasia procedures in depth. The clinician must be able to act correctly with patients in these last moments of their life trajectory, applying euthanasia in the most humane way possible in case of last necessity.





“ *A path to achieve education and professional growth that will propel you towards a greater level of competitiveness in the labor market”.*

03

# Course Management

For our course to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.





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*Our teaching team, experts in Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice, will help you achieve success in your profession"*

## International Guest Director

As one of the foremost veterinary surgeons in equine care, Dr. Andy Fiske-Jackson is the Deputy Director of the Royal Veterinary College Equine in the United Kingdom. This is one of the leading institutions in both equine patient care and veterinary development, education and innovation. This has allowed him to develop in a privileged environment, even receiving the James Bee Educator Awards for excellence in educational work.

In fact, Dr. Andy Fiske-Jackson is also part of the team of surgeons at the Equine Referral Hospital, focusing his work on orthopedic and soft tissue surgery. As such, his main areas of focus are low performance, back pain, dental and sinus issues, digital flexor tendinopathies and regenerative medicine.

In terms of research, his work leans between diagnostic techniques for digital flexor tendinopathies, clinical uses of objective gait analysis and objective assessment of back pain. His efficiency in this field has led him to actively participate in various international events and conferences, including congresses in Portugal, Czech Republic, Finland, Belgium, Hungary, Switzerland, Austria, Germany, Ireland, Spain and Poland.





## Dr. Fiske-Jackson, Andy

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- Deputy Director at the Royal Veterinary College Equine. Hertfordshire, United Kingdom
- Associate Professor of Equine Surgery at the Royal Veterinary College
- Equine Surgeon at the Equine Referral Hospital. Hertfordshire, United Kingdom
- Veterinarian at Axe Valley Veterinary
- Veterinarian at Liphook Equine Hospital
- Veterinarian at the Humane Society International. Morocco
- Degree from the University of Liverpool
- Master's Degree in Veterinary Medicine from the Royal Veterinary College

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

## Management



### Dr. Varela del Arco, Marta

- Clinical veterinarian specialized in Equine Surgery and Sports Medicine
- Head of Large Animal Unit at the Complutense Clinical Veterinary Hospital of Madrid
- Associate Professor, Department of Animal Medicine and Surgery, Complutense University of Madrid
- Head of Large Animal Unit at the Complutense Clinical Veterinary Hospital of Madrid
- Associate Professor of the Department of Animal Medicine and Surgery, UCM
- Teacher in different graduate and postgraduate courses, university specialization programs and master's degrees.
- Director of Final Year Project in the Veterinary Degree and as a member of the tribunal of different doctoral theses.
- PhD in Veterinary Medicine, Complutense University of Madrid
- Spanish Certificate from Equine Clinic (CertEspCEq)



### **Dr. De la Cuesta Torrado, María**

- Veterinarian with clinical specialty in Equine Internal Medicine
- Associate Professor of the Department of Equine Medicine and Surgery at the Cardenal Herrera CEU University of Valencia
- Doctorate in Advanced Studies from the Complutense University of Madrid
- Master's Degree in Equine Internal Medicine by Alfonso X el Sabio University
- Founder of MC Veterinaria
- Member of the Organizing Committee of the 12th European College of Equine Internal Medicine Congress
- Member of the Board of Directors of Spanish Society of Ozone Therapy
- Member of the Equine Clinicians Commission of the Official College of Veterinarians of Valencia.
- Member of the Spanish Association of Equine Veterinarians (AVEE).
- Member of the scientific committee and coordinator of courses and congresses in the field of ozone therapy, supported by continuing education credits (CEC) granted by the National Health System.

## Professors

### Dr. Cervera Saiz, Álvaro

- ◆ Equine clinical veterinarian in outpatient service in MC Veterinaria Equina"
- ◆ Internship teacher during the internship at CEU Cardenal Herrera University
- ◆ Researcher at the laboratories of the Faculty of Veterinary and Experimental Sciences of the Catholic University of Valencia San Vicente Mártir
- ◆ Graduate in Veterinary Medicine, Catholic University of Valencia
- ◆ Attendance to specific courses and conferences in the equine area of the HUMECO group.
- ◆ Internship in Equine Medicine and Surgery at the Clinical Veterinary Hospital of the CEU Cardenal Herrera University.

