

Postgraduate Diploma

Balanced Feed Manufacturing



Postgraduate Diploma Balanced Feed Manufacturing

- » 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-balanced-feed-manufacturing

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01

Introduction

This Expert will teach you the whole process that must be followed in the manufacture of balanced feed to design, elaborate and evaluate the manufacture of the same for animals, from the design of the formula (diet) to the different points to be evaluated to determine the quality, safety and performance of a finished feed for animals: A compendium of theoretical and practical knowledge, specialized in the achievement of a product that complies with what is formulated in the paper and that has all the quality and innocuousness that allows reaching the desired benefit in the animals that consume it.

It is designed for veterinary professionals to update and improve their technical and practical knowledge in this sector. A complete and effective course that will propel you to a higher level of competence.



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Become one of the most demanded professionals of the moment: train as an Expert in Balanced Feed Manufacturing”.

This Postgraduate Diploma in Feed Manufacturing is unique given its level of specialization and the logical learning sequence in which the content is organized.

Its ultimate goal is to specialize and update professionals in the most advanced technical and scientific aspects of animal nutrition and feeding.

Knowledge that enables the entry, linkage and specialization in one of the most important sectors of animal production at present and with more labor demand and need for specialization.

The current world population estimated at 7.6 billion is expected to increase to 8.6 billion by 2030 and animal nutrition is one of the disciplines called upon to help solve the problem of producing sufficient and economical protein to feed this growing demand in an efficient and sustainable manner.

With an innovative format, this training allows participants to develop autonomous learning and optimal time management.

In short, it is an ambitious, broad, structured and interwoven proposal, which covers everything from the fundamental and relevant principles of nutrition to the manufacture of food. All this with the characteristics of a course of high scientific, teaching and technological level.

These are some of its most notable features:

- ◆ Latest technology in online teaching software.
- ◆ 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.
- ◆ Self-regulating 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.
- ◆ Availability of content from any fixed or portable device with internet connection.
- ◆ Supplementary documentation databases are permanently available, even after the course.



Join the elite, with this highly effective training training and open new paths to help you advance in your professional progress".

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A course that will enable you to work in the sectors of food production for or with animal origin, with the solvency of a high-level professional".

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 training update we are aiming for. A multidisciplinary team of professionals trained and experienced in different environments, who will cover the theoretical knowledge in an efficient way, but, above all, will put the practical knowledge derived from their own experience at the service of the course: one of the differential qualities of this course.

This mastery of the subject is complemented by the effectiveness of the methodological design of this Expert. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your training.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. To achieve this remotely, we will use telepractice: 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.

With a methodological design based on proven teaching techniques, this Postgraduate Diploma in Balanced Feed Manufacturing will take you through different teaching approaches to allow you to learn in a dynamic and effective way".



02 Objectives

Our objective is to train 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 focused on helping medical professionals reach a much higher level of expertise and control. A goal you will easily achieve with a course of high intensity and precision.



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If your objective is to redirect your capacity towards new paths of success and development, this is your course: a training that aspires to excellence



General Objective

- ◆ Determine the properties, use and metabolic transformations of nutrients in relation to the nutritional needs of an animal.
- ◆ Provide clear and practical tools so that the professional can identify and classify the different foods that are available in the region and have better elements of judgement to make the most appropriate decision in terms of differential costs, etc. diferenciales, etc.
- ◆ Propose a series of technical arguments which allow for a better quality of diet and nutrition and therefore, improve the end produce (meat or milk).
- ◆ Analyze the different raw material components with both positive and negative effects on Animals. Nutrition and how animals use them for the production of animal protein.
- ◆ Identify and understand the different levels of digestibility for each of the various nutritional components according to their origin.
- ◆ To analyze the key aspects for the design and creation of diets (food) aimed at achieving the maximum utilization of nutrients by animals intended for animal protein production.
- ◆ Provide specialized training on the nutritional requirements for the two main species of birds to be used in animal protein production.
- ◆ Develop specialized understanding of the nutritional requirements of the porcine species and the different feeding strategies needed in order to guarantee that they reach the expected welfare and production standards according to their production stage.
- ◆ Provide practical, theoretical and specialized knowledge on the physiology of canine and feline digestive systems.
- ◆ Analyze the digestive system of ruminants and their particular way of assimilating nutrients





from fiber-rich foods.

- ♦ Analyze the main additive groups used in the food production industry, focused on ensuring the quality and performance of different food products.
- ♦ Analyze, in a clear way, how the complete animal feed manufacturing process is developed: the phases and processes which feed undergoes to guarantee its nutritional composition, quality and safety.



Specific Objectives

Module 1.

- ◆ Develop the most important concepts of Animals. Nutrition, taking into account the functions and effects of food in the digestion process in large and small livestock.
- ◆ Classify foods according to their origin and their nutritional characteristics.
- ◆ Design a balanced diet considering the nutritional requirements of the species and categories.
- ◆ Implement the procedures for manufacturing concentrates, guaranteeing the quality of the product to be used for feeding the different productive species.
- ◆ Apply nutrition and feeding strategies for the different productive species according to an annual program based on the herd's requirements.
- ◆ Evaluate the nutritional quality and impact on production systems (meat or milk) of different fresh, preserved and natural feed. These could be either in direct grazing or as forage reserves such as hay (rolls) or whole plant silage, with or without the addition of additives (Nutraliq, Smartfeed, etc.), Multi-Nutritional Blocks (MNB), Rumen Activator Supplements (RAS) or energy or protein concentrates.
- ◆ Develop the main chemical determinations that characterize a feed (concentrates, fresh forages, preserved forages and additives).

Module 2.

- ◆ Analyze the different types of additives which exist in the animal feed and nutrition market
- ◆ Define the recommendations for the use and functionality of the different additive groups
- ◆ Gain up-to-date knowledge of the new technology focused on improving the quality and efficiency of animal feed.
- ◆ Identify mycotoxins as the hidden enemy in diet quality, animal health and productivity; what are the strategies for their control, the different types and use of mycotoxin binders.
- ◆ Specialize in the use of enzymes in balanced feed, what they are, the differences between enzymes of the same category, what they are used for and the benefits of their incorporation in the diet.
- ◆ Analyze phytogenics as a category that goes beyond essential oils; what they are, types of phytogenic substances, modes of use and benefits.



Module 3.

- ◆ Determine the processes involved in the creation of feed for animals
- ◆ Establish an appropriate way to manage raw materials
- ◆ Analyze the different food presentations and the food manufacturing processes themselves
- ◆ Identify the different equipment used in the manufacturing of food
- ◆ Implement monitoring and control programs at critical points in the food manufacturing process
- ◆ Implement sampling and establish its importance in the quality control process.

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Take advantage of the opportunity and take the step to get up to date on the latest developments in Balanced Feed Manufacturing.”

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 track record. 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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Leading professionals in the field have come together to teach you the latest advances in Balanced Feed Manufacturing.”

Coordinator



Dr. Cuello Ocampo, Carlos Julio

- ♦ Veterinarian with extensive experience in the areas of Health, Production, Nutrition and Feeding in the line of Poultry, Swine and Cattle Farming.
- ♦ Master's Degree in Ration Formulation for Productive Species
- ♦ Experience in the use and formulation of additives for animal nutrition.
- ♦ Experience in farm management and feed mill development and formulation consulting.
- ♦ Technical Director in Huvepharma NV Laboratories (Bulgaria)

Professors

Dr. Cuello Ocampo, Carlos Julio

- ♦ Veterinarian with extensive experience in the areas of Health, Production, Nutrition and Feeding in the line of Poultry, Swine and Cattle Farming.
- ♦ Master's Degree in Ration Formulation for Productive Species
- ♦ Experience in the use and formulation of additives for animal nutrition.
- ♦ Experience in farm management and feed mill development and formulation consulting.
- ♦ Technical Director in Huvepharma NV Laboratories (Bulgaria)

Dr. Fernández Mayer, Anibal Enrique

- ♦ PhD in Veterinary Science
- ♦ Postdoctorate of Veterinary Science, with a focus on: Animal Nutrition in Institute of Animal Science (IAS)
- ♦ Agricultural Engineer, National University of La Plata (1975-1979), Buenos Aires.

Lic. Ordoñez Gómez, Ciro Alberto

- ♦ Animal technician
- ♦ Master's Degree in Animals. Nutrition.
- ♦ University Professor in the area of animal nutrition with emphasis on ruminants.

Dr. Páez Bernal, Luis Ernesto

- ♦ PhD in Monogastric Nutrition and Production
- ♦ Doctor Scientiae in Zootechnics, Nutrition and Monogastric Production. Federal University of Viçosa (UFV), MG, Brazil. 2008, MSc in Zootechnics, Nutrition and Monogastric Production. Federal University of Viçosa (UFV), MG, Brazil. 2004
- ♦ Medical veterinary with a Master's Degree in Monogastric Nutrition and Production
- ♦ Lecturer

Dña. Portillo Hoyos Diana Paola

- ♦ Professional Graduated from the National University of Colombia.

Rodríguez, Pedro

- ♦ Animal technician with a Master's Degree in Veterinary Nutrition..