### Dr. Rodríguez Hurtado, Isabel

- ◆ Head of the Department of Large Animals at the Veterinary Hospital of the Alfonso X el Sabio University.
- ◆ Professor and coordinator of the subject Medical Pathology and Nutrition of the Veterinary Degree at the Alfonso X el Sabio University
- ◆ Professor of the Postgraduate Master's Degree in Equine Internal Medicine at the Alfonso X el Sabio University.
- ◆ Head of the Large Animals Area of the Clinical Veterinary Hospital
- ◆ Doctor in Veterinary Medicine from Alfonso X El Sabio University
- ◆ Diplomate from the American College of Veterinary Internal Medicine
- ◆ Internship and Residency in Equine Internal Medicine at Auburn University
- ◆ Master's Degree in Biomedical Sciences from Auburn University
- ◆ Master's Degree in Research Methodology in Health Sciences from the Alfonso X El Sabio University



**Dr. León Marín, Rosa**

- ◆ Clinical veterinarian specialized in Equine Dentistry
- ◆ External tutor of the subject "Internships", tutoring second cycle students of the Faculty of Veterinary Medicine of the Complutense University of Madrid, the Alfonso X el Sabio University of Madrid and the CEU Cardenal Herrera University of Valencia.
- ◆ Professor in postgraduate courses in Veterinary Rehabilitation at the Equine Clinic
- ◆ PhD in Veterinary Medicine, Complutense University of Madrid
- ◆ Course of Sports Technician in Equitation of the Equestrian Federation of Madrid
- ◆ Training Course for Professionals in the Handling of Racehorses
- ◆ Expert Course in Therapeutic Riding and Expert Course in Principles of Physiotherapy and Animal Rehabilitation of the Faculty of Veterinary Medicine of the Complutense University of Madrid

**Dr. Benito Bernáldez, Irene**

- ◆ Veterinarian in charge of the Reproduction, Ophthalmology and Nutrition Service of MC Veterinaria
- ◆ Degree in Veterinary Medicine from the University of Extremadura.
- ◆ Internship in Equine Medicine and Surgery at the Clinical Veterinary Hospital of the Autonomous University of Barcelona
- ◆ Professional internships through the Quercus Scholarship (Leonardo Da Vinci Program) for graduates of the University of Extremadura
- ◆ Erasmus Internship at the Equine Hospital of the University of Bristol
- ◆ Online training course on administrative activities in customer relations and administrative management given by La Glorieta Academy
- ◆ Attendance to the courses of Ozone Therapy in Equids coordinated by María de la Cuesta and organized by the SEOT (Spanish Society of Ozone Therapy)

**Dr. Marín Baldo Vink, Alexandra**

- ♦ Head of the large animal hospitalization service at the Clinical Veterinary Hospital of Alfonso X el Sabio University.
- ♦ Professor at the Faculty of Veterinary Medicine, Alfonso X El Sabio University.
- ♦ Teacher of the theoretical and practical teaching related to the equine species of the subjects: Parasitic Diseases, Propedeutics, Medical Pathology and supervised practice. Coordinator of the Clinical Propedeutics subject
- ♦ Equine Hospitalization Service of the Veterinary Clinic Hospital of the Alfonso X El Sabio University.
- ♦ Direction of Final Degree Projects of UAX students
- ♦ Training stays in several hospitals in Spain in the area of large animals.
- ♦ Diploma of Advanced Studies in Animal Medicine and Reproduction by the University of Murcia
- ♦ Fellowship in the Department of Equine Surgery and Large Animals Veterinary Hospital of the University of Murcia
- ♦ Scientific publications in the field of Equine Internal Medicine

**Dr. Santiago Llorente, Isabel**

- ♦ Head of the Equine Internal Medicine at the Complutense Veterinary Clinical Hospital.
- ♦ Member of the Anesthesia Service at the Complutense Veterinary Clinic Hospital of the Complutense University of Madrid
- ♦ Collaborator in practical teaching in the Department of Animal Medicine and Surgery at the Complutense University of Madrid
- ♦ PhD in Veterinary Medicine, Complutense University of Madrid
- ♦ Degree in Veterinary Medicine from the Complutense University Madrid
- ♦ Teacher at the Lusophone University of Lisbon
- ♦ Member of the AVEE Association

**Dr. Alonso de Diego, María**

- ♦ Specialist in the Service of Equine Internal Medicine of the Alfonso X El Sabio University Clinical Veterinary Hospital
- ♦ Associate Professor of the Faculty of Veterinary Medicine of the Alfonso X El Sabio University
- ♦ Outpatient equine clinic veterinarian
- ♦ Residency at the Complutense University of Madrid Veterinary Clinical Hospital
- ♦ Training stays in several hospitals in Kentucky in the area of Equine Internal Medicine
- ♦ Spanish Certificate in Equine Clinic
- ♦ Member of Association of Equine Veterinarians coordinated by the Spanish Society of Ozone Therapy.

**Dr. Manso Díaz, Gabriel**

- ♦ Clinical veterinarian, member of the Diagnostic Imaging Service at Complutense Veterinary Clinical Hospital
- ♦ Assistant Professor, Department of Animal Medicine and Surgery, Complutense University of Madrid
- ♦ Collaborator in practical teaching in the Department of Animal Medicine and Surgery at the Complutense University of Madrid
- ♦ Regular speaker at courses, workshops and congresses in the field of Equine Diagnostic Imaging
- ♦ PhD in Veterinary from the Complutense University of Madrid
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid
- ♦ Large Animal Diagnostic Imaging Resident (ECVDI) Equine Referral Hospital, Royal Veterinary College
- ♦ Certified by the European College of Veterinary Diagnostic Imaging (ECVDI) in the specialty of Large Animals



**Dr. Aguirre Pascasio, Carla**

- ♦ Veterinary specialist in equine clinical care and soft tissue surgery
- ♦ Doctor in Veterinary Medicine from the University of Murcia
- ♦ Postgraduate degree in equine physiotherapy from the University of Barcelona
- ♦ Master in Business and Administration by ENAE Business School, Murcia
- ♦ Certificate in Internal Medicine from the Royal Veterinary College of London and by the University of Liverpool
- ♦ Certified in Soft Tissue Surgery by the Royal Veterinary College of London and by the University of Liverpool
- ♦ Spanish Certificate in Equine Clinical Practice from the Spanish Veterinary Council
- ♦ Board Eligible in the ECEIM (European College of Equine Internal Medicine)  
Fellowship in the Equine Hospital Casal do Rio

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*Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"*

04

# Structure and Content

The contents have been developed by its different experts, with a clear purpose: to ensure that our students acquire each and every one of the skills necessary to become a Postgraduate Diploma in this field. A complete and well-structured program that will take you to the highest standards of quality and success.







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*A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"*