D. Sarmiento García, Ainhoa

- ♦ Phd in Science and Chemical Technology. (09/ 09.2017 / 2019) University of Salamanca,
- ♦ University Master's in Innovation of Biomedical Sciences and Health. (10- 10.2015 - 2016) University of León
- ♦ Degree in Veterinary Medicine. (09- 10.2015 - 2014) University of León

04

Structure and Content

The contents of this training have been developed by the different experts of this course, with a clear purpose: to ensure that our students acquire each and every one of the necessary skills to become true experts 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. Chemical Composition of Food and Quality of the Raw Materials for Ruminants and Non-Ruminants

- 1.1. Key Concepts of Raw Materials Used in Feeding Ruminants and Non- Ruminants
 - 1.1.1. Introduction
 - 1.1.2. Chemical Composition of Food
 - 1.1.2.1. Water and Dry Matter
 - 1.1.2.2. Organic Material and Minerals
 - 1.1.2.3. Protein Rich Foods
 - 1.1.2.4. Energy Rich Foods.
 - 1.1.2.5. Vitamins.
 - 1.1.3. Vitamins.
 - 1.1.3.1. Winter Grains, Summer Grains and Pastures (Grasslands)
 - 1.1.4. Conserved Forages:
 - 1.1.4.1. Silage, Hay and Other Types of Preserved Fodder (Haylage, Silage).
Silages
 - 1.1.4.2. Hay and Haylage
 - 1.1.5. Energy and Protein Concentrates
 - 1.1.5.1. Energy Compounds
 - 1.1.5.2. Protein Powders
- 1.2. Plant-Based By-products used in Feeding Ruminants and Non-Ruminants
 - 1.2.1. Cereal Grains
 - 1.2.1.1. Corn
 - 1.2.1.1.1 Fine-ground Bran, Bran or Corn Bran
 - 1.2.1.1.2 Corn Gluten Feed and Corn Gluten Meal
 - 1.2.1.1.2.1 Corn Gluten Feed
 - 1.2.1.1.2.2 Corn Gluten Meal
 - 1.2.1.2. Sorghum Grain
 - 1.2.1.3. Oats, Barley and Wheat Grain.
 - 1.2.1.3.1 Oat Grain
 - 1.2.1.3.2 Barley Grain
 - 1.2.1.3.3 Wheat Grain
 - 1.2.1.3.3.1 Fine-ground Bran, Bran or Wheat Bran
 - 1.2.2. By-products of Rice
 - 1.2.2.1. Fine-ground Bran or Rice Bran
- 1.3. Animal-Based By-products used in Feeding Ruminants and Non-Ruminants
 - 1.3.1. Dairy Industry.
 - 1.3.1.1. Serum Permeate
 - 1.3.1.2. Cheese Whey and Butter
 - 1.3.2. Fishing Industry.
 - 1.3.2.1. Fish Meal
 - 1.3.3. Meat Industry.
 - 1.3.3.1. Recycled Animal Fat
 - 1.3.4. Poultry Production.
 - 1.3.4.1. Feather Flour
 - 1.3.4.1.1. Processes to Improve Digestibility
 - 1.3.4.1.2. Supply Methods
 - 1.3.4.2. Chicken/ Hen Litter (Chicken Manure)
- 1.4. Fats and Oils used in Feeding Ruminants and Non-Ruminants
 - 1.4.1. Nutritional Values of Fats in the Feeding of Ruminants and Non-Ruminants
 - 1.4.1.1. Sources and Types of Fat
 - 1.4.1.1.1. Yellow Fat.
 - 1.4.1.1.2. Tallow.



- 1.4.1.1.3. Mixed Fats.
- 1.4.1.1.4. Soap Extract and Other Sources of Fat
- 1.4.1.2. Factors Which Indicate the Digestibility in Ruminants and Non-Ruminants
 - 1.4.1.2.1. Free Fatty Acids
 - 1.4.1.2.2. Proportion of Saturated and Unsaturated Fatty Acids
 - 1.4.1.2.2.1. Addition Method and Level of Inclusion.
 - 1.4.1.2.2.2. Protected Fats.
 - 1.4.1.2.2.2.1. Calcium Salts of Fatty Acids or Protected Soaps
 - 1.4.1.2.2.2.2. Saturated Fats with Variable Degrees of Hydrogenation
 - 1.4.1.3. Oils used in Feeding Ruminants and Non-Ruminants
 - 1.4.1.3.1. African Palm Oil
 - 1.4.1.3.2. Other Vegetable Oils
- 1.5. Probiotics, Prebiotics, Enzymes and Organic Acids in Feeding Ruminants and Non-Ruminants.
 - 1.5.1. Characterization and Classification of Probiotics and Prebiotics.
 - 1.5.1.1. Prebiotic.
 - 1.5.1.1.1. Basifying Agents or Ruminal Buffers
 - 1.5.1.1.2. Organic Acids: Malic and Fumaric Acid
 - 1.5.1.1.3. Plant Extracts: Essential Oils
 - 1.5.1.1.4. Enzymes
 - 1.5.1.2. Probiotic
 - 1.5.1.3. Symbiotics
 - 1.5.2. Mechanisms of Action and Productive Response
 - 1.5.2.1. Effects on Young Animals
 - 1.5.2.2. Effects on Adult Animals
 - 1.5.3. Brewer's Yeast.
 - 1.5.3.1. Reduction of Unpleasant Odors and Firm Stools
 - 1.5.3.2. Effects on Growing and Finishing Animals
 - 1.5.3.3. Effects on Lactating Cows
 - 1.5.3.4. Effects on Lactating Sheep
 - 1.5.3.5. Effects on Lactating Goats
- 1.6. Liquid Additives, Multinutritional Blocks and Rumen Activator Supplement for Ruminants

- 1.6.1. Characteristics of Liquid Energy, Protein and Mineral Additives.
 - 1.6.2. Multinutritional Blocks (MNB) and Rumen Activator Supplement (RAS)
 - 1.6.2.1. Procedure to Create MNB and RAS
 - 1.6.2.1.1. Proportions of Ingredients and Chemical Composition of MNB and RAS.
 - 1.6.2.1.1.1. Composition of "MNB" or "RAS" with "Smartfeed".
 - 1.6.2.1.1.2 Composition of "BMN" or "SAR" with "Nutraliq 2050" (including Urea)
 - 1.6.2.1.1.3. Composition of "MNB" or "RAS" with Glucose or Molasses"
 - 1.6.2.1.1.4 bmnB and SAR Mineral Salts Composition
 - 1.6.2.2. Purpose of Each Ingredient
 - 1.6.2.3. Differences Between the MNB and RAS
 - 1.6.2.4. Forms of Supply and Consumption of BMN or SAR
 - 1.6.2.5. Experimental Work.
- 1.7. Glycerol and Corn and Sorghum Starch for Ruminant and Non-Ruminant Feeds.
 - 1.7.1. Glycerol.
 - 1.7.1.1. Principal Characteristics of Glycerol
 - 1.7.1.2. Chemical Composition of Glycerol for Animal Consumption
 - 1.7.1.3. Productive Response.
 - 1.7.1.4. Recommendations
 - 1.7.2. Corn and Sorghum Starch
 - 1.7.2.1. Chemical Composition
 - 1.7.2.2. Dry or Wet Starch
 - 1.7.2.3. Recommendations
- 1.8. Tannins, Saponins and Essential Oils in Ruminants
 - 1.8.1. Effect on Ruminal Bacterias
 - 1.8.2. Effects on Protozoa
 - 1.8.3. Effects on Rumen Fungi
 - 1.8.4. Effects on Methanogenic Bacteria
 - 1.8.5. Effect on Secondary Metabolites of Plants
 - 1.8.5.1. Effects on the Digestibility
 - 1.8.5.2. Effects on the Parameters of Ruminal Fermentation
 - 1.8.5.2.1. Volatile Fatty Acids(AGV)
 - 1.8.5.2.2. Concentration of Ammonia
 - 1.8.5.2.3. Production of Gas
 - 1.8.5.2.4. Impacts on Rumen Degeneration and the Digestibility of DM and Cell Wall
 - 1.8.5.2.5. Impacts on Rumen Degeneration and the Digestibility of Protein
 - 1.8.5.2.6. Impacts on Digesta Transit Kinetics
- 1.8.6. Adaptations to Tannin Consumption
- 1.8.7. Positive Effects of Tannins on the Non-Animal Metabolism and Some of the Productive Results.
- 1.9. Mycotoxins and Contaminants in Concentrates and Forage Concentrates in both Ruminants and Non-Ruminants
 - 1.9.1. Characteristics of Mycotoxins, Typology of Fungi and Favorable Conditions
 - 1.9.2. Clinical Diagnosis of Mycotoxins, Symptomatology and Associated Diseases Affecting Ruminants and Non-Ruminants
 - 1.9.2.1. Ruminants.
 - 1.9.2.1.1. Sensitivity.
 - 1.9.2.1.2. Some Symptomatology.
 - 1.9.2.1.3. Symptomatology Associated with Illnesses
 - 1.9.2.1.4. Mycotoxins and Mycotoxicosis in Poultry and Swine. Symptomology and Associated Illnesses
 - 1.9.2.1.4.1. Aflatoxins.
 - 1.9.2.1.4.2. Ochratoxins.
 - 1.9.2.1.4.3. T-2 and DAS
 - 1.9.2.1.4.4. Fumonisin.
 - 1.9.2.1.4.5. DON (vomitoxina)
 - 1.9.2.2. Non-Ruminants.
 - 1.9.2.2.1. Mycotoxins and Mycotoxicosis in Poultry and Swine. Symptomology and Associated Illnesses
 - 1.9.2.2.1.1. Aflatoxins.
 - 1.9.2.2.1.2. Ochratoxins.
 - 1.9.2.2.1.3. Trichothecenes.
 - 1.9.2.2.1.4. Zearalenone.
 - 1.9.2.2.1.5. Fumonisin
 - 1.9.2.2.2. Use of Mycotoxin-Absorbing Substances in Ruminant and Non-Ruminant