## Module 1. Digestive System

- 1.1. Approach to Acute Abdominal Syndrome Evaluation. Treatment Decision
  - 1.1.1. Introduction
    - 1.1.1.1. Epidemiology of Colic and Predisposing Factors
    - 1.1.1.2. Categorization of Diseases Causing Colicky Conditions
  - 1.1.2. General Screening Methods
    - 1.1.2.1. Medical History
    - 1.1.2.2. Assessment of General Condition and Degree of Pain
    - 1.1.2.3. Measurement of Vital Signs, Degree of Dehydration, Degree of Tissue Perfusion and State of Mucous Membranes
    - 1.1.2.4. Auscultation, Palpation and Percussion of the Abdomen
    - 1.1.2.5. Rectal Examination
    - 1.1.2.6. Nasogastric Catheterization
  - 1.1.3. Advanced Diagnostic Methods
    - 1.1.3.1. Blood Biopathology in the Diagnosis of Colic
    - 1.1.3.2. Abdominocentesis
    - 1.1.3.3. Ultrasound, Radiology, Endoscopy
  - 1.1.4. Treatment Decision: Medical or Surgical? When to Refer?
- 1.2. Diagnostic Imaging of the Digestive System in the Field
  - 1.2.1. Introduction to Diagnostic Imaging in the Field
  - 1.2.2. Technical Basis
    - 1.2.2.1. Radiology
    - 1.2.2.2. Ultrasound
  - 1.2.3. Oral Pathology
  - 1.2.4. Esophageal Pathology
  - 1.2.5. Abdominal Pathology
    - 1.2.5.1. Digestive System
      - 1.2.5.1.1. Stomach.
      - 1.2.5.1.2. Small Intestine
      - 1.2.5.1.3. Large Intestine
    - 1.2.5.2. Peritoneal Cavity
- 1.3. Oral cavity Examination Exodontia
  - 1.3.1. Exploration of the Head
  - 1.3.2. Oral cavity Examination
  - 1.3.3. Regional Nerve Blocks for Surgery and Dental Extractions
    - 1.3.3.1. Maxillary Nerve
    - 1.3.3.2. Mandibular Nerve
    - 1.3.3.3. Infraorbital Nerve
    - 1.3.3.4. Mental Nerve
  - 1.3.4. Exodontia: Indications and Techniques
- 1.4. Malocclusions. Tumors. Maxillary and Mandibular Fractures Temporomandibular Joint Pathology
  - 1.4.1. Malocclusions. Filing
    - 1.4.1.1. Wear Alterations
  - 1.4.2. Tumors. Classification
  - 1.4.3. Maxillary and Mandibular Fractures Reparation
  - 1.4.4. Temporomandibular Joint Pathology
    - 1.4.4.1. Alterations and Clinical Signs
    - 1.4.4.2. Examination and Diagnosis
    - 1.4.4.3. Treatment and Prognosis
- 1.5. Diseases of the Esophagus and Stomach
  - 1.5.1. Oesophageal
    - 1.5.1.1. Esophageal Obstruction
    - 1.5.1.2. Oesophagitis
    - 1.5.1.3. Other Esophageal Alterations
  - 1.5.2. Stomach.
    - 1.5.2.1. Gastric Ulcers
    - 1.5.2.2. Gastric Impaction
    - 1.5.2.3. Squamous Cell Carcinoma
    - 1.5.2.4. Other Stomach Alterations



- 1.6. Small Intestine Diseases
  - 1.6.1. Simple Obstruction
  - 1.6.2. Proximal Enteritis
  - 1.6.3. Inflammatory Bowel Disease
  - 1.6.4. Intestinal Lymphoma
  - 1.6.5. Strangulating Alterations
  - 1.6.6. Small Intestinal Alterations
- 1.7. Large Intestinal Diseases
  - 1.7.1. Impactions
    - 1.7.1.1. Large Colon
    - 1.7.1.2. Cecum
    - 1.7.1.3. Minor Colon
  - 1.7.2. Large Colon Displacement
  - 1.7.3. Colitis
  - 1.7.4. Peritonitis
  - 1.7.5. Enterolithiasis
  - 1.7.6. Other Large Intestinal Alterations
- 1.8. Liver and Biliary Tract Diseases
  - 1.8.1. Approach to the Patient with Liver Disease
  - 1.8.2. Acute Liver Failure
  - 1.8.3. Cholangiohepatitis
  - 1.8.4. Chronic Hepatitis
  - 1.8.5. Neoplasms
  - 1.8.6. Other Liver and Biliary Tract Alterations
- 1.9. Infectious and Parasitic Diseases of the Digestive Tract
  - 1.9.1. Infectious Diseases of the Digestive Tract
    - 1.9.1.1. Salmonellosis
    - 1.9.1.2. Proliferative Enteropathy
    - 1.9.1.3. Clostridiosis
    - 1.9.1.4. Rotavirus
    - 1.9.1.5. Potomac Equine Fever
    - 1.9.1.6. Equine Coronavirus

- 1.9.2. Parasitic Diseases of the Digestive Tract
  - 1.9.2.1. Gastrointestinal Myiasis
  - 1.9.2.2. Intestinal Protozoa
  - 1.9.2.3. Intestinal Cestodes
  - 1.9.2.4. Intestinal Nematodes
- 1.10. Treatment of Medical Colic in the Field
  - 1.10.1. Management of the Patient with Colicky Pain
  - 1.10.2. Pain Control in Colicky Patients
  - 1.10.3. Fluid Therapy and Cardiovascular Support
  - 1.10.4. Treatment for Endotoxemia