- Feeds.
- 1.9.3. Factors for the Development of Fungi and their Mycotoxins
 - 1.9.3.1. In the Countryside
 - 1.9.3.2. During Storage of the Concentrates
- 1.10. Analysis and Quality Control of the Ingredients used in Ruminants and Non- Ruminants.
 - 1.10.1. Chemical Determinations.
 - 1.10.1.1. Dry Matter (DM)
 - 1.10.1.2. Organic Material (OM) and Minerals
 - 1.10.1.3. Digestibility of Dry Matter
 - 1.10.1.3.1. Direct Methods.
 - 1.10.1.3.1.1. "In Vivo" Methods.
 - 1.10.1.3.2. Indirect Methods.
 - 1.10.1.3.2.1. "Different" Method.
 - 1.10.1.3.2.2. Internal Markers.
 - 1.10.1.3.2.2.1. Lignin
 - 1.10.1.3.2.2.2. Silica.
 - 1.10.1.3.2.2.3. Insoluble Organic Material in Acids
 - 1.10.1.3.3. External Markers.
 - 1.10.1.3.3.1. Dyed Food.
 - 1.10.1.3.3.2. Chromic Oxide.
 - 1.10.1.3.3.3. Rare Earth Elements
 - 1.10.1.3.3.3.4. Mordant Chrome-Treated Fiber
 - 1.10.1.3.3.3.5. Hydrosoluble Markers.
 - 1.10.1.3.2.3.6. Alkanes.
 - 1.10.1.3.4. "In Vitro" Methods.
 - 1.10.1.3.4.1. "In Vitro" Digestibility of Dry Matter (DM).
 - 1.10.1.3.4.2. Neutral Detergent Fiber (NDF)
 - 1.10.1.3.4.3. "In Vitro" Digestibility of Neutral Detergent Fiber (NDF).
 - 1.10.1.3.4.4. Acidic Detergent Fiber (ADF)
 - 1.10.1.4. Protein
 - 1.10.1.4.1. Crude Protein (Total Nitrogen, CP)
 - 1.10.1.4.2. Soluble Crude Protein (SCP)
 - 1.10.1.4.3. Neutral Detergent Fiber-Bound Nitrogen (ADIN)

- 1.10.1.5. Ethereal Extract (EE)
- 1.10.1.6. Water Soluble Carbohydrates (WSC)
- 1.10.1.7. Lignin, cellulose, hemicellulose and silica (LIG, CEL, HEM, SIL)
- 1.10.1.8. Tannin
- 1.10.1.9. PH in Silage Samples
- 1.10.1.10. Particle Sizes
- 1.10.2. Summary of Some Laboratory Techniques
 - 1.10.2.1. Total Nitrogen (semi-micro kjeldahl)
 - 1.10.2.2. "In Vitro" Digestibility (Tilley Terry Edited. Direct Acidification Method)
 - 1.10.2.3. Neutral Detergent Fiber (NDF) (with ANKOM equipment)
 - 1.10.2.4. Acidic Detergent Fiber (ADF) (with ANKOM equipment)
 - 1.10.2.5. Soluble Non-Structural Carbohydrates (NSC) Antrona method, developed by A.J. Silva (Viscosa-Brasil)
 - 1.10.2.6. Total Starch (Megazyme enzyme kit - AA/AMG) (AACC Method 76-12)

Module 2 - Animal Feed Additives

- 2.1. Definitions and Types of Additives Used in Animal Food.
 - 2.1.1. Introduction
 - 2.1.2. Classification of Additive Substances
 - 2.1.3. Additives for Quality
 - 2.1.4. Performance Enhancing Additives
 - 2.1.5. Nutraceuticals.
- 2.2. Anticoccidials and Growth-Promoting Antibiotics
 - 2.2.1. Types of Anticoccidials
 - 2.2.2. Anticoccidials Programs.
 - 2.2.3. Growth-Promoting Antibiotics and Purposes of Use.
- 2.3. Enzymes
 - 2.3.1. Phytases.
 - 2.3.2. Carbohydrases.
 - 2.3.3. Proteases.
 - 2.3.4. Mananasa Beta.
- 2.4. Antifungals and Mycotoxin Binders
 - 2.4.1. Importance of Fungal Contamination
 - 2.4.2. Types of Fungi that Contaminate Grains