## Module 2. Hematopoietic System, Immunology and Nutrition

- 2.1. Analytical Interpretation: Blood Count and Serum Biochemistry
  - 2.1.1. General Considerations for the Interpretation of Analytical Reports
    - 2.1.1.1. Essential Patient Data
    - 2.1.1.2. Sample Collection and Handling
  - 2.1.2. Interpretation of Blood Count
    - 2.1.2.1. Red Blood Cells
    - 2.1.2.2. White Blood Cells
    - 2.1.2.3. Platelet Cells
    - 2.1.2.4. Smears
  - 2.1.3. Interpretation of Serum or Plasma Biochemistry
    - 2.1.3.1. Electrolytes
    - 2.1.3.2. Bilirubin
    - 2.1.3.3. Creatinine, Blood Urea Nitrogen (BUN), Urea and Symmetrical Dimethylarginine (SDMA)
    - 2.1.3.4. Proteins: Albumin and Globulins
    - 2.1.3.5. Acute-Phase Proteins: Fibrinogen and Serum Amyloid A.
    - 2.1.3.6. Enzymes
    - 2.1.3.7. Glucose
    - 2.1.3.8. Bicarbonate
    - 2.1.3.9. Lactate
    - 2.1.3.10. Triglycerides and Bile Acids

- 2.2. Hematopoietic System Pathologies
  - 2.2.1. Hemolytic anemia
    - 2.2.1.1. Immune-Mediated Hemolytic Anemia
    - 2.2.1.2. Equine Infectious Anemia
    - 2.2.1.3. Piroplasmosis
    - 2.2.1.4. Other Causes
  - 2.2.2. Hemorrhagic Anemia
    - 2.2.2.1. Hemoperitoneum and Hemothorax
    - 2.2.2.2. Gastrointestinal Losses
    - 2.2.2.3. Losses From Other Origin
  - 2.2.3. Non-Regenerative Anemias
    - 2.2.3.1. Iron Deficiency Anemia
    - 2.2.3.2. Anemia due to Chronic Inflammation/Infection
    - 2.2.3.3. Aplastic Anemia
  - 2.2.4. Coagulation Alterations
    - 2.2.4.1. Platelet Alterations
      - 2.2.4.1.1. Thrombocytopenia
      - 2.2.4.1.2. Platelet Functional Alterations
    - 2.2.4.2. Alterations of Secondary Hemostasis
      - 2.2.4.2.1. Hereditary
      - 2.2.4.2.2. Acquired
    - 2.2.4.3. Thrombocytosis
    - 2.2.4.4. Lymphoproliferative Disorders
    - 2.2.4.5. Disseminated Intravascular Coagulation (DIC)
- 2.3. Endotoxic Shock
  - 2.3.1. Systemic Inflammation and Systemic Inflammatory Response Syndrome (SIRS)
  - 2.3.2. Causes of Endotoxemia in Horses
  - 2.3.3. Pathophysiological Mechanisms
  - 2.3.4. Endotoxic Shock
    - 2.3.4.1. Hemodynamic Changes
    - 2.3.4.2. Multiorgan Dysfunction
  - 2.3.5. Clinical Signs of Endotoxemia and Endotoxic Shock.

- 2.3.6. Diagnosis
- 2.3.7. Management
  - 2.3.7.1. Endotoxin Release Inhibitors
  - 2.3.7.2. Endotoxin Uptake and Inhibition
  - 2.3.7.3. Cell Activation Inhibition
  - 2.3.7.4. Inhibition of the Synthesis of Inflammatory Mediators
  - 2.3.7.5. Other specific therapies
  - 2.3.7.6. Support Treatments
- 2.4. Treatment of Hematopoietic Alterations Transfusion Therapy
  - 2.4.1. Indications for Transfusion of Whole Blood
  - 2.4.2. Indications for Plasma Transfusion
  - 2.4.3. Indications for Transfusion of Platelet Products
  - 2.4.4. Donor Selection and Compatibility Testing
  - 2.4.5. Technique for Whole Blood Collection and Processing of Plasma
  - 2.4.6. Administration of Blood Products
    - 2.4.6.1. Volume of Administration
    - 2.4.6.2. Administration Techniques
    - 2.4.6.3. Adverse Reaction Monitoring
- 2.5. Immune System Alterations Allergies.
  - 2.5.1. Hypersensitivity Types
  - 2.5.2. Pathologies Associated with Hypersensitivity
    - 2.5.2.1. Anaphylactic Reaction
    - 2.5.2.2. Hemorrhagic Purpura
  - 2.5.3. Autoimmunity
  - 2.5.4. Most Important Immunodeficiencies in Equines
    - 2.5.4.1. Diagnostic Tests
    - 2.5.4.2. Primary Immunodeficiencies
    - 2.5.4.3. Secondary Immunodeficiencies
  - 2.5.5. Immunomodulators:
    - 2.5.5.1. Immunostimulants
    - 2.5.5.2. Immunosuppressants
- 2.6. Nutrition Basic Principles I
  - 2.6.1. Physiology of Gastrointestinal Tract
    - 2.6.1.1. Oral Cavity, Esophagus and Stomach
    - 2.6.1.2. Small Intestine
    - 2.6.1.3. Large Intestine
  - 2.6.2. Dietary Components and Nutrients
    - 2.6.2.1. Water
    - 2.6.2.2. Proteins and Amino Acids
    - 2.6.2.3. Carbohydrates
    - 2.6.2.4. Fats and Fatty Acids
    - 2.6.2.5. Minerals and Vitamins
  - 2.6.3. Estimation of Horse Weight and Body Condition
- 2.7. Nutrition Basic Principles II
  - 2.7.1. Energy and Available Energy Sources
    - 2.7.1.1. Forage
    - 2.7.1.2. Starches
    - 2.7.1.3. Fats
  - 2.7.2. Metabolic Pathways of Energy Production
  - 2.7.3. Energy Needs of the Horse
    - 2.7.3.1. In Maintenance
    - 2.7.3.2. For Breeding and Growth
    - 2.7.3.3. For the Show/Race Horse
- 2.8. Cachectic Horse Nutrition
  - 2.8.1. Metabolic Response
  - 2.8.2. Physical Examination and Clinical Signs
  - 2.8.3. Blood Analysis
  - 2.8.4. Differential Diagnoses
  - 2.8.5. Nutritional Requirements

- 2.9. Use of Probiotics, Prebiotics and Medicinal Plants
  - 2.9.1. Role of the Microbiota in the Large Intestine
  - 2.9.2. Probiotics, Prebiotics, and Symbiotics
  - 2.9.3. Medicinal Plants Use
- 2.10. Rational Use of Antibiotics. Bacterial Resistance
  - 2.10.1. Responsible Antibiotic Use
  - 2.10.2. New Antibiotic Therapies
  - 2.10.3. Resistance Mechanisms
  - 2.10.4. Main Multi-resistant Pathogens