- 2.4.3. Substances with Antifungal Characteristics
- 2.4.4. What are Mycotoxins?
- 2.4.5. Types of Mycotoxins
- 2.4.6. Types of Binders
- 2.5. Acidifiers and Organic Acids.
 - 2.5.1. Objectives and Approaches to the Use of Acidifiers in Poultry and Swine
 - 2.5.2. Types of Acidifiers
 - 2.5.3. What are Organic Acids
 - 2.5.4. Main Organic Acids Used
 - 2.5.5. Mechanisms of action
 - 2.5.6. Technological Characteristics of Acidifiers
- 2.6. Antioxidants and Pigmenting Agents.
 - 2.6.1. Importance of Antioxidantes in Balanced Foods and Veterinary Nutrition.
 - 2.6.2. Natural and Synthetic Anitoxidants
 - 2.6.3. How Antioxidants Work
 - 2.6.4. Pigmentation in the Egg and the Chicken
 - 2.6.5. Pigment Sources
- 2.7. Probiotics, Prebiotics, and Symbiotics
 - 2.7.1. Differences between Probiotics, Prebiotics, and Symbiotics
 - 2.7.2. Types of Probiotics and Prebiotics
 - 2.7.3. Approaches and Strategies of Use
 - 2.7.4. Benefits of Poultry and Pig Farming
- 2.8. Odor Control Products
 - 2.8.1. Air Quality and Ammonia Control in Poultry Farming
 - 2.8.2. Yucca Shidigera
 - 2.8.3. Odour Controls in Pig Farming
- 2.9. PhytoGENics.
 - 2.9.1. What are PhytoGENic Substances
 - 2.9.2. Types of PhytoGENic Substances
 - 2.9.3. Procurement Processes
 - 2.9.4. Mechanisms of action
 - 2.9.5. Essential Oils.
 - 2.9.6. Flavonoids
 - 2.9.7. Pungent Substances, Saponins, Tannins and Alkaloids.

- 2.10. Bacteriophages and Other New Technologies
 - 2.10.1. What atr Bacteriophages ?
 - 2.10.2. Reccomendations for Use.
 - 2.10.3. Proteins and Bioactive Peptides.
 - 2.10.4. Egg Immunoglobulins.
 - 2.10.5. Additives for the Correction of Process Losses.

Module 3. Balanced feed manufacturing: Processes, Quality Control and Critical Points.

- 3.1. From Formula to Food Processing, Aspects to be Considered
 - 3.1.1. What is a Balanced Food Formula and What Information Should it Contain
 - 3.1.2. How to Read and Analyze a Balanced Food Formula
 - 3.1.3. Preparation of Raw Materials and Additives
 - 3.1.4. Equipment Preparation
 - 3.1.5. Basic Analysis of Manufacturing Costs of Balanced Foods
- 3.2. Storage of Cereals.
 - 3.2.1. Reception Process of Raw Materials
 - 3.2.2. Sampling of Raw Materials
 - 3.2.3. Basic Analysis upon Reception
 - 3.2.4. Types of Storage and Characteristics.
- 3.3. Storage of Liquids and Animal By-products.
 - 3.3.1. Liquid Products and Handling and Storage Characteristics
 - 3.3.2. Dosage of Liquid Products
 - 3.3.3. Control Regulations and Storage of Animal By-products.
- 3.4. Steps in the Process for Making Balanced Foods.
 - 3.4.1. Weighing.
 - 3.4.2. Milling.

- 3.4.3. Mixing.
- 3.4.4. Addition of Liquids
- 3.4.5. Conditioning.
- 3.4.6. Pelletizing.
- 3.4.7. Cooling.
- 3.4.8. Packaging.
- 3.4.9. Other Processes.
- 3.5. Milling and the Nutritional Consequences.
 - 3.5.1. Purpose of Milling
 - 3.5.2. Types of Mill
 - 3.5.3. Efficiency of Milling
 - 3.5.4. Importance of Particle Size
 - 3.5.5. Effects of Particle Size on the Zootechnical Performance of Birds and Pigs
- 3.6. Mixing, Uniformity and the Nutritional Consequences.
 - 3.6.1. Types of Mixers and Characteristics
 - 3.6.2. Stages in the Process of Mixing
 - 3.6.3. Importance of the Process of Mixing
 - 3.6.4. Coefficient Variation of Mixing and Methodology
 - 3.6.5. Effects of a Bad Mix on the Animal Performance
- 3.7. Pelletizing, Quality and the Nutritional Consequences.
 - 3.7.1. Purpose of Pelletizing
 - 3.7.2. Phases in the Process of Pelletizing
 - 3.7.3. Types of Pellets
 - 3.7.4. Factors which Affect and Benefit the Success of the Process
 - 3.7.5. Pellet Quality and Effects on the Zootechnical Performance
- 3.8. Other Machines and Equipment Used in the Balancing Industry.
 - 3.8.1. Sampling Probes
 - 3.8.2. Quarters.
 - 3.8.3. Moisture Meters
 - 3.8.4. Sieve.
 - 3.8.5. Densimetric tables.
 - 3.8.6. Hopper Scale.
 - 3.8.7. Mill Batchers
 - 3.8.8. Post-pellets Applications
 - 3.8.9. Monitoring Systems.
- 3.9. Forms and Types of Feed Offered by Balanced Feed Plants.
 - 3.9.1. Flour Foods
 - 3.9.2. Peletized Foods.
 - 3.9.3. Extruded Food.
 - 3.9.4. Wet Food.
- 3.10. Control Quality Control and Critical Points Control.
 - 3.10.1. Quality Administration in the Plant
 - 3.10.2. Good Practices in Food Production
 - 3.10.3. Quality Control of Raw Materials
 - 3.10.4. Production Process and Finished Product
 - 3.10.5. Hazard Analysis and Critical Control Points (HACCP)