### Module 3. Advanced Therapeutic Protocols and Toxicology

- 3.1. Sedation and Total Intravenous Anesthesia
  - 3.1.1. Total Intravenous Anesthesia
    - 3.1.1.1. General Considerations
    - 3.1.1.2. Patient and Procedure Preparation
    - 3.1.1.3. Pharmacology
    - 3.1.1.4. Total Intravenous Anesthesia in Short-Term Procedures
    - 3.1.1.5. Total Intravenous Anesthesia in Procedures of Medium Duration
    - 3.1.1.6. Total Intravenous Anesthesia in Long-Term Procedures
  - 3.1.2. Sedation for On-Station Procedures
    - 3.1.2.1. General Considerations
    - 3.1.2.2. Patient/Procedure Preparation
    - 3.1.2.3. Technique: Bolus and Continuous Intravenous Infusions
    - 3.1.2.4. Pharmacology
    - 3.1.2.5. Drug Combinations
- 3.2. Pain Relief in Horses
  - 3.2.1. Detection of Pain in Hospitalized Patients and Multimodal Analgesia
  - 3.2.2. Types of NSAIDs
  - 3.2.3. Agonists and Opioids
  - 3.2.4. Local anesthetics
  - 3.2.5. Other Drugs Used for Pain Control in Equines
  - 3.2.6. Complementary Therapies: Acupuncture, Shockwaves, Chiropractic, Laser
- 3.3. Correction of Water and Electrolyte Balance
  - 3.3.1. General Considerations on Fluid Therapy
    - 3.3.1.1. Objective and Key Concepts
    - 3.3.1.2. Organic Fluid Distribution
    - 3.3.1.3. Assessment of Patient Needs
  - 3.3.2. Types of Fluid
    - 3.3.2.1. Crystalloids
    - 3.3.2.2. Colloids
    - 3.3.2.3. Supplements
  - 3.3.3. Routes of Administration
    - 3.3.3.1. Intravenous
    - 3.3.3.2. Oral
  - 3.3.4. Practical Principles of Fluid Therapy Calculation
  - 3.3.5. Associated Complications
- 3.4. Specific Considerations of Acid-Base Equilibrium in Horses
  - 3.4.1. Specific Considerations of Acid-Base Equilibrium in Horses
    - 3.4.1.1. Assessment of the Patient's Acid-Base Status
    - 3.4.1.2. Role of Bicarbonate, Chloride and Anion Gap
  - 3.4.2. Metabolic Acidosis and Alkalosis
  - 3.4.3. Respiratory Acidosis and Alkalosis
  - 3.4.4. Compensatory Mechanisms
  - 3.4.5. Base Excess
- 3.5. Pharmacological Considerations in the Sport Horse
  - 3.5.1. Equestrian Sports Regulation
  - 3.5.2. Doping
    - 3.5.2.1. Definition
    - 3.5.2.2. Medication Control Objectives
    - 3.5.2.3. Sampling and Accredited Laboratories
    - 3.5.2.4. Classification of Substances
  - 3.5.3. Types of Doping

- 3.5.4. Withdrawal Time
  - 3.5.4.1. Factors Affecting Withdrawal Time
    - 3.5.4.1.1. Detection Time
    - 3.5.4.1.2. Regulatory Policies
    - 3.5.4.1.3. Animal Disposal Rate
  - 3.5.4.2. Factors to Consider in Determining Withdrawal Time
    - 3.5.4.2.1. Dose Administered
    - 3.5.4.2.2. Formulation
    - 3.5.4.2.3. Route of Administration
    - 3.5.4.2.4. Individual Pharmacokinetics
    - 3.5.4.2.5. Sensitivity of Analytical Procedures
    - 3.5.4.2.6. Sample Behavior Matrix
    - 3.5.4.2.7. Environmental Persistence of Substances and Environmental Pollution
- 3.6. Intensive Care of the Neonatal Foal
  - 3.6.1. Types of Catheters, Infusion Sets, Nasogastric and Urinary Catheters for the Maintenance of Intensive Care in the Foal
  - 3.6.2. Types of Fluids, Colloids, Plasmotherapy and Hemotherapy
  - 3.6.3. Total and Partial Parenteral Feeding
  - 3.6.4. Antibiotic Therapy, Analgesia and Other Important Medications
  - 3.6.5. Cardiopulmonary Resuscitation
- 3.7. Adult Intensive Care
  - 3.7.1. General Intensive Care Considerations
  - 3.7.2. Intensive Care Procedures and Techniques
    - 3.7.2.1. Vascular Access: Maintenance and Care
    - 3.7.2.2. Arterial and Venous Pressure Monitoring
  - 3.7.3. Cardiovascular Support
    - 3.7.3.1. Shock
    - 3.7.3.2. Supportive Drugs: Inotropes and Vasopressors
    - 3.7.3.3. Support Strategies
  - 3.7.4. Respiratory Support
    - 3.7.4.1. Management of Respiratory Distress
  - 3.7.5. Critically Ill Patient Nutrition
  - 3.7.6. Neurological Patient Care
    - 3.7.6.1. Medical and Supportive Management of the Neurological Horse
      - 3.7.6.1.1. Trauma
      - 3.7.6.1.2. Encephalopathies and Myeloencephalopathies
    - 3.7.6.2. Specific Management of the Recumbent Horse
- 3.8. Toxicology I
  - 3.8.1. Digestive System Toxicology
  - 3.8.2. Liver Toxicology
  - 3.8.3. Toxicology Affecting the Central Nervous System
- 3.9. Toxicology II
  - 3.9.1. Toxicology Producing Clinical Signs Related to the Cardiovascular and Hemolymphatic Systems
  - 3.9.2. Toxicology Producing Clinical Signs related to the Skin, Musculoskeletal System and General Condition
  - 3.9.3. Toxicology Producing Clinical Signs Related to the Urinary System
  - 3.9.4. Toxicological Problems Causing Sudden Death
- 3.10. Euthanasia Procedures
  - 3.10.1. General Considerations
    - 3.10.1.1. Geriatric Horse
  - 3.10.2. Mechanisms of action for Hypothermia.
  - 3.10.3. Chemical Euthanasia Methods
  - 3.10.4. Physical Euthanasia Methods
  - 3.10.5. Euthanasia Protocol
  - 3.10.6. Confirmation of Death