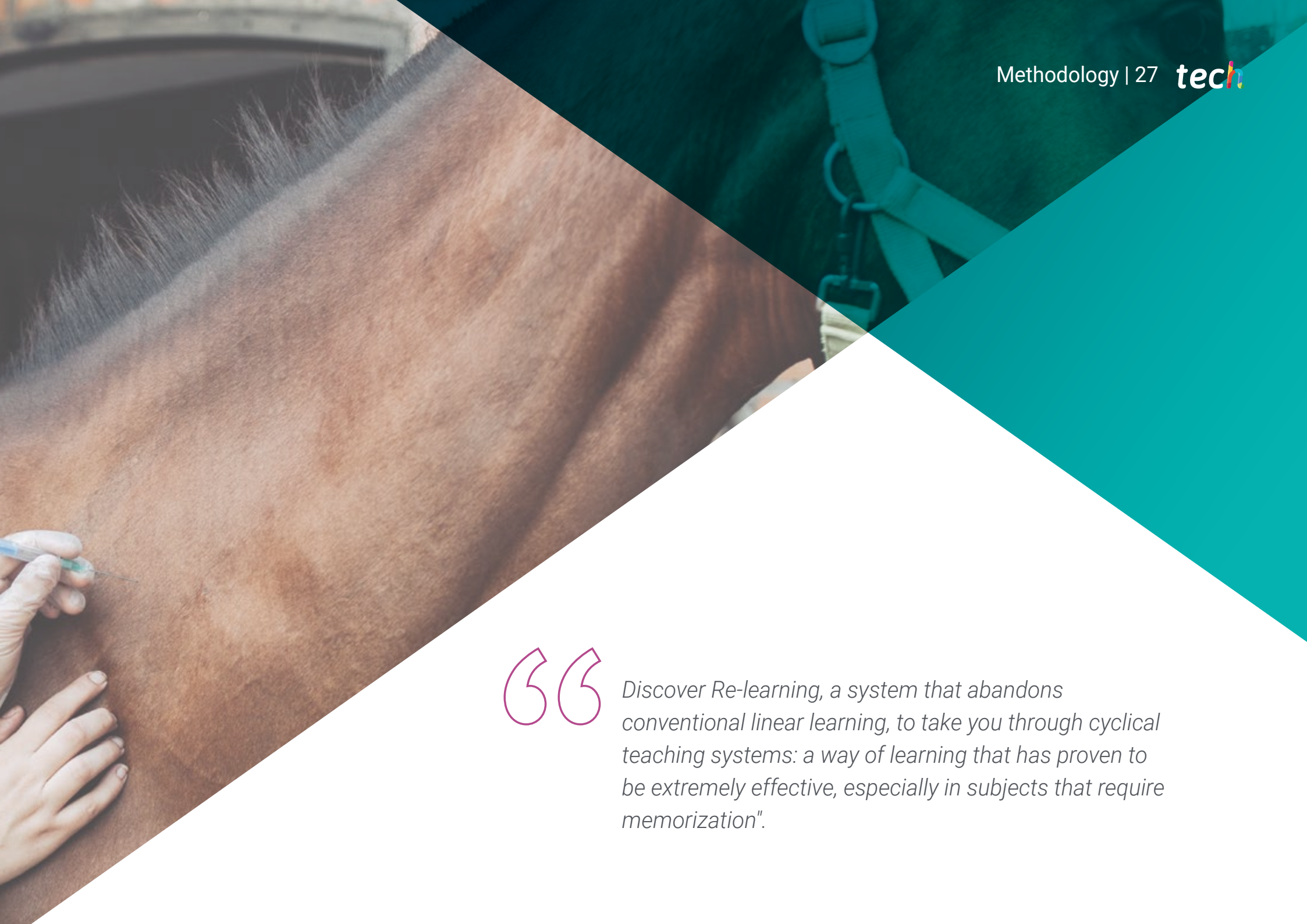
05

Methodology

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

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





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

At TECH we use the Case Method

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

With TECH you can experience a way of learning that is shaking the foundations of traditional universities around the world.



According to Dr. Gervas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching potential or because of its uniqueness or rarity. It is essential that the case be based on current professional life, trying to recreate the real conditions in the 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 achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.
2. The learning process has a clear focus on practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. 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.



Re-Learning Methodology

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

Our University is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.



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

With this Methodology we have trained more than 65,000 veterinarians with unprecedented success, in all clinical specialties regardless of the Surgical Load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

In our program, learning is not a linear process, but rather a spiral (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by our learning system is 8.01, according to the highest international standards.



In this program you will have access to the best educational material, prepared with you in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

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



Latest Techniques and Procedures on Video

We bring you closer to the latest Techniques, to the latest Educational Advances, to the forefront of current Veterinary Techniques and Procedures. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

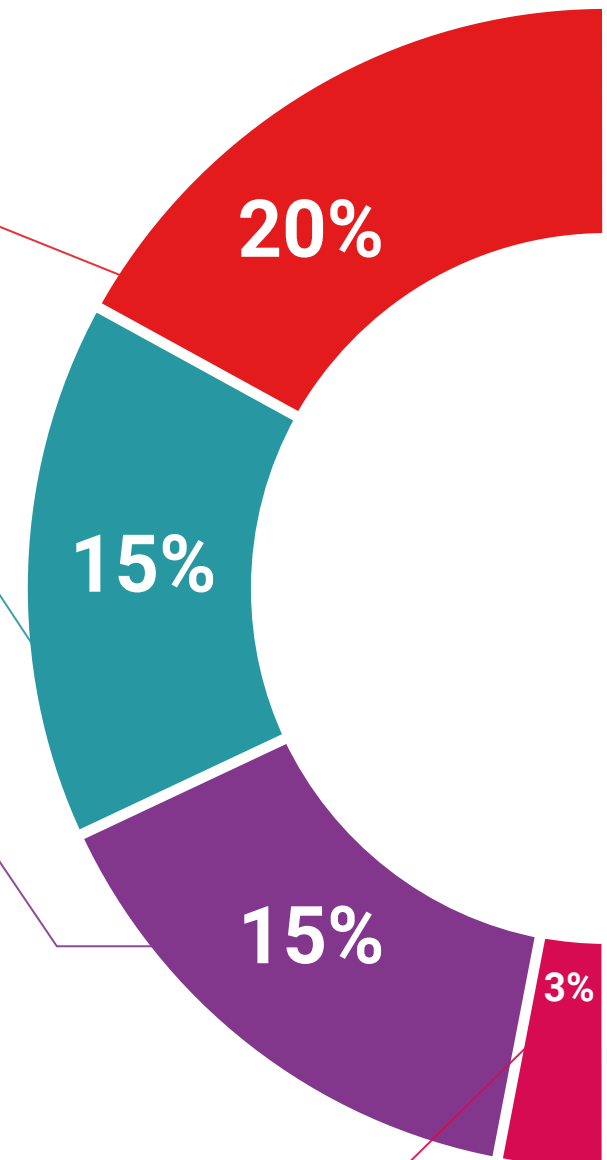
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.





Expert-Led Case Studies and Case Analysis

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



Testing & Re-testing

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



Classes

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

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



Quick Action Guides

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



06

Certificate

Through a different and stimulating learning experience, you will be able to acquire the necessary skills to take a big step in your training. An opportunity to progress, with the support and monitoring of a modern and specialized university, which will propel you to another professional level.



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Include in your training a Postgraduate Diploma in Feed Manufacturing: a highly qualified added value for any professional in this area".

This program will allow you to obtain your **Postgraduate Diploma in Balanced Feed Manufacturing** 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 Balanced Feed Manufacturing**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**



*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

future

health

confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

tech global
university

personalized service innovation

knowledge present Manufacturing

online training

development language

virtual classroom

Postgraduate Diploma
Balanced Feed
Manufacturing

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

Postgraduate Diploma Balanced Feed Manufacturing