# 05 Methodology

This 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.







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*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.

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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. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to assess 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 prepared 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 education, 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 assess and re-assess 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

The Postgraduate Diploma in Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.





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

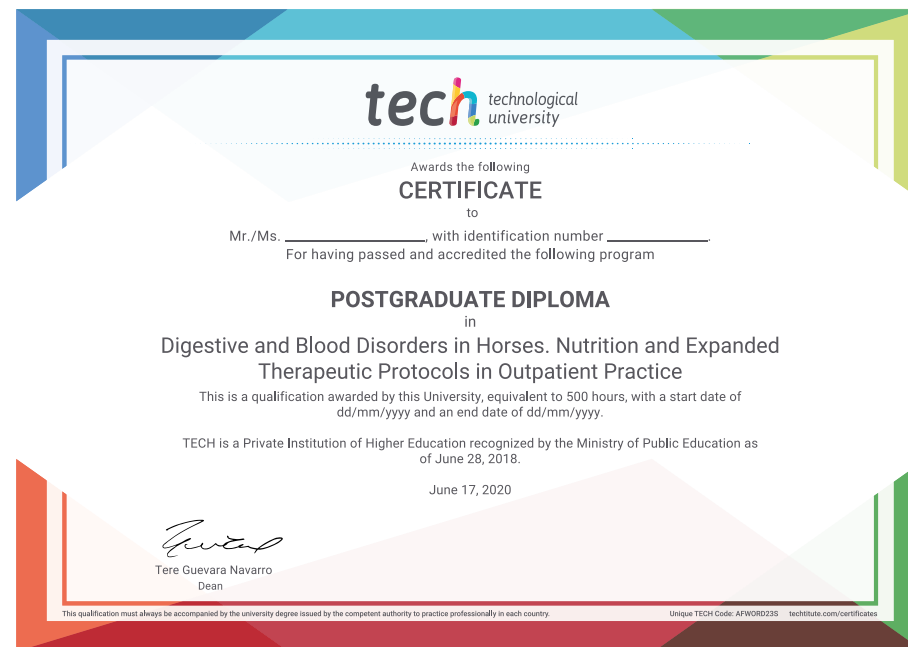
This **Postgraduate Diploma in Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice** contains the most complete and up-to-date scientific program on the market.

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

The certificate 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 Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice**

Official N° of Hours: **450 h.**



\*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.



## Postgraduate Diploma

Digestive and Blood Disorders  
in Horses. Nutrition and  
Expanded Therapeutic  
Protocols  
in Outpatient Practice

- » Modality: **Online**
- » Duration: **6 months.**
- » Certificate: **TECH Technological University**
- » Dedication: **8h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

# Postgraduate Diploma

Digestive and Blood Disorders in Horses. Nutrition and Expanded Therapeutic Protocols in Outpatient Practice

